

Personality traits as predictors of jealousy in romantic relationships; the mediating effect of self-esteem

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ABSTRACT

This study puts forth the dynamic relationship between Personality traits of Neuroticism, extraversion, and psychoticism on romantic jealousy, while closely examining the mediating role of self-esteem between the two. It also stipulates the correlational and predictive quality of the three variables. Romantic Jealousy is examined overall as well as in its three facets- Cognitive, Behavioral and Emotional. Participants consisted of a convenience sample of 136 individuals aged from 18 to 32 years ($M = 22.61$, $SD = 2.84$) and included 44 men and 92 women who were in a relationship in the past or present. Measures included brief demographic and relationship details, The Multidimensional Jealousy Scale ((Pfeiffer & Wong, 1989), the Rosenberg Self Esteem scale (Rosenberg, 1965) and the Eysenck Personality Questionnaire (Eysenck et. al., 1985). Results using SPSS found a negative correlation between self-esteem and romantic jealousy, a positive correlation between neuroticism and romantic jealousy. A negative correlation between extraversion and romantic jealousy. There was non-significant correlation between psychoticism and romantic jealousy. Personality traits of neuroticism and extraversion were significant predictors of self-esteem. Self Esteem was a significant predictor of romantic jealousy. The psychoticism dimension using EPQ might be insufficient in reflecting an accurate understanding of self-esteem and jealousy. Self-esteem partially mediated the relationship between total jealousy on one hand and personality traits of neuroticism and extraversion on the other. This study inhabits both theoretical and practical implications in understanding the dynamic nature of Romantic Jealousy.

Keywords: Neuroticism, Extraversion, Psychoticism, Self Esteem, Romantic Jealousy

INTRODUCTION

Freud reiterated that all individuals were jealous from experiences of negative childhood and feelings of jealousy cannot be avoided. It encompasses sorrow and hurt of losing someone who the individual has loved, and resentment and envy directed to a rival who has won and got what the desired individual. (Malakh - Pines, 1998) The definition provided by Freud encompasses grief and enmity whereas other researchers incorporate anger, fear, anxiety, guilt, revenge, sexual excitement, self-loathing, suspicion, mistrust, expectancy, stress, apprehension. (White & Mullen, 1989) Jealousy itself is a natural and shared emotion in life, occurring in presence of competition, threat, and defense. It is defined as an emotional reaction to social rejection. The fear of rejection and loss leads to protective behavior. If unable to protect from threats it may create an impact on their self-concept and happiness. Even damaging present or future romantic involvements. (DeSteno, Valdesolo & Barlett, 2006) A vast variety of distressing incidents have been linked with jealousy encompassing depression, suicidal ideation and attempts, wife beating, and marriage issues. (Aronson & Pines, 1980) Jealousy has been considered one of the most predominant and possibly destructive emotions in romantic relationships. (Bunk & Bringle 1987) And so, the study of jealousy inhabits vast implications.

A multidimensional model to jealousy was introduced by Buunk (1991, 1997) and White & Mullen (1989) highlighting three broad facets or presentations of jealousy: emotional, cognitive, and behavioral. Further Pffeiffer and Wong (1989) created the Multidimensional Jealousy Scale presenting results from three studies showing good internal reliability, clean factor structure and validity. They stated these facets as differing as emotional jealousy is a common reaction towards threat from rival to an intimate relationship, cognitive and behavioral jealousy could show pathology.

The most common notion of romantic jealousy is that it is mainly an emotional reaction. (Bringle & Williams, 1979) Majority of researchers believe it to be a combination of negative emotions rather than one. All such combinations can be labelled as 'jealousy'. The crucial condition is that the situation be perceived as threatening by the subject towards a valued romantic relationship. (Hupka, 1981). Emotional reactions in jealousy were broadened by White (1981) According to the conceptual analysis, jealousy is comprised of three factors: Thoughts, feelings, and coping behaviors. The cognitive factor arises when individuals become aware of threat to a valued romantic relationship. This realization is followed by negative emotions and individuals use coping strategies intended to tackle threat and lower emotionality. In doing so, White follows the position of Lazarus (1984) that cognitive appraisal elicits emotional responses which in turn generate coping behaviors.

Nadler & Dotan (1992) define romantic jealousy as linked with two distinctive threats, one being on current relationship and the thought of losing what they have. The other is on self-esteem, directed by partner picking someone better in their place, causing them to feel undesirable and unhappy. This can instill jealousy in present or future relationships. Individuals go through jealous feelings even without signs of threat in relationship caused by low self-esteem.

The correlation between self-esteem and jealousy has been studied in the past. Sharpsteen (1995) found that change in threat to self-esteem and threat to relationships from low to high influenced changes in jealousy and its following emotions. However, proximity seeking behavior in men increased only when there was a threat to the relationship and in women only when any one type of threat increased, rather than all threats increasing simultaneously. Stieger et al. (2012) differentiated between implicit and explicit self-esteem on romantic jealousy. Women with low implicit self-esteem (i.e., automatic) had higher romantic jealousy and men with lower explicit self-esteem (i.e., conscious, habitual) had higher romantic jealousy. This indicates discrepancies in self-esteem itself. Klosterman (2012) found significant connections between self-esteem and relationship fulfilment. Looking at the long-term effects of self-esteem and romantic relationships. Luciano et al (2017) conducted a longitudinal German study, dependent on four evaluations across a three-year time span. Utilizing coordinated populations, the outcome indicated that starting a relationship heightened self-esteem and the increase stayed when the relationship lasted for one year minimum. Encountering a breakup, reduced self-confidence, yet the impact vanished following one year,

To study whether individual experience of romantic jealousy identify with individual differences in personality, Wade and Walch utilized the big five model of personality. The theory proposing that Neuroticism, Extraversion and Openness to Experience may be indicators of jealousy were not identified. Whereas Gehl, Brian Kenneth (2010) found personality factors as having significant and important relations

with jealousy experience and expression. Most of the personality factors contained negative emotionality at their center. It has been seen that people who incorporate integrative communicating style or express negative affect are more satisfied in relationships than distancing or having distributive communication patterns. (Anderson, 2009) Individuals with anxiety experienced elevated levels of behavioral and cognitive jealousy when recording lower levels of trust. Recommending that people anxiously attached are bound to get jealous, sneak through partners possessions and become mentally abusive. (Rodriguez et al., 2015) Dijkstra & Barelds (2008) found self-reported levels of neuroticism and extraversion to be associated with jealousy. If an individual's personality is prone to jealousy i.e., having low self-esteem and high neuroticism, the probability of perceiving themselves as jealous is higher. More fear and shortcomings are brought into a relationship with neurotic and low self-esteem people. (Melamed, 1991, Buunk 1997, Xiaojun, 2002.) Further, Tarrier, Becket, Harwood, Ahmed, 1989 found that extremely jealous individuals were notably higher in introversion, neuroticism, and psychoticism than normal. With regards to psychoticism, individuals with pathological jealousy possess higher levels of jealousy and can pose harm to themselves, partners, and the perceived threat. (Costa, Sophia, Sanches, Tavares, Zilberman 2015, Seeman, 2016)

Literature on self-esteem and personality shows people with strong self-esteem are stable in emotions, extraverted, conscientious, open to experience and agreeable. Whereas neuroticism is negatively associated with self-esteem. (Robins, Trzesniewski, Potter and gosling, 2001, Amirazodi, F. & Amirazodi, M., 2011, Skorek, Song & Dunham, 2014, Varanarasama, 2018, Yao, 2020)

The present study

The present study aims to understand the association between personality traits and romantic jealousy with self-esteem as the mediating variable. Past literature has found that self-esteem and jealousy have significant links. Individuals possessing higher self-esteem may have lower levels of jealousy. However, the link between personality traits and jealousy seems to be mediated by the role of self-esteem. (Melamed, 1991, Buunk 1997, Xiaojun, 2002, Dijkstra & Barelds 2008). Literature shows the role of self-esteem and personality variably impacts the dynamic nature of romantic jealousy. Through this understanding it can be hypothesized that, self-esteem and personality are significant associated with romantic jealousy. (Hypothesis 1). Further, self-esteem and personality traits will be notable predictors of romantic jealousy. (Hypothesis 2) And the association between romantic jealousy and personality traits of neuroticism, extroversion and psychoticism are partially mediated by self-esteem. (Hypothesis 3).

METHODOLOGY

Sample

The design of the current study is descriptive, non-experimental and quantitative. Data was gathered to understand the correlational and predictive value among the variables within the mediational model. Tools employed consisted of self-report question booklets to measure romantic jealousy, self-esteem and personality trait. Data were obtained from 136 participants, selected through convenience sampling. Eligibility criteria for participants was provided. This included being a committed relationship in the past or

present, falling within the age range of eighteen to thrifty two years, comfortable with English language, and a resident of India. Sixty eight percent of these were Female and thirty two percent were male participants. The participants were aged from 18 to 32 years, and their mean age was 22 years (SD=2.85). Exactly half of the participants were currently dating, forty seven percent were currently single, two percent of the participants were either engaged or married. Forty seven percent of the participants had been in a relationship for more than two years, eighteen percent of the participants had been in a relationship for one to two years, sixteen percent of the participants had been in a relationship for six to twelve months and nineteen percent of the participants had been in a relationship for one to six months. Eighty seven percent of the participants believed they were in a committed relationship; Seven percent were unsure if they were in a committed relationship and six percent did not believe they were in a committed relationship. Majority of the participants were from metropolitan cities of India including Delhi, Bombay, Bangalore, and Punjab. Data was collected for a period of 2 months. The questionnaire booklet consisted of three questionnaires: Multidimensional Jealousy Scale (Pfeiffer & Wong, 1989), Rosenberg Self-Esteem Scale (Rosenberg, 1965) and Eysenck Personality Questionnaire Revised– Short Form (Eysenck et al., 1985).

Materials used/ tools of the study

Jealousy Scale

The multidimensional Jealousy Scale (Pfeiffer & Wong, 1989) was used to measure Emotional, Cognitive, Behavioural as well as Overall Jealousy. Each of the three scales of this questionnaire has eight items. A seven-point rating scale was utilised for all items- responses ranged from 1 –very pleased to 7 –very upset, in the emotional jealousy scale. Responses ranged from 1– never to 7- all the time, for the cognitive and behavioural jealousy scales. Higher scores in the relevant scales signify higher level of jealousy. Cronbach alphas of 0.92, 0.85, and 0.89 for cognitive, emotional and behavioural components were reported by Pfeiffer and Wong. Further, scales notably correlated with White’s relationship Jealousy Scale (White, 1981c), adding to concurrent validity.

Self –Esteem Scale

The ‘Rosenberg Self Esteem Scale’ (Rosenberg, 1965) was used to assess self-esteem. It is a ten-item scale measuring a global self-worth by analysing positive as well as negative feelings towards oneself. The scale is considered as unidimensional. It has a four-point Likert scale ranging from strongly agree to strongly disagree. Higher the score in scale signifies higher levels of self-esteem. High test-retest reliability (.92) and overall reliability (.72) was established by Rosenberg. Following research also provided support to good reliability and validity of test. (Bleiler et al., 2001)

Personality Trait Scale

Eysenck Personality Questionnaire Revised – Short Form (Eysenck et al., 1985) was utilised to study personality traits. It has 48 items and 4 subscales: neuroticism (12 items), extraversion (12 items), psychoticism (12 items) and lie (12 items). The lie subscale is a control scale which is used to assess social desirability bias in the whole scale. Reliabilities for males (0.84) females (0.80) for Neuroticism, (0.88) males and (0.84) females for extraversion, (0.62) Males and (0.61) females for psychoticism and (0.77) Males and (0.73) females for lie scale (Eysenck et al., 1985)

Procedure

The questionnaire booklet was processed and put online through Google Forms and sent to participants electronically through WhatsApp, Instagram, Facebook. As part of the introduction of survey, all participants were notified that information will be kept confidential, anonymity will be maintained and the research is being conducted for academic purposes only. Eligibility criteria was provided. Data analysis was done by transferring all responses to Microsoft excel, responses were provided a raw score. The raw scores were then put in SPSS to calculate results. In SPSS, the descriptive statistics, correlational values, Regression analysis were obtained.

RESULT

To study the hypothesis, we examined whether the concepts of self-esteem, neuroticism, extraversion, and psychoticism were associated with romantic jealousy. (Overall and dimensionally). To this aim we conducted a correlational and regression analysis. In the second step we studied whether the relationship between personality traits and jealousy were partially mediated by the role of self-esteem through path analysis.

Correlational analysis of personality traits and self-esteem on romantic jealousy

Table 1 revealed that Cognitive Jealousy has significant negative correlation with Self Esteem ($r = -.38$, $p < 0.01$) A positive correlation with Neuroticism ($r = .16$, $p < 0.05$). No significant correlation was found of Cognitive Jealousy with Extraversion and Psychoticism. No significant correlations were found among Emotional Jealousy and Self-Esteem, Neuroticism, Extraversion and Psychoticism. Behavioral Jealousy has significant negative correlation with Self Esteem ($r = -.33$, $p < 0.01$), and a positive correlation between Behavioral Jealousy and Psychoticism ($r = .21$, $p < 0.05$). There was no significant correlation found of Behavioral Jealousy with Neuroticism and Extraversion. Total Jealousy has significant negative correlation with Self Esteem ($r = -.34$, $p < 0.01$), a positive correlation with Neuroticism ($r = .22$, $p < 0.05$) and a negative correlation with Extraversion ($r = -.18$, $p < 0.05$). There was no significant correlation found between Total Jealousy and Psychoticism. A significantly negative correlation between Self Esteem and Neuroticism ($r = -.37$, $p < 0.01$), a significant positive correlation between self Esteem and Extraversion. A significant negative correlation between neuroticism and extraversion ($r = -.29$, $p < 0.01$) and Psychoticism has significant positive correlation with Cognitive Jealousy ($r = .18$, $p < 0.05$).

Table 1: Descriptive and Correlational Matrix

Measure	M	SD	1	2	3	4	5	6	7
1.Cognitive Jealousy	17.61	8.49							
2.Emotional Jealousy	39.44	8.56							
3.Behavioural Jealousy	16.42	8.99							
4.Total Jealousy	73.49	18.71							
5.Self-Esteem	30.13	4.64	-.38**	-0.02	-.33**	-.34**			
6.Neuroticism	7.17	2.93	.16*	0.14	0.15	.21*	-.37*		
7.Extraversion	8.3	3.45	-0.16	-0.11	-1.7*	.31**	1.29**		
8.Psychoticism	3.59	1.77	0.03	0.00	.21*	0.12	-0.01	-0.16	.18*

** $p < 0.01$ (2 tailed); * $p < 0.05$; N=136

Regression analysis of self esteem and personality traits as predictors of romantic jealousy

Table 2 shows the impact of Self-Esteem, Neuroticism, Extraversion and Psychoticism on total Romantic Jealousy. The R2 value of .15 revealed that the predictors explained 15% variance in the outcome variable with $F(4,131) = 5.89, p < .001$. The findings revealed that Self-Esteem negatively predicted overall jealousy ($\beta = -.26, p < .001$). However, Findings revealed that Neuroticism, Extraversion and Psychoticism has non-significant effect on total Romantic Jealousy ($\beta = .11, p > 0.5$), ($\beta = -.08, p > 0.5$), ($\beta = .15, p > 0.5$) respectively.

Table 2: Regression coefficients of Self Esteem, Neuroticism, Extraversion and Psychoticism with Overall Jealousy

Variable	β	SE	t	p	95%CI
Constant	99.04	13.59	7.28	0.000	[72.15, 125.92]
Self-Esteem	-1.08	0.36	-2.99	0.003	[-1.30,-.36]
Neuroticism	0.74	0.57	1.30	0.19	[-3.8,1.87]
Extraversion	-0.48	0.47	-1.01	0.31	[-1.42,456]
Psychoticism	1.61	0.87	1.84	0.06	[-.11,3.34]

Note: CI= Class Interval

Regression analysis of personality traits as predictors of self esteem

Table 3 shows the impact of neuroticism, extraversion, and psychoticism on self-esteem. The R2 value of .198 revealed that the predictors explained 20% variance in the outcome variable with $F(3,132)=10.86, p < .001$. The findings revealed that neuroticism negatively predicts self-esteem ($\beta = 0.32, p < .001$) and extraversion positively predicts self-esteem. ($\beta = .24, p < .05$) whereas psychoticism has non-significant effect on self-esteem. ($\beta = -.11, p > .05$)

Table 3: Regression coefficients of neuroticism, extraversion, and psychoticism on self esteem

Variable	β	SE	t	p	95%CI
Constant	32.18	1.68	19.13	<.001	[28.
Neuroticism	-.051	0.13	-3.93	<.001	[-.76,.25]
Extraversion	0.32	0.11	2.9	0.004	[.10,.54]
Psychoticism	-0.29	0.2	-1.4	0.162	[-.70, .11]

Note: CI= Class Interval

Path Analysis

The table shows the indirect effects of self-esteem on total jealousy. Partial mediation occurs when both the direct effect of variable x on z and its indirect effect through variable Y are significant (Preacher & Hayes, 2008). The results indicate that self-esteem partially mediated the relationship between total jealousy on one hand and personality traits of neuroticism ($b = .005, p < 0.05$), extraversion ($b = .01, p < 0.05$) on the other. There was a nonsignificant role of self-esteem as a mediator between psychoticism

and total jealousy. ($b=.06, p>0.05$). There were no significant direct effects of Neuroticism ($b=.14, p>0.05$), Extraversion ($b=.27, p>0.05$) and Psychoticism ($b=.06, p>0.05$) on Romantic Jealousy.

Path Analysis: Mediating role of self-esteem in the relationship between personality traits and romantic jealousy

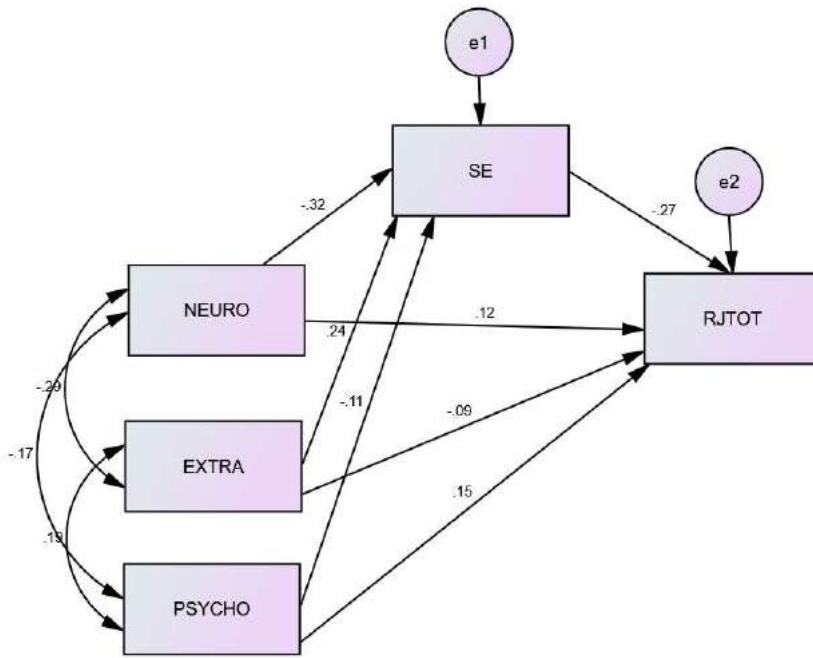


Table 4: Standardized Indirect Effects

	PSYCHO	EXTRA	NEURO	SE
SE	.000	.000	.000	.000
RJTOT	.030	-.065	.087	.000
p- Value	.067	.010	.005	

The table shows the direct effects of self-esteem on total jealousy. The results indicate that self-esteem partially mediated the relationship between total jealousy on one hand and personality traits of neuroticism ($b = .005, p<0.05$), extraversion ($b= .01, p<0.05$) on the other. There was a nonsignificant role of self-esteem on psychoticism. ($b=.06, p>0.05$)

Table 5: Standardized Direct Effects

	PSYCHO	EXTRA	NEURO	SE
SE	-.112	.240	-.323	.000
RJTOT	.154	-.089	.117	-.269
p-Value	.063	.278	.142	.009

Table 6: Standardized Total Effects

	PSYCHO	EXTRA	NEURO	SE
SE	-.112	.240	-.323	.000
RJTOT	.184	-.154	.204	-.269
p-value	.039	.069	.015	.009

DISCUSSION

There was a significant negative correlation between self-esteem and overall romantic jealousy, falling in line with previous research done on these two variables. There was a significant negative correlation between Cognitive Jealousy with Self Esteem ($r=-.38$, $p<0.01$), and Behavioural Jealousy with Self - Esteem ($r=-.33$, $p<0.01$). There was no significant correlation between Emotional Jealousy and Self Esteem. It can be inferred that the link between self-esteem and jealousy is dependent on the kind of jealousy experienced.

There was a positive correlation between neuroticism and overall romantic jealousy. The current data adds to previous research on jealousy and personality. Malemed (1991) stated personality traits related to self-esteem and neuroticism had a notable impact on romantic jealousy, however, it was arbitrated by the duration and status of the relationship. Further, while there was a negative correlation between Cognitive jealousy and Neuroticism, the facets of emotional and behavioral jealousy showed non-significant correlation with neuroticism. This indicates that while overall jealousy might have a notable correlation with jealousy, when studied independently, it's facets may not be significantly associated.

Results supported the hypothesis that those who possess a more extraverted personality trait will have lower levels of Romantic Jealousy. However, there was no correlational significance found between the facets of Romantic Jealousy with Extraversion. While there was a positive correlation between behavioural jealousy and Psychoticism, the other facets –Cognitive and Emotional Jealousy showed no significance with psychoticism.

There was non-significant correlation between total jealousy and psychoticism. Earlier literature on psychopathy provide evidence that individuals measuring high in primary or secondary psychopathy characteristics react differently to jealousy arousing situations. Primary psychopathy envisaged emotional jealousy, inducing jealousy to gather control or get revenge on partner. Secondary psychopathy envisaged experience of suspicious and emotional jealousy as well as induction of jealousy to test relationship, get control and increase self-esteem. (Massar et al, 2017). The sample was not catered to those with underlying psychopathy or psychotic symptoms. The scale to measure psychoticism in the current research –Eysenck's Personality Questionnaire Revised- Short Form showed that the P scale exhibited poor reliability with a limited range of scores and strong positive skewness (Colledani et. al., 2018) This may have impacted the result of the study.

Personality traits of neuroticism and extraversion were also significantly correlated with self-esteem. Self-esteem was a significant predictor of romantic jealousy. Whereas neuroticism, extraversion and psychoticism did not significantly predict Romantic Jealousy. This may be because factors relating to relationship seem to be higher in importance than those relating to personality (Mathes and Savera, 1981). However, neuroticism (-) and extraversion (+) were significant predictors of self-esteem.

Path analysis found that there was a significant mediating role of self-esteem in the relationship between personality traits of neuroticism and extraversion and romantic jealousy while there were no direct effects of personality traits on romantic jealousy. Thus, it can be said that individuals high in neuroticism and low in extraversion tend to have lower self-esteem which in turn affects jealousy levels. Lending further evidence into the role of self-esteem as a partial mediator between the two variables.

Conclusion and future implications

The results add to our understanding of romantic jealousy by analysing it with self-esteem and personality. The study found negative correlation between self-esteem and romantic jealousy, a positive correlation between neuroticism and romantic jealousy. A negative correlation between extraversion and romantic jealousy. There was non-significant correlation between psychoticism and romantic jealousy. Personality traits of neuroticism and extraversion were significant predictors of self-esteem. Self Esteem was a significant predictor of romantic jealousy. The psychoticism dimension using EPQ might be insufficient in reflecting an accurate understanding of self-esteem and jealousy. Self-esteem partially mediated the relationship between total jealousy on one hand and personality traits of neuroticism and extraversion on the other hand. The study inhabits both theoretical and practical implications. The results aid to the existing literature on the romantic jealousy and its dynamic nature. Further probing should be done to examine the role of self-esteem as a mediator between personality traits and romantic jealousy. The role of self-esteem in igniting romantic jealousy in more neurotic, introverted and psychotic individuals can be studied in the clinical set up, to facilitate growth and change.

Conflict of interests

I, Ashna Agarwal, declare that no competing interests exist in the research paper titled- Personality Traits as predictors of Romantic Jealousy, the mediating effect of self-esteem

Author's contributions

The theoretical development, analysis, interpretation and writing of the manuscript was conducted by Ms. Ashna Agarwal under the guidance of Dr. Seema Singh

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REFERENCES

- Amirazodi, Fatemeh & Amirazodi, Maryam. (2011). Personality traits and Self-esteem. *Procedia - Social and Behavioral Sciences*. 29. 713-716. 10.1016/j.sbspro.2011.11.296.
- Anderson, P. A., Eloy, S. V., Guerrero, L. K., & Spitzberg, B. H. (1995). Romantic jealousy and relational satisfaction: A look at the impact of jealousy experience and expression. *Communication Reports*, 8, 77-85
- Bringle R G, Buunk B (1985) Jealousy ans social behaviour: A review of person, relationship, and situational determinants. P. Shaver (Ed) *Review of Personality and Social Psychology*, 6 (s. 241-264). Beverly Hills, CA: Sage.

- Bringle R G, Williams L. J. (1979) Parental off-spring similarity on jealousy and related personality dimensions. *Motivation and Emotion*, 3: 265-286.
- Buunk, B.P. (1997). Personality, birth order and attachment styles as related to various types of jealousy. *Personality and Individual Differences*, 23, 997-1006.
- Colledani, Daiana; Anselmi, Pasquale; Robusto, Egidio (2018). *Using Item Response Theory for the Development of a New Short Form of the Eysenck Personality Questionnaire-Revised*. *Frontiers in Psychology*, 9(), 1834–. doi:10.3389/fpsyg.2018.01834
- Costa, Andrea Lorenada; Sophia, Eglacy C.; Sanches, Cintia; Tavares, Hermano; Zilberman, Monica L. (2015). *Pathological jealousy: Romantic relationship characteristics, emotional and personality aspects, and social adjustment*. *Journal of Affective Disorders*, 174(), 38–44. doi:10.1016/j.jad.2014.11.017
- DeSteno, D., Valdesolo, P., & Bartlett, M. Y. (2006). Jealousy and the threatened self: Getting to the heart of the green-eyed monster. *Journal Of Personality And Social Psychology*, 91(4), 626-641. doi:10.1037/0022-3514.91.4.626
- Dijkstra, Pieterneel & Barelds, Dick. (2008). Self and partner personality and responses to relationship threats. *Journal of Research in Personality*. 42. 1500-1511. 10.1016/j.jrp.2008.06.008.
- Gehl, Brian Kenneth. (2010) "Personality antecedents of the experience and expression of romantic jealousy." PhD (Doctor of Philosophy) thesis, University of Iowa.
- Hupka R B (1981) Cultural determinants of jealousy. *Alternative Lifestyles*, 4: 310-356.
- Jordan C.H. (2020) Rosenberg Self-Esteem Scale. In: Zeigler-Hill V., Shackelford T.K. (eds) *Encyclopedia of Personality and Individual Differences*. Springer, Cham. https://doi.org/10.1007/978-3-319-24612-3_1155
- Klosterman, Miranda (2012) "Self-Esteem and Relationship Perception," *Ursidae: The Undergraduate Research Journal at the University of Northern Colorado*: Vol. 2 : No. 2 , Article 7.
- Luciano, Eva & Orth, Ulrich. (2017). Transitions in Romantic Relationships and Development of Self-Esteem. *Journal of Personality and Social Psychology*. 112. 307-328. 10.1037/pspp0000109.
- Malakh-Pines, A. (1998). *Romantic jealousy: Causes, symptoms, cures*. New York: Routledge
- Massar, K., Winters, C. L., Lenz, S., & Jonason, P. K. (2017). Green-eyed snakes: The associations between psychopathy, jealousy, and jealousy induction. *Personality and Individual Differences*, 115, 164–168. <https://doi.org/10.1016/j.paid.2016.01.055>
- Mathes, E. W. (1986). Jealousy and Romantic Love: A Longitudinal Study. *Psychological Reports*, 58(3), 885–886. <https://doi.org/10.2466/pr0.1986.58.3.885>
- Melamed, T. (1991). Individual differences in romantic jealousy: The moderating effect of relationship characteristics. *European Journal Of Social Psychology*, 21(5), 455-461.
- Mullen, P. E., & Martin, J. (1994). Jealousy: A community study. *British Journal of Psychiatry*, 164(1), 35-43. <https://doi.org/10.1192/bjp.164.1.35>
- Nadler, A., & Dotan, I. (1992). Commitment and Rival Attractiveness: Their Effects on Male and Female Reactions to Jealousy-Arousing Situations. *Sex Roles*, 26(7/8), 293-310.
- Pfeiffer, Susan & Wong, Paul. (1989). Multidimensional Jealousy. *Journal of Social and Personal Relationships - J SOC PERSON RELAT*. 6. 181-196. 10.1177/026540758900600203.

- Pines A, Aronson E (1983) Antecedents, correlates and consequences of sexual jealousy. *Journal of Personality*, 51: 108- 136.
- Robins, R. W., Tracy, J. L., Trzesniewski, K., Potter, J., & Gosling, S. D. (2001). Personality correlates of self-esteem. *Journal of Research in Personality*, 35(4), 463–482. <https://doi.org/10.1006/jrpe.2001.2324>
- Rodriguez, L. M., DiBello, A. M., Øverup, C. S., & Neighbors, C. (2015). The Price of Distrust: Trust, Anxious Attachment, Jealousy, and Partner Abuse. *Partner abuse*, 6(3), 298–319. <https://doi.org/10.1891/1946-6560.6.3.298>
- Seeman, Mary V. (2016). *Pathological Jealousy: An Interactive Condition*. *Psychiatry*, 79(4), 379–388. doi:10.1080/00332747.2016.1175838
- Sharpsteen DJ. The Effects of Relationship and Self-Esteem Threats on the Likelihood of Romantic Jealousy. *Journal of Social and Personal Relationships*. 1995;12(1):89-101. doi:10.1177/0265407595121006
- Skorek, Małgorzata & Song, Anna & Dunham, Yarrow. (2014). Self-Esteem as a Mediator between Personality Traits and Body Esteem: Path Analyses across Gender and Race/Ethnicity. *PloS one*. 9. e112086. 10.1371/journal.pone.0112086.
- Stieger, Stefan & Preyss, Anna & Voracek, Martin. (2012). Romantic jealousy and implicit and explicit self-esteem. *Personality and Individual Differences*. 52. 51–55. 10.1016/j.paid.2011.08.028.
- Tarrier, N., Becket, R., Harwood, S., & Ahmed, Y. (1989). Comparison of a morbidly jealous and a normal female population on the Eysenck Personality Questionnaire (EPQ). *Personality and Individual Differences*, 10, 1327-1328.
- Tiwari, T., Singh, A. L., & Singh, I. L. (2009). The short-form revised Eysenck personality questionnaire: A Hindi edition (EPQRS-H). *Industrial psychiatry journal*, 18(1), 27–31. <https://doi.org/10.4103/0972-6748.57854>
- Varanarasama, Eswari & Singh, Avani & Muthu, Kavitha. (2019). The Relationship between Personality and Self-Esteem towards University Students in Malaysia. 10.2991/acpch-18.2019.97.
- Wade, T Joel & Walsh, Hannah. (2008). Does the Big-5 relate to jealousy, or infidelity reactions?. *Journal of Social Evolutionary and Cultural Psychology*. 2. 133-143. 10.1037/h0099349.
- White G L (1981a) Relative involvement, inadequacy, and jealousy: A test of a causal model. *Alternative Lifestyles*, 4: 291-309.
- White G L (1981b) A model of romantic jealousy. *Motivation and Emotion*, 5: 295-310.
- White, G. L. (1981). Some correlates of romantic jealousy. *Journal Of Personality*, 49(2), 129. doi:10.1111/1467-6494.ep7383249
- Xiaojun, W. (2002). Relationship between jealousy and personality. *Acta Psychologica Sinica*, 34(2), 175-182
- Yao, Z. (2020). The Relationship between Neuroticism and Self-Esteem. *The Frontiers of Society, Science and Technology*, 2(126063). <https://doi.org/10.25236/FSST.2020.021210>

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A study on influence of fluid intelligence, need for cognition, and temperament on academic achievement of higher secondary students

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ABSTRACT

This study aimed to explore the impact of the need for cognition, temperament, and fluid intelligence on students' academic achievement. The study employed a survey method for data collection. The data, collected from 750 higher secondary students, was used to test the hypothesized research model using Structural Equation Modeling (SEM). The results of the structural analysis unveiled that students' temperament, need for cognition, and fluid intelligence positively and significantly influence their academic achievement. Also, temperament illustrated a highly significant influence on academic achievement followed by fluid intelligence and the need for cognition in this study using the structural equation model.

Keywords: Temperament, Fluid intelligence, Need for cognition (NFC), Structural Equation Modeling (SEM), Academic achievement.

INTRODUCTION

The academic achievement of students is considered as the output of the educational process globally. Apart from students, their parents, teachers, and institution where they study expect them to excel in their scholastic endeavors. Moreover, it is essential to measure the educational achievement of students to provide efficacious education. The periodic evaluation of students' performance can aid the educators in better understanding how successful their efforts have been and deciding whether to continue or implement some changes in the educational programs (Kpolovie, 2017). Studies in various social and economic contexts, educational conditions, and age ranges have revealed fluid intelligence as one of the most significant predictors of individual academic achievements (Deary et al., 2007; Verbitskaya et al., 2020). Fluid intelligence is related to general intelligence (Kvist & Gustafsson, 2008). It is highlighted in the investment theory by Cattell (1987) that individuals invest their fluid intelligence (Gf) to acquire knowledge in fascinating areas.

Temperament is described as constitutionally based individual differences in reactivity and self-regulation (Rothbart & Bates, 1998). According to Rothbart and Derryberry (1981), the term constitutional refers to the biological bases of temperament, and it is the relatively enduring biological makeup of the individual, influenced over time by heredity, maturation, and experience. Although several models of temperament exist in the literature, for this study, Rothbart and colleagues' developmental model of temperament (Evans & Rothbart, 2007) was considered, and according to this model, there are four broader temperament dimensions such as effortful control, surgency, negative affectivity, and affiliativeness.

Effortful Control was the self-regulatory dimension, and further, the skills involved in effortful control are likely quite essential for learning and children's emerging adjustment and social competence. Surgency, Negative Affectivity and, Affiliativeness were reactive temperament dimensions. Moreover,

Putnam, Ellis, and Rothbart (2001) compared the temperamental structures of different age groups and found Effortful Control, Surgency, and Negative Affectivity were identified from infants to adolescents, and Affiliativeness was only identified in the adolescent group.

The need for cognition is a relatively stable individual difference. Cacioppo, Petty & Kao (1984) described the need for cognition (NFC) as “an individual’s tendency to engage in and enjoy effortful cognitive endeavors”. According to Zhang and Buda (1999), cognitive efforts by students were found to depend on their NFC. The literature suggests that individuals high in NFC recall learned information better than individuals low in NFC (Kardash & Noel 2000).

Studies related to fluid intelligence

Niazi et al. (2020) conducted a study to test the indirect effect of fluid intelligence on flourishing through academic performance. In this proposed study model, academic stress acts as a moderator. Results indicated a positive relationship between fluid intelligence and academic performance. Moreover, fluid intelligence leads to better academic performance when perceived stress is low. Mistry (2019) found a significant relationship between fluid intelligence and working memory with mathematics achievement. Also, fluid intelligence and working memory were both found to be significant predictors of academic achievement. Bakhiet et al. (2018) investigated the cognitive development of school students in the Cambodian capital city. In this study, cognitive test scores measured using Standard Progressive Matrices Plus showed a strong association with age, school grade, and the number of siblings. Malykh (2017) examined the interrelationship between the Big Five personality traits, non-verbal intelligence, and academic achievement and found a significant positive correlation between non-verbal intelligence and academic success. Further, structural equation modeling results revealed a significant contribution of non-verbal intelligence to academic achievement.

In several research studies, Advanced Progressive Matrices (APM; Raven, 1962) has been used to assess intelligence in predicting academic achievement (Di Fabio & Busoni, 2007; Laidra, Pullmann, & Allik, 2007). Many studies and meta-analyses showed a positive relationship between non-verbal intelligence assessed using Raven's Progressive Matrices and academic achievement. (Malykh, 2017; Verbitskaya et al., 2015). Further, the role of intelligence in predicting school achievement was significant (Deary et al., 2007; Di Fabio & Busoni, 2007; Ren et al., 2015).

Studies related to temperament

Clem et al. (2020) suggested that the knowledge about students' temperament might be helpful to teachers to support and improve students' learning and motivation. In a study designed by Hoffmann (2020) to determine the temperament interactions and their association with young adolescents' educational outcomes, effortful control, fear, and shyness were found to be associated with better educational outcomes and effortful control was found to be the significant predictor of educational outcomes. Lehtikoinen (2019) identified that students with low negative affectivity and high effortful control exhibited a lower level of negative emotions before and during the achievement situations whereas, students with a higher level of

surgency exhibited a lower level of negative emotions only before the achievement activities. Kornienko et al. (2018) studied the relationship of effortful control and its dimensions with personality, problem behavior, academic achievement, and subjective well-being through the structural equation modeling and found that higher effortful control was related to academic achievement. Congruence with this study results, Checa and Abundis-Gutierrez (2017) research findings explored the positive relationship of academic performance with Effortful control and negative relationship of academic performance negative affect.

Temperament contributes to the uniqueness of individuals. Earlier studies show that, some aspects of temperament are found to be associated with school success (Rueda et al., 2010; Checa and Rueda, 2011). Self-regulatory factor, Effortful control (EC), showed a significant correlation with academic achievement (Hoffmann, 2020; Kornienko et al., 2018). Although most temperament research has focused on children, the temperament remains related to adolescence and adulthood (Thomas & Chess, 1977). Empirical evidence of the association between temperament and academic achievement is limited (Zhou et al., 2010).

Studies related to need for cognition

Strobel et al. (2019) inferred that need for cognition and intelligence each predicted academic performance. In this study need for cognition moderated the relation between intelligence and grade point average showed the significance of considering need for cognition in the prediction of academic success. Grass et al. (2017) study also indicated the essential role of need for cognition in academic aspects. Akpur (2017) found a significant positive relationship was observed between students' level of need for cognition, metacognition, and their academic achievement. Luong et al. (2017) research findings revealed a positive correlation between need for cognition and behavioral correlates related to learning thus emphasizing the importance of NFC in educational contexts.

Individual differences in NFC are associated with course achievements (Sadowski and Gülgöz 1996; Grass et al., 2017). The participants who scored high on the need for cognition scale were more likely to perform better in academics than those with a low need for cognition (Sadowski & Gulgos, 1996). Moreover, these differences resulted from the increased elaboration of those with a high need for cognition.

Need for the study

One of the main aspects of education is academic achievement, as it is considered to be the indicator of student success. The children pursuing education are striving for excellence in academics. Especially the higher secondary students put much more effort into their studies. With this insight, this study was planned to investigate the factors that influence students' academic achievement. Earlier studies demonstrate that intelligence, personality, socio economic status and many other factors influence student's achievement. This study devised to focus the effect of intelligence and students' individual difference on academic achievement. The literature findings show that intelligence exhibit a low to moderate correlation with temperament (Guerin et al., 2003) and need for cognition (Hill et al., 2013). It is also evident from the literature review, many researchers examined the temperament of individuals in the early childhood stage (Li et al., 2009), and only a few studies focused on the temperament of individuals in the middle or late

childhood/adolescence stage (Bruni et al., 2006). And, so far there are no studies conducted in the Indian context to find the role of temperament, fluid intelligence, and need for cognition on the academic achievement of adolescents using the structural equation model analysis. Therefore, this study intended to examine the influence of students' temperament, need for cognition, and fluid intelligence on their academic achievement.

Objectives of the study

- To study the relationship among temperament, fluid intelligence, need for cognition and, academic achievement of students.
- To examine the influence temperament, fluid intelligence, need for cognition on academic achievement of students

Thus, the proposed hypothesized model for the study is as follows:

Hypothesis 1 (H1): There exists a significant relationship among temperament, fluid intelligence, need for cognition and, academic achievement of students.

Hypothesis 2 (H2): The hypothesized model has a good fit.

Hypothesis 3 (H3): Temperament significantly influences the academic achievement of students.

Hypothesis 4 (H4): Fluid intelligence significantly influences the academic achievement of students.

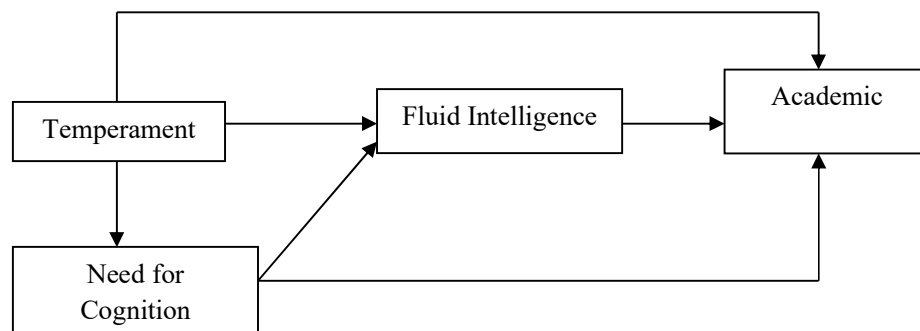
Hypothesis 5 (H5): Need for cognition significantly influences the academic achievement of students.

Hypothesis 6 (H6): Temperament significantly influences the need for cognition of students.

Hypothesis 7 (H7): Temperament significantly influences the fluid intelligence of students.

Hypothesis 8 (H8): Need for cognition significantly influences the fluid intelligence of students.

Proposed conceptual framework of the study is summarized in Figure 1



METHODOLOGY

Sample

The sampling method adopted for this study was the probability sampling method. The sample comprised nearly 764 higher secondary students studying in standard XI and XII from various state board schools in Chennai district through the stratified random sampling technique. Out of 764 samples, fourteen samples were rejected as it is incomplete. Thus, for this study, only 750 samples were considered. The data were collected from the students during January 2021. Table 1 shows the demographic characteristics of the sample.

Table 1 Demographic characteristics of the Sample.

Demographic variable		Frequency (f)	Percent (%)
Gender	Boys	417	55.6
	Girls	333	44.4
Medium	Tamil	374	49.9
	English	376	50.1
Type of Management of schools	Government	355	47.3
	Government Aided	185	24.7
	Self Finance	210	28.0
Number of Siblings	No Sibling	90	12.0
	One	472	62.9
	Two and above	188	25.1
Fathers Educational Qualification	Illiterate	51	6.8
	Upto/Below SSLC	276	36.8
	HSc	185	24.7
	Graduate	238	31.7
Fathers Educational Qualification	Illiterate	93	12.4
	Upto/Below SSLC	235	31.3
	HSc	164	21.9
	Graduate	258	34.4

Data collection procedure

In this study, data was gathered using the survey method. After obtaining permission from the head of the institution the survey was conducted. The data was collected from a group of students using the printed form of questionnaires. After sound instruction, set I of Raven's Advanced Progressive Matrices was administered. A break of five minutes before commencing set II was given in order to avoid monotony. The scores in set I were not used as this set is solely used to prepare the subjects for set II. After completing set II again, a break of ten minutes was given to the students. Following that with detailed instruction, the respondents answered the other measures considered in this study. Students filled the questionnaires without any fixed time limit. Also, the students were insisted on giving their responses to all the statements.

Tools used for the study

In order to study the variables chosen for the study, the following tools were administered to the students. In this study the Cronbach Alpha co-efficient was computed to establish the reliability of the tools and the intrinsic validity of the tools were established by taking the square root of the corresponding reliability coefficients.

Need for Cognition Scale

The 18-item short form of Need for Cognition Scale (NFCS) developed by Cacioppo et al. (1984) was used. The NFCS is a 5- point Likert scale, ranging from extremely uncharacteristic of me (1) to extremely characteristic of me (5). The maximum possible score is 90 and, the minimum score is 18. The reliability coefficient and intrinsic validity of the tool is 0.781 and 0.883

Advanced Progressive Matrices

Raven's Advanced Progressive Matrices developed by Raven, J.C., Court, J.H. and, Raven, J. (1998) was used. The APM consists of 48 items arranged in two sets (I & II), whereas set I consists of 12 items and set II consist of 36 items. Each correct response gets a score of 1, whereas an incorrect response gets a score of 0.

The total number of correct responses in set II is recorded as the raw score for an individual, and the maximum possible score is 36. The reliability coefficient and intrinsic validity of the tool is 0.795 and 0.891

Temperament scale

The investigator developed the temperament scale based on the developmental model of temperament (Evans & Rothbart, 2007). The statements of the temperament scale measure broader dimensions of temperament, namely, effortful control, negative affectivity, surgency and, affiliativeness. Respondents answered each statement using a 5-point Likert scale ranging from almost always untrue (1) to almost always true (5). The reliability coefficient and intrinsic validity of the tool is 0.881 and 0.938

DATA ANALYSIS AND INTERPRETATION

Statistical analysis was executed using the IBM SPSS statistics 25 and AMOS version 23 software in this study.

Hypothesis 1

Table 2: Summary of Pearson correlation analysis for the study variables.

Variables	1	2	3	4
1. Temperament	-			
2. Need for Cognition	.520**	-		
3. Fluid Intelligence	.322**	.378**	-	
4. Academic Achievement	.638**	.545**	.470**	-

** p<.01

Results in Table 2 show that the correlation coefficient between temperament and need for cognition is 0.520, which indicates $(0.520^2 = 0.2704)$, 27.04 percentage positive relationship between temperament and need for cognition. The correlation coefficient between temperament and fluid intelligence is 0.322, which indicates a 10.36 percentage positive relationship between temperament and fluid intelligence. The correlation coefficient between need for cognition and fluid intelligence is 0.378, which indicates a 14.28 percentage positive relationship between need for cognition and fluid intelligence. Thus, there exist a positive relationship among all the three independent variables chosen for the study and is significant at 1% level. Similarly, the correlation coefficient between temperament and academic achievement is 0.638, need for cognition, and academic achievement is 0.545, fluid intelligence and academic achievement is 0.470. It indicates that temperament, need for cognition and, fluid intelligence exhibits 40.70, 29.70, and 22.09 percentage positive relationship with academic achievement respectively and are significant at 1% level. Hence, the formulated hypothesis there exists a significant relationship among temperament, fluid intelligence, need for cognition and, academic achievement of students was accepted.

Structural Equation Modeling (SEM)

Structural Equation Modeling (SEM) is a group of statistical models that attempt to find out and elucidate the correlations among multiple variables (Hair et al., 2010). In this study, the structural model (Figure 2)

was used to examine and describe the influence of temperament, need for cognition and, fluid intelligence on the students' academic achievement.

Hypothesis 2:

Goodness of fit indices for the structural model

The assessment of the overall fit of the structural model was based on some indices which are generally used to measure a model's goodness-of-fit (Hair et al., 2010). Accordingly, the model fit was assessed based on the indices such as CFI (Comparative Fit Index), GFI (Goodness- of- Fit Index), NFI (Normed Fit Index), AGFI (Adjusted Goodness-of-Fit Index), RMSEA (Root Mean Square Error of Approximation), and SRMR (Standardized Root Mean Residual). The ratio of $\chi^2/df < 5.00$, the value of RMSEA less than .08 indicates an acceptable model fit (Hair et al., 2010). The value of GFI, AGFI, NFI, CFI greater than .90 and the value of SRMR less than .08 indicate a good model fit (Hu & Bentler, 1999).

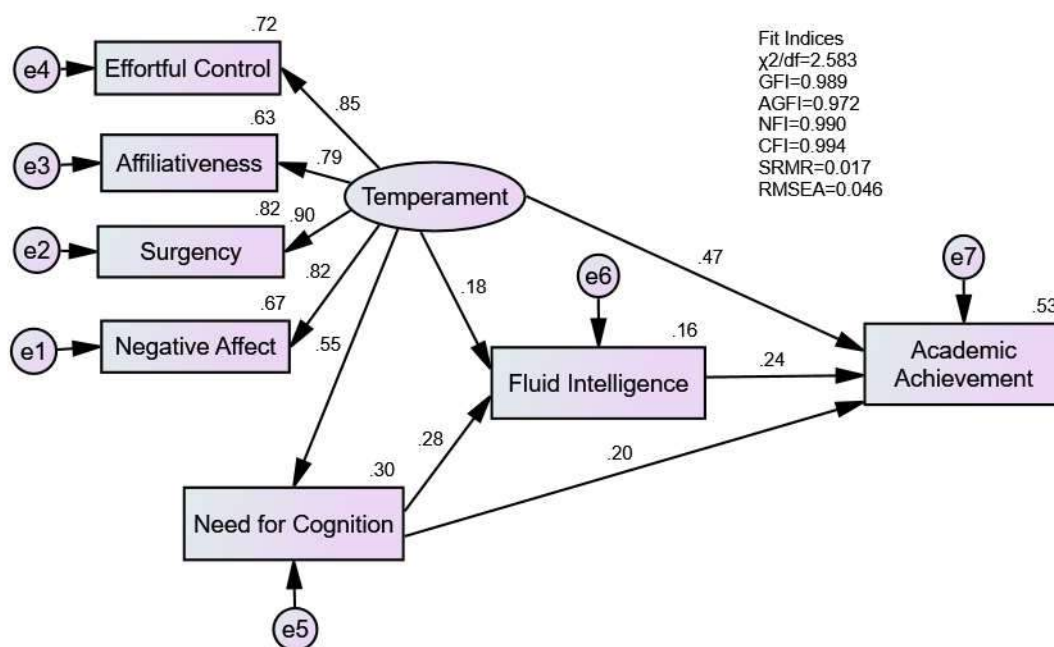


Figure 2: Structural Equation Model (SEM) based on Standardized Coefficient predicting academic achievement of students.

Table 3: Structural model fit values

Fit Indices	χ^2/df	GFI	AGFI	NFI	CFI	SRMR	RMSEA
Observed Value	2.583	0.989	0.972	0.990	0.994	0.017	0.046

It is evident from Table 3, the value of χ^2/df value = 2.583, and other combination of measures CFI = .994, SRMR = .017, RMSEA = .046, and P Close = .590 were found to be within recommended range, and further the model proves to be fit excellent (Gaskin & Lim, 2016; Hu & Bentler, 1999). Also, it is evident from table 3 that the structural model fits the Goodness-of-fit indices (Hair et al., 2010). Hence, the estimated values of fit indices have proven the good model fit to the data and further analysis, i.e., hypotheses testing

can be preceded using the structural model. Thus, the formulated hypothesis that the hypothesized model has a good fit was accepted.

Table 4: Results of the research hypotheses

Variables	B	SE of B	β	t	p
Te→AA	7.322	0.544	0.469	13.465	<0.001**
FI→AA	0.488	0.057	0.241	8.591	<0.001**
NFC→AA	0.331	0.054	0.197	6.127	<0.001**
Te→ NFC	5.084	0.325	0.547	15.639	<0.001**
Te→ FI	1.352	0.330	0.175	4.094	<0.001**
NFC→ FI	0.235	0.034	0.282	6.924	<0.001**

Note: ** denotes significant at 1% level

B= Unstandardized co-efficient; SE= Standard Error; β = Standardized co-efficient

Te= Temperament; FI=Fluid Intelligence; NFC=Need for Cognition; AA= Academic achievement

The result of SEM analysis in Table 4 based on the unstandardized coefficient shows the following inferences:

Hypothesis 3

Temperament has a significant influence on academic achievement (B = 7.322, C.R. = 13.465, $p < 0.001^{**}$). Further, the estimated positive sign implies that such influence is positive and, the academic achievement would increase by 7.322 for every unit increase in temperament and this coefficient value is significant at 1% level. Hence, the formulated hypothesis temperament significantly influences the academic achievement of students was supported.

Hypothesis 4

Fluid Intelligence has a significant influence on academic achievement (B = 0.488, C.R. = 8.591, $p < 0.001^{**}$). Further, the estimated positive sign implies that such influence is positive and, the academic achievement would increase by 0.488 for every unit increase in fluid intelligence and, this coefficient value is significant at 1% level. Hence, the formulated hypothesis fluid intelligence significantly influences the academic achievement of students was supported.

Hypothesis 5

Need for Cognition has a significant impact on academic achievement (B = 0.331, C.R. = 6.127, $p < 0.001^{**}$). Further, the estimated positive sign implies that such influence is positive and, the academic achievement would increase by 0.331 for every unit increase in need for cognition and, this coefficient value is significant at 1% level. Hence the formulated hypothesis need for cognition significantly influences the academic achievement of students was supported.

Hypothesis 6

Temperament has a significant influence on need for cognition (B = 5.084, C.R. = 15.639, $p < 0.001^{**}$). Further, the estimated positive sign implies that such influence is positive and, the need for

cognition would increase by 5.084 for every unit increase in temperament and, this coefficient value is significant at 1% level. Hence, the formulated hypothesis temperament significantly influences the need for cognition of students was supported.

Hypothesis 7

Temperament has a significant influence on fluid intelligence ($B = 1.352$, $C.R. = 4.094$, $p < .001^{**}$). Further, the estimated positive sign implies that such influence is positive. If the temperament increases by 1 unit, fluid intelligence will increase by 1.352 units and, this coefficient value is significant at 1% level. Hence, the formulated hypothesis temperament significantly influences the fluid intelligence of students was supported.

Hypothesis 8

Need for Cognition has a significant impact on fluid intelligence ($B = 0.235$, $C.R. = 6.924$, $p < .001^{**}$). Further, the standardized estimate of B is 0.235, indicating a positive relationship. It means, when need for cognition goes up by 1 unit, fluid intelligence goes up by 0.235 units and, this coefficient value is significant at 1% level. Hence, the formulated hypothesis need for cognition significantly influences the fluid intelligence of students was supported.

DISCUSSION

Structural Equation model results showed that 53% of the variation in the student's academic achievement was explained by the variations in temperament, need for cognition, and fluid intelligence.

This study results implied that,

- Temperament significantly influences student's academic achievement.

This result is concurrent with extant research findings. (AlHendawi, 2013; Checa & Abundis-Gutierrez, 2017; Hintsanen et al., 2012; Mullola et al., 2010). The explanation in support of this study finding is that temperament refers to stable individual differences that are biologically based is linked to an individual's genetic endowment (Posner et al., 2007).

- Fluid intelligence has a significant impact on student's academic achievement.

This finding is congruence with the several studies which documented the role of fluid intelligence in predicting school achievement as significant (Ali&Ara, 2017; Deary et al., 2007; Di Fabio & Busoni, 2007; Downey et al., 2014). To further corroborate the result, Cattell's Investment theory describes fluid intelligence as the underlying reason for one's academic achievement as it involves every aspect of learning to procure skills and knowledge. (Cattell, 1987)

- Need for cognition has a significant influence on academic achievement.

This result was analogous to finding of (Coutinho, 2006; Akpur, 2017) and contradicted with findings of (Cazan & Indreica, 2014). Students with a high need for cognition have the tendency to engage in complex cognitive activities. They also recall and understand the information better that requires cognitive effort, leading to higher academic performance (Heijne-Penninga et al., 2010).

Moreover, based on the standardized coefficient, temperament (0.469) has a highly significant influence on academic achievement, followed by fluid intelligence (0.241) and the need for cognition (0.197) on academic achievement in this structural equation model.

Conclusion

This research finding shows a significant positive influence of temperament, fluid intelligence, and need for cognition on academic achievement of students. This provides evidence that the individual differences found to appear from birth onwards play a role in the students' academic endeavors. Further, along with the students' neurobiological basis, their tendency to carry out the tasks related to learning without distraction and effortfully also paves the way to their academic achievement. Hence teachers and parents together have to pay attention to the students' personality character along with their intellectual features which in turn will fruitfully foster the students' future.

Implications

Since both the cognitive and non-cognitive variables showed positive effects towards academic achievement, this study finding implies that along with cognitive aspects, non-cognitive aspects of students also have to be stimulated to accomplish in all academic fields. The school curriculum should be in such a way that it develops logical thinking, reasoning, and problem-solving skills in students. Teachers have to understand the ability of the students and help them to involve in tasks related to critical thinking. Finally, Parents who know about their child's inborn potentials and intellectual supremacy have to foster it further to accomplish their needs in the learning process.

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Conflict of interests

The authors declare that no competing interests exist.

Author's contributions

Both the authors contributed equally to the theoretical development, analysis, interpretation, and writing of the manuscript. Exclusive contribution of individual Author:

Data collection and Structural analysis using AMOS software were carried out by P. Revathy (Author 1).

Statistical analysis using SPSS software was carried out by Dr. N. Kalai Arasi (Author 2).

REFERENCES

- Akpur, U. (2017). The Predictive degree of university students levels of metacognition and for Cognition on their academic achievement. *European Journal of Foreign Language, 2*(2), 52-62.
- Ali, S., & Ara, A. (2017). Intelligence as a determinant of academic achievement: A comparative study of high achievers and underachievers. *International Journal of Humanities and Social Sciences, 6*(6), 79-88.
- Al-Hendawi, M. (2013). Temperament, school adjustment, and academic achievement: Existing research and future directions. *Educational Review, 65*(2), 177–205. <https://doi.org/10.1080/00131911.2011.648371>
- Bakhiet, S. F. A., Sles, N., Lynn, R., & Meisenberg, G. (2018). A Study of the Standard Progressive Matrices Plus in Cambodia. *Mankind Quarterly, 58*(4), 580-587.
- Bruni, O., Ferini Strambi, L., Russo, P. M., Antignani, M., Innocenzia, M., Ottaviano, P., Valentea, D., & Ottaviano, S. (2006). Sleep disturbances and teacher ratings of school achievement and temperament in children. *Sleep Medicine, 7*, 43-48.

- Cacioppo, J. T., Petty, R. E., & Kao, C. F. (1984). The Efficient Assessment of Need for Cognition. *Journal of Personality Assessment*, 48(3), 306-307. <https://doi.org/10.1207/s15327752jpa480313>
- Cattell, R.B. (1987). *Intelligence: Its Structure, Growth, and Action*. New York: NorthHolland.
- Cazan, A.-M., & Indreica, S. E. (2014). Need for Cognition and Approaches to Learning among University Students. *Procedia - Social and Behavioral Sciences*, 127, 134-138.
- Checa, P., & Rueda, M. R. (2011). Behavioral and brain measures of executive attention and school competence in late childhood. *Dev. Neuropsychol*, 36, 1018–1032.
- Checa, P., & Abundis-Gutierrez, A. (2017). Parenting and temperament influence on school success in 9–13 year olds. *Frontiers in Psychology*, 8, Article 543. <https://doi.org/10.3389/fpsyg.2017.00543>
- Clem, A. L., Rudasill, K. M., Hirvonen, R., Aunola, K., & Kiuru, N. (2021). The roles of teacher–student relationship quality and self-concept of ability in adolescents’ achievement emotions: temperament as a moderator. *European Journal of Psychology of Education*, 36(2), 263-286.
- Coutinho, S. A. (2006). The Relationship between the need for cognition, metacognition, and intellectual task performance. *Educational Research and Reviews*, 1(5), 162-164.
- Deary, I.J., Strand, S., Smith, P., Fernandes, C. (2007). Intelligence and educational achievement. *Intelligence*, 35(1), 13-21. <https://doi.org/10.1016/j.intell.2006.02.001>
- Di Fabio, A., & Busoni, L. (2007). Fluid intelligence, personality traits, and scholastic success: Empirical evidence in a sample of Italian high school students. *Personality and Individual Differences*, 43, 2095-2104.
- Downey, L. A., Lomas, J., Billings, C., Hansen, K., & Stough, C. (2014). Scholastic success: Fluid intelligence, personality, and emotional intelligence. *Canadian Journal of School Psychology*, 29(1), 40-53.
- Evans, D. E., & Rothbart, M. K. (2007). Developing a model for adult temperament. *Journal of Research in Personality*, 41(4), 868–888. <https://doi.org/10.1016/j.jrp.2006.11.002>
- Gaskin, J. and Lim, J. (2016). *Model fit measures*, AMOS Plugin. Gaskination’s StatWiki.
- Grass, J., Strobel, A., & Strobel, A. (2017). Cognitive investments in academic success: The role of need for cognition at university. *Frontiers in Psychology*, 8, 790-790.
- Guerin, D. W., Gottfried, A. W., Oliver, P. H., & Thomas, C. W. (2003). *Temperament infancy through adolescence*. NY: Kluwer Academic/Plenum Publishers.
- Hair, J. F. , Black, W. C. , Babin, B. J. , & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Englewood Cliffs: Prentice Hall.
- Heijne-penninga, M., Kuks, J. B. M., Hofman, A. W. H., & Cohen-Schotanus, J. (2010). Influences of deep learning, need for cognition and preparation time on open-and closed-book test performance. *Medical Education*, 44(9), 884-891. <https://doi.org/10.1111/j.1365-2923.2010.03732.x>
- Hill, B.D., Foster, J.D., Elliott, E.M., Shelton, J.T., McCain, J., & Gouvier, Wm.D. (2013). Need for Cognition is related to higher general intelligence, fluid intelligence, and crystallized intelligence, but not working memory. *Journal of Research in Personality*, 47, 22-25.
- Hintsanen, M., Alatupa, S., Jokela, M., Lipsanen, J., Hintsala, T., & Leino, M. (2012). Associations of temperament traits and mathematics grades in adolescents: Dependent on the rater but independent of motivation and cognitive ability. *Learning and Individual Differences*, 22, 490–497.

- Hoffmann, M. S., Pan, P. M., Manfro, G. G., de Jesus Mari, J., Miguel, E. C., Bressan, R. A., Rohde, L. A., & Salum, G. A. (2020). Independent and interactive associations of temperament dimensions with educational outcomes in young adolescents. *Learning and Individual Differences*, 78, Article 101817. <https://doi.org/10.1016/j.lindif.2019.101817>
- Hu, L.T., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling: a Multidisciplinary Journal*,6(1),1-55.
- Kardash, C. A. M., & Noel, L. K. (2000). How organizational signals, need for cognition, and verbal ability affect text recall and recognition. *Contemporary Educational Psychology*, 25(3), 317–331.
- Kornienko, O.S.,Petrenko, E.N., Leto, I.V.,Fedorova, N.A., & Slobodskaya, H.R. (2018).Effortful control in primary school children: Links with Personality, Problem Behaviour, Academic Achievement, and Subjective Well-Being.*Psychology in Russia:State of the Art*,11(4),2-18.
- Kpolovie, P. J. (2017). Intelligence and academic achievement: A longitudinal survey. *International Journal of Health and Psychology Research*, 5(1), 33-70.
- Kvist, A. V., & Gustafsson, J.-E. (2008). The relation between fluid intelligence and the general factor as a function of cultural background: A test of Cattell's Investment theory. *Intelligence*, 36(5), 422–436. <https://doi.org/10.1016/j.intell.2007.08.004>
- Laidra, K., Pullmann, H., & Allik, J. (2007). Personality and intelligence as predictors of academic achievement: A cross-sectional study from elementary to secondary school. *Personality and Individual Differences*, 42, 441-451.
- Lehikoinen, A., Ranta-Nilkku, E., Mikkonen, J., Kaartinen, J., Penttonen, M., Ahonen, T., & Kiuru, N. (2019). The role of adolescents' temperament in their positive and negative emotions as well as in psychophysiological reactions during achievement situations. *Learning and Individual Differences*, 69, 116-128. <https://doi.org/10.1016/j.lindif.2018.11.004>
- Li, I., Onaga, E., Shen, P. S., & Chiou, H. H. (2009). Temperament characteristics and science achievement: A longitudinal study of elementary students in Taiwan. *International Journal of Science Education*, 31, 1175-1185.
- Luong, C., Strobel, A., Wollschläger, R., Greiff, S., Vainikainen, M. P., & Preckel, F. (2017). Need for cognition in children and adolescents: Behavioral correlates and relations to academic achievement and potential. *Learning and Individual Differences*, 53, 103-113.
- Malykh, S. (2017). The role of Personality Traits and Intelligence in Academic Achievement of Russian High School Students. *Procedia - Social and Behavioral Sciences*,237,1304-1309.
- Mistry, S. (2019). Fluid Intelligence and Working Memory in relation to Mathematics achievement in adolescent students: A Study. *A multidisciplinary Online Journal of Netaji Subhas Open University*,2(2)
- Mullola, S., Ravaja, N., Lipsanen, J., Hirstio-Snellman, P., Alatupa, S., & Keltikangas-Järvinen, L. (2010). Teacher-perceived temperament and educational competence as predictors of school grades. *Learning and Individual Differences*, 20(3), 209-214. <https://doi.org/10.1016/j.lindif.2010.01.008>
- Niazi, S., Adil, A., & Abbas, Q. (2020). Fluid intelligence as the predictor of academic performance and flourishing: role of academic stress. *Rawal Medical Journal*, 45(3), 569-572.
- Putnam, S., P., Ellis, L. K., & Rothbart, M. K. (2001). The structure of temperament from infancy through Adolescence. In A. Elias, & A. Angleitner (Eds.), *Advances in research on temperament*. Lengerich, Germany: Pabst Science.

- Raven, J., Raven, J. C., and Court, J. H. (1998). Manual for Raven's Progressive Matrices and Vocabulary Scales. Section 4: The Advanced Progressive Matrices. UK: Oxford University Press.
- Ren, X., Schweizer, K., Wang, T., & Xu, F. (2015). The prediction of students' academic performance with fluid intelligence in giving special consideration to the contribution of learning. *Advances in Cognitive Psychology, 11*(3), 97.
- Rothbart, M. K & Bates, J. E. (1998) .Temperament. (N. Eisenberg, Ed.), Social, emotional, and personality development (5th ed,Vol.3., 105–176). NY: John Wiley & Sons
- Rothbart, M.K., & Derryberry, D. (1981). Development of individual differences in temperament. In M. E. Lamb & A. L. Brown (Eds.), *Advances in developmental psychology*.(Vol 1). NJ: Erlbaum.
- Rueda, M. R., Checa, P., & Rothbart, M. K. (2010). Contributions of attentional control to socioemotional and academic development. *Early Educ. Dev, 21*, 744–764. <https://doi.org/10.1080/10409289.2010.510055>
- Sadowski, C. J., & Gülgös, S. (1996). Elaborative processing mediates the relationship between need for cognition and academic performance. *The Journal of Psychology, 130*(3), 303-307.
- Strobel, A., Behnke, A., Gärtner, A., & Strobel, A. (2019). The interplay of intelligence and need for cognition in predicting school grades: A retrospective study. *Personality and Individual Differences, 144*, 147-152. <https://doi.org/10.1016/j.paid.2019.02.041>
- Thomas, A., & Chess, S. (1977). Temperament and development. New York: Brunner/Mazel.
- Verbitskaya, L.A., Malykh, S.B., Zinchenko, Yu.P., Tikhomirova, T.N. (2015). Cognitive predictors of success in learning Russian. *Psychology in Russia: State of the Art, 8*, 91–100.
- Verbitskaya, L.A., Zinchenko, Y.P., Malykh, S.B., Gaidamashko, I.V., Kalmyk, O.A., Tikhomirova, T.N. (2020). Cognitive predictors of success in learning Russian among native speakers of high school age in different educational systems. *Psychol. Russ, 13*,2–15.
- Zhou, Q., Main, A., & Wang, Y. (2010). The relations of temperamental effortful control and anger/frustration to Chinese children's academic achievement and social adjustment: A longitudinal study. *Journal of Educational Psychology, 102*, 180–196.

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Development of a Financial Self-efficacy scale for economically marginalized women

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ABSTRACT

Financial Self-efficacy is considered an important determinant of positive Financial Behaviors and could help achieve Financial Well-being. This study was conducted to develop a scale for measuring the Financial Self-efficacy of women from economically marginalized sections. An extensive literature review was carried out on existing scales, and a new scale that could be used among the concerned population was developed, taking key inputs from Bandura's idea of Self-efficacy. A multi-stage cluster sampling technique was employed, and primary data was collected using questionnaires from 176 respondents across six Grama Panchayats in Ernakulam district of Kerala. The ten-item Financial Self-efficacy scale was successfully validated and had a Cronbach's alpha of 0.911. Factor Analysis using Principal Component Analysis loaded into a single component. The overall Financial Self-efficacy was less than the median value of 2.5. Financial Self-efficacy was found to be a significant predictor of different behavioral factors such as planning and execution, having a regular income, buying and consumption, credit and borrowing, and saving and investing. The scale can be helpful to researchers, organizations, and agencies who study the behavioral aspects of women and other weaker sections and those who are involved in motivating such weaker sections to achieve Financial Well-being.

Keywords: Financial Self-efficacy, Economically Backward Women, Scale, Financial Behavior, Financial Well-being

INTRODUCTION

It was in the late 1970s that psychologist Albert Bandura coined the term 'self-efficacy' to denote a person's belief in his/her ability to succeed at specific tasks. Self-efficacy is related to people's sense of optimism or self-confidence and their belief in coping with diverse challenges (Bandura, 1977). Over the past four decades, research in the concept of self-efficacy has scaled new heights with contributions from different theorists and academicians. It is generally considered domain-specific as it is related to an individual's confidence in certain domains of life.

The concept of Financial Self-efficacy is of recent origin. Lown (2011) defines Financial Self-efficacy as the "level of confidence in one's ability to deal with a financial situation without being overwhelmed." It is the sense of confidence or optimism individuals have about their capability to manage their personal finances successfully. It is found to play a significant role in improving the Financial Behavior of individuals and helps to explain why differences in financial management occur among people when their demographic and economic characteristics are almost the same (Amatucci & Crawley, 2011; Joseph et al., 2017; Lown, 2011; Mindra et al., 2017). Financial Self-efficacy is, thus, understood as a powerful fuel for positive change and is tethered to higher levels of Financial Well-being.

Practicing desirable Financial Behaviors is a strenuous exercise for people from lower economic strata. One primary reason for it may be the lower levels of Financial Self-efficacy they possess. Studies

found that women have comparatively lower levels of Financial Self-efficacy (Hollowell, 2017), and financial hardship has a negative impact on people's self-efficacy (Bandura, 1997). It becomes more visible during crises like the Covid-19 pandemic, as people from the most impoverished backgrounds are the worst impacted in any economic crises. One way these people will be able to practice better behaviors is by improving their Financial Self-efficacy as it acts as a link between knowledge and effective action.

There have been numerous studies in the past to evolve a measure for Financial Self-efficacy. However, none of them can be said to be a universal and standardized scale. This study proposes to evolve a simple, comprehensive, standardized, and reliable measure of Financial Self-efficacy to be used among economically marginalized sections, especially women, by incorporating elements from existing scales.

Review of literature

Self-efficacy is conceptualized as one's feeling of self-assurance in being able to accomplish a task successfully (Lown et al., 2014). According to Bandura (1986), self-efficacy can have a powerful impact on behavior since it is a strong predictor of competence. Other than a person's knowledge, skills, and past accomplishments that predict his/her behavior, his/her feeling of self-efficacy also influences this behavior.

Bandura (1997) states that self-efficacy values originate from four sources: mastery experiences, vicarious experiences, verbal persuasion, and physiological states. Mastery experiences mean the experience related to the past successes and failures of an individual. It is considered the most potent source of self-efficacy. When people evaluate their capabilities in comparison to the successes of others, it constitutes vicarious experiences. Verbal or social persuasion occurs when a person is motivated by his peers and relatives. Finally, an individual's mood or physiological states can also be an essential source of self-efficacy beliefs (Bandura, 1997). Self-efficacy, therefore, originates from one's surroundings and should be related to how confidently he/she responds to different domains in his/her surroundings.

There are several common characteristics exhibited by people having high levels of self-efficacy. These include optimism in their attitudes towards life, creation and maintenance of aspirational and challenging goals, enduring commitment in actions and goals, high immunity to stress and anxiety, maintenance of positivity when confronted with adverse situations and failures, accrediting personal capabilities and efforts for successes and external factors for failures, and the ability to recover from setbacks quickly (Bandura, 1997). Low levels of self-efficacy can be linked to feelings of anxiety, depression and hopelessness, diffidence to act in new circumstances, and the pessimistic perceptions people have about their ability to achieve their goals (Bandura, 1977).

Self-efficacy is a cardinal component of Bandura's Social Cognitive Theory which propounds that every individual has his/her internal cognitive appraisal of their abilities that ultimately affects their thoughts, feelings, and actions (Bandura, 1986). Self-efficacy can be classified as both general and specific. While general self-efficacy is a person's overall beliefs in his/her capabilities, these beliefs may vary across life functions (Bandura, 1997; McAvay et al., 1996). Thus, a 'one-size-fits-all' approach to self-efficacy may not be practical as a person with high levels of general self-efficacy may have contradictory beliefs depending on the task to be accomplished (Bandura, 2005).

Financial Self-efficacy, as the name denotes, is the sense of optimism or confidence individuals have in their ability to manage money. Research suggest that Financial Self-efficacy can help an individual perform desirable Financial Behaviors and thereby achieve Financial Well-being (Lown, 2011; Mindra et al., 2017). It was also found to bridge the gap between Financial Knowledge and Financial Behavior (Hollowell, 2017; Tokunaga, 1993).

Farrell et al. (2016) examined the significance of Financial Self-efficacy is in explaining Australian women's personal Financial Behavior. Results revealed that Financial Self-efficacy strongly predicts the number and types of financial products women hold, and women with higher Financial Self-efficacy were found to hold investment and savings products, and have lesser chances to hold debt products. Hollowell (2017) explored the gender-based differences in Financial Self-efficacy and found that gender is a significant predictor for Financial Self-efficacy with males having significantly higher scores. Asebedo and Seay (2018) also examined how Financial Self-efficacy is related to Savings Behavior, using data from 847 pre-retirees in the United States. The results revealed positive relations between Financial Self-efficacy and Savings Behavior.

Bandura (1977) developed the very first scale of self-efficacy for people of age 12 and above. However, the General Self-Efficacy Scale (GSE) by Schwarzer and Jerusalem (1995) was the first comprehensive scale for measuring self-efficacy, which was contrived as a self-report measure of self-efficacy. However, as it is already established that general self-efficacy scores may fetch contradictory results from domain-specific self-efficacy, in order to measure the actual confidence levels of individuals in a particular task they are performing, domain-specific self-efficacy is better.

The first known attempt to develop a Financial Self-efficacy scale was made by Dietz et al. (2003) in a study of gender differences in retirement planning. This scale had included only three items to measure Financial Self-efficacy and had a reliability coefficient of 0.69. In a study on teens, Danes and Haberman (2007) designed and used two items to measure Financial Self-efficacy, whereas Sanders et al. (2007) used a five-item Financial Self-efficacy measure in a quasi-experimental study to evaluate economic education for battered women. Both these studies did not comprehensively cover all the aspects of an individuals' financial life and hence could not be adopted into the present work, without making necessary changes.

Lown (2011) developed a six-item Financial Self-Efficacy scale for researchers and educators based on the twin concepts of Bandura's self-efficacy and Prochaska's Transtheoretical Model. But this scale was tested and validated only in Australia, only within a small sample of well-educated and mostly Caucasian respondents. Another construct for measuring Financial Self-efficacy was developed by Amatucci and Crawley (2011) for a study among women entrepreneurs. Even though Nguyen (2016), developed a comprehensive and highly reliable Financial Self-efficacy scale using data collected from women aged above 18 years from the United States, many of the items of this scale could not be adopted in the Indian context directly. So, all these scales have many drawbacks relating to their coverage, validity, and reliability, which prevent their usage as a universal scale.

Rationale and objective of the study

Even though Financial Self-efficacy is an important predictor of Financial Behavior, there has been very little progress in conceiving a standard scale for Financial Self-efficacy. The existing scales of Financial Self-efficacy are not comprehensive, many of them lack psychometric validation, and as a result of lack of standardization, it is difficult to compare results across studies. However, the major drawback of these studies is that they have not considered people from financially stressed backgrounds, including women. Thus, the available literature leaves a huge vacuum of a standard and all-inclusive measure of Financial Self-efficacy and there is an urgent need to fill this research gap.

Therefore, the present study was conducted with the objective to develop a scale to comprehensively measure the Financial Self-efficacy of the economically marginalized sections, especially women. Such a scale can be used by organizations, agencies, and researchers to understand the perceived self-confidence of individuals and devise schemes to improve the financial knowledge, behavior, and well-being of the marginalized classes.

METHODOLOGY**Sample**

The data for the study were drawn from a survey conducted among women NREGA workers in Kerala, India, in 2020. The study proposed and executed a random sampling, based on data obtained from Kerala State MGNREGA Mission Office, Thiruvananthapuram. Sample units were selected from six randomly chosen Grama Panchayats in Ernakulam district of Kerala using a multi-stage cluster sampling technique. From each of these Panchayats, two wards are selected on a random basis, and from each ward around 15-20 women workers were met for data collection. Primary data was collected during the months of June to August 2020 using questionnaires in the Malayalam language by visiting the worksites of NREGA laborers. Even though questionnaires were distributed among 204 NREGA workers, only 189 of them responded within the stipulated time. 176 valid responses were identified from them which were taken for further analysis. As this is a preliminary study to develop a scale of Financial Self-efficacy of marginalized segments, validating it using a sample of reasonable size was thought to be good for expanding the study further.

Tools and procedure

The primary variable for the study was Financial Self-efficacy, and other data collected include respondents' age group, educational qualification, marital status, income generation capacity, financial planning and execution, buying behavior, saving and investment behavior, and credit behavior. Based on inputs from already existing measures, the researchers developed a 10-item Financial Self-efficacy scale for the women from economically weaker sections. The ten items are given in Table 2. Financial Self-efficacy was computed on a four-point Likert type scale ranging from 'Not at all true' (indicated by '1') to 'Very much true' (indicated by '4'). The tools for analysis include mean, standard deviation, correlation, and linear regression. The mean of all the ten items was taken as the overall Financial Self-efficacy.

RESULTS

Demographic characteristics

Table 1 shows the demographic classification of respondents. Women from all age groups were part of the study, with more than 55 percent having their age above 50 years. People with primary or upper primary education constituted most of the respondents. In contrast, only 10 percent of the respondents had education above class X. 36.4 percent of the respondents had secondary educational qualification up to class X. Around 85 percent of the respondents were married at the time of the survey, while the rest are unmarried, divorced or widowed. The study ensured participation from diverse backgrounds.

Table 1: Demographic characteristics (n=176)

		n	%
Age			
	40 years and less	18	10.2
	41 to 50 years	59	33.5
	51 to 60 years	75	42.6
	More than 60 years	24	13.6
Educational qualification			
	Up to Class VII	94	53.4
	Class VIII to X	64	36.4
	Above Class X	18	10.2
Marital status			
	Married and living with a spouse	148	84.1
	Unmarried/divorced/widowed	28	15.9

(Source: Primary Data)

Table 2: Financial Self-efficacy statements: Mean, SD and Rotated Component Matrix

Codes	Statements	M	SD	Component Loading
FSE1	Ability to handle finances very well	2.80	0.95	0.551
FSE2	Achievement of financial goals	2.32	0.992	0.778
FSE3	Using income and wealth to improve financial position	2.32	0.998	0.799
FSE4	Ensuring a regular source of income	1.98	1.02	0.822
FSE5	Keeping expenses below income	2.44	1.16	0.729
FSE6	Paying bills on time	2.36	1.14	0.817
FSE7	Sticking to spending plans during financial emergencies	2.05	1.04	0.721
FSE8	Paying back loans availed without facing troubles	2.43	1.18	0.793
FSE9	Finding solutions to financial challenges	1.86	0.958	0.745
FSE10	Financial security after retirement	1.60	0.998	0.688
	Financial Self-efficacy	2.21	0.780	

(Source: Primary Data)

Financial Self-efficacy

Table 2 shows the ten items to measure Financial Self-efficacy along with their codes. The maximum score which can be obtained for a statement was four, and the minimum was one. Mean and Standard Deviation

(SD) scores of each statement are also given in Table 2. The overall Financial Self-efficacy is calculated to be the average of these ten items, which also ranges between one and four. A higher score on the scale indicates a better level of Financial Self-efficacy.

As can be seen from Table 2, respondents had the highest Financial Self-efficacy perception about their ability to handle finances very well, with a mean of 2.80 and SD of 0.950. They had the lowest perception of financial security after retirement, with a mean score of 1.60 and SD of 0.998. For questions relating to ensuring regular income, sticking to spending plans during emergencies and finding solutions to challenges when they arise also, the respondents scored very low. Overall Financial Self-efficacy of the respondents was found to be less than the median value (i.e., 2.5), with a mean score of 2.21 and an SD of 0.780. Thus, it can be clearly understood that the respondents have varied levels of self-efficacy for each aspect of personal finance.

Table 3: Correlation matrix of Financial Self-efficacy statements

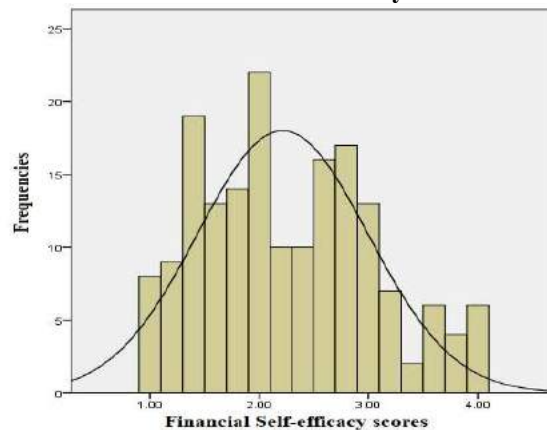
	FSE1	FSE2	FSE3	FSE4	FSE5	FSE6	FSE7	FSE8	FSE9	FSE10
FSE1	1									
FSE2	0.534	1								
FSE3	0.513	0.734	1							
FSE4	0.349	0.578	0.681	1						
FSE5	0.275	0.492	0.480	0.629	1					
FSE6	0.394	0.552	0.503	0.652	0.671	1				
FSE7	0.311	0.514	0.484	0.472	0.476	0.505	1			
FSE8	0.315	0.512	0.538	0.543	0.594	0.710	0.576	1		
FSE9	0.252	0.455	0.566	0.564	0.371	0.533	0.640	0.601	1	
FSE10	0.344	0.435	0.438	0.598	0.406	0.524	0.405	0.469	0.547	1

(Source: Primary Data)

Factor analysis, reliability, and validity

The internal consistency of the ten items to measure Financial Self-efficacy was computed using Cronbach's alpha. The scale has a Cronbach's alpha reliability of 0.911, indicating very high internal consistency. Factor Analysis using Principal Component Analysis revealed one component, indicating strong correlations between all the ten items, and hence our scale effectively captures what it is intended to capture. Component loadings using 'varimax' rotation with Kaiser Normalization are also given in Table 2.

Figure 1: Normal distribution curve of Financial Self-efficacy



Construct validity of the instrument was ensured by examining convergent and nomological validities. Correlations between the ten items of the Financial Self-efficacy were computed for establishing convergent validity. Table 3 shows the correlation values of each Financial Self-efficacy statement with the other Financial Self-efficacy statements. At one percent level of significance, all the correlation values are found to be significant and range between 0.252 and 0.734. This finding clearly confirms that all ten items of the scale are convergent on a common construct. A one-sample Kolmogorov-Smirnov Test was carried out to test the normality of the Financial Self-efficacy distribution. The spread of Financial Self-efficacy scores followed a normal distribution, as illustrated in Figure 1.

Desirable behaviors related to five aspects of financial practices are scored on a five-point scale and are compared with Financial Self-efficacy. The correlation and regression scores of different types of Financial Behaviors with Financial Self-efficacy are given in Table 4. As per the theory, Financial Self-efficacy should have significant positive correlations and effects on positive Financial Behaviors (Farrell et al., 2016; Lown, 2011; Mindra et al., 2017). The nomological validity of the instrument was established using the relationship between Financial Self-efficacy and various Financial Behaviors. Significantly high correlations were found as per the theory between Financial Self-efficacy and different behaviors, at one percent level of significance.

Table 4: Coefficient results of relationships and effects on behavioral factors

Codes	Factors	R	R ²	Adjusted R ²
FB1	Planning and execution	0.470	0.221	0.216
FB2	Having regular income	0.489	0.239	0.235
FB3	Buying and consumption	0.485	0.235	0.231
FB4	Credit and borrowing	0.321	0.103	0.098
FB5	Saving and investing	0.408	0.167	0.162

(Source: Primary Data)

Effect on Financial Behavior

The findings also revealed a significantly good effect of the independent variable (i.e., Financial Self-efficacy) on various behavioral factors. Financial Self-efficacy explains 21.6 percent of change in behavior related to financial planning and execution, 23.5 percent in the case of income-earning behavior, 23.1 percent in one's buying and consumption behavior, 16.2 percent in saving and investment behaviors, based on the analysis of data obtained from our sample. Thus, along with other factors, Financial Self-efficacy also plays a significant role in how an individual practices certain desirable Financial Behaviours. In the meantime, even though found to be significant, Financial Self-efficacy does not have much effect on credit and borrowing behaviors which had an adjusted R² value of 0.098. The results also conform to what has been found in past studies that Financial Self-efficacy is a significant predictor of Financial Behavior (Farrell et al., 2016; Lown, 2011; Mindra et al., 2017).

DISCUSSION

Financial Self-efficacy is an important psychological construct that demands academia's attention with regard to its relationship with household money management. Even though its effects have been overlooked in most of the past behavioral models in finance, the significance of psychological factors in studies in the finance domain have increased with the advent of behavioral finance. As mentioned earlier, Financial Self-efficacy is influenced by an individual's past experiences and other surrounding factors such as socialization, education and the like, and consequently, it has a bearing on his/her actions. A universal scale to measure Financial Self-efficacy can be very much helpful in establishing proper relationships with variables that cause it and variables that result from it. This study has been relatively successful in this attempt to create a reliable, valid, and standard scale to measure the Financial Self-efficacy of generally excluded sections.

Even though there is bleak literature on Financial Self-efficacy scales, they have been thoroughly reviewed to develop this scale. It is more comprehensive than all the existing scales as it covers the confidence of individuals related to almost all day-to-day financial matters. Compared to previous scales, all the items in the present scale loaded into the one construct they intend to capture and have high internal consistency. As we have seen earlier, findings also represent a valid relationship with variables related to Financial Self-efficacy. The overall Financial Self-efficacy of marginalized women was found to be less than satisfactory. The study affirms that researchers and educators need to give Financial Self-efficacy the attention it deserves and learn more about the Financial Self-efficacy of economically marginalized sections, especially women.

At the same time the present study has significant theoretical and practical implications. On the first hand, it contributes to literature on Financial Self-efficacy, which is gaining significance in the present century due to the concomitant growth of behavioral economics and behavioral finance. Being a measure that is comprehensive, have very high reliability and validity, it can be adopted by students and researchers of Financial Self-efficacy in their studies, especially for studying the marginalized segments in the society. This study also confirms the findings of several of the previous literature regarding the positive relationship between Financial Self-efficacy and Financial Behaviors.

Conclusion

This study was contrived to develop a measure for Financial Self-efficacy to be used among financially marginalized women. Based on the inputs from the literature, a reliable and valid scale for Financial Self-efficacy has been designed, and its relationship with different behavioral factors has been ascertained. Unlike other measures of Financial Self-efficacy, the present scale covers the respondents' confidence about almost all financial aspects. At the same time, consistent relationships have been observed between all the items of the scale too. The reliability of the scale, factor analysis and its relationship with other variables prove that the scale very effectively serves its purpose.

An important limitation of this study was that data for the study was collected only from marginalized women in Kerala, India. As a result, our findings deviate a lot from other studies due to the cultural, social, and economic differences. Also the sample size may not be big enough to accommodate the

real characteristics of the population under study. Future research should enlarge the sample and focus on similar communities from other developing nations so as to clearly explain the similarities or differences across cultures.

This measure can be of great help to students and researchers of Financial Self-efficacy and Financial Behavior. It has already been discussed that improvement in Financial Self-efficacy can help bring positive outcomes in Financial Behaviors, and financial intervention strategies like education and skill development programs are beneficial in this regard (Danes et al., 1999; Loke et al., 2015). Therefore, financial educators, teachers, and counsellors can make use of this scale to measure Financial Self-efficacy, and to identify the means to improve it. The government as a stakeholder can also use it for policy formulation so that marginalized sections are brought on the track of financial freedom and well-being.

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Conflict of interests

The authors declare that no competing interests exist.

Author's contributions

Both the authors contributed equally to the theoretical development, analysis, interpretation, and writing of the manuscript. The first author was involved with data collection.

REFERENCES

- Amatucci, F. M., & Crawley, D. C. (2011). Financial self-efficacy among women entrepreneurs. *International Journal of Gender and Entrepreneurship*, 3(1), 23-37.
- Asebedo, S. & Payne, P. (2018). Market volatility and financial satisfaction: The role of financial self-Efficacy. *Journal of Behavioral Finance*.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psychological Review*, 84(2), 191-215.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice Hall.
- Bandura, A. (1997). Self-efficacy. *Harvard Mental Health Letter*, 13(9), 4-6.
- Bandura, A. (2005). The evolution of social cognitive theory. In K. G. Smith, & M. A. Hitt (Eds), *Great minds in management* (pp. 9-35). Oxford University Press.
- Danes, S. M., Huddleston-Casas, C. A., & Boyce, L. (1999). Financial planning curriculum for teens: Impact evaluation. *Journal of Financial Counseling and Planning*, 10(1), 26-39.
- Danes, S. M., & Haberman, H. R. (2007). Teen financial knowledge, self-efficacy, and behavior: A gendered view. *Journal of Financial Counseling and Planning*, 18(2), 48-60.
- Dietz, B. E., Carrozza, M., & Ritchey, P. N. (2003). Does financial self-efficacy explain gender differences in retirement saving strategies? *Journal of Women & Aging*, 15(4), 83-96.
- Farrell, L., Fry, T. R. L., & Risse, L. (2016). The significance of financial self efficacy in explaining women's personal finance behaviour. *Journal of Economic Psychology*, 54, 85-99.

- Hollowell, R. L. (2017). *Gender differences and the effect of financial parenting on financial self-efficacy* (Publication No. 10259201) [Doctoral dissertation, Indiana State University] ProQuest Dissertations & Theses Global.
- Joseph, M., Dhanuraj, P. C., & Joseph, A. K. (2017). Influence of financial inclusion and financial self efficacy on the credit behaviour of BPL households. *International Journal of Research in Economics and Social Sciences (IJRESS)*, 7(1), 52-66
- Loke, V., Choi, L., & Libby, M. (2015). Increasing youth financial capability: An evaluation of the MyPath savings initiative. *The Journal of Consumer Affairs*, 49(1), 97-126.
- Lown, J. M. (2011). Development and validation of a financial self-efficacy scale. *Journal of Financial Counseling and Planning*, 22(2), 54-63.
- Lown, J. M., Kim, J., Gutter, M. S., & Hunt, A-T. (2014). Self-efficacy and savings among middle and low income households. *Journal of Family and Economic Issues*, 36, 491-502.
- McAvay, G. J., Seeman, T. E., & Rodin, J. (1996). A longitudinal study of change in domain-specific self- efficacy among older adults. *Journal of Gerontology*, 51B(5), 243-253.
- Mindra, R., Moya, M., Zuze, L. T., & Kodongo, O. (2017). Financial self-efficacy: A determinant of financial inclusion. *International Journal of Bank Marketing*, 35(3), 338-353.
- Nguyen, H. T. (2016). *Financial self-efficacy scale: Development and validation of a measurement tool* [Doctoral dissertation, University of Minnesota]. University Digital Conservancy. <https://conservancy.umn.edu/handle/11299/198375>
- Sanders, C. K., Weaver, T. L., & Schnabel, M. (2007). Economic education for battered women: An evaluation of outcomes. *AFFILIA: Journal of Women and Social Work*, 22(3), 240-254.
- Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). NFER-Nelson.
- Tokunaga, H. (1993). The use and abuse of consumer credit: Application of psychological theory and research. *Journal of Economic Psychology*, 14(2), 285-316.

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The psychology of instinct or crowd? An insight into the herding behavior of the retail investors of Chhattisgarh

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ABSTRACT

The stock market is highly volatile and unpredictable. The stock market would have been perfectly static if all the investors had been rational and information had been symmetrically distributed. However, the Monday blues and market bubbles indicated that the behavior of investors was infected by behavioral biases. The heuristic theory and prospect theory described by Kahneman and Tversky, are essential ingredients of behavioral biases. However, the tendency of investors to follow in the footsteps of others is a serious investment paralysis known as Herd behavior. This paper analyzes the Herding behavior of investors from an emerging state of India, Chhattisgarh. The previous works revealed that a high proportion of the retail investors of India followed the behavior of others to avoid losses and feel less guilty about any less fruitful investment. The questionnaire was mailed to 475 retail investors of Chhattisgarh. Purposive and snowball sampling methods were used for data collection. PLS-SEM was used to analyze the impact of herding on the financial investment behavior of the investors of Chhattisgarh. The findings revealed a contrary result that herding was not impacting the state of mind of the retail investors of Chhattisgarh. A prospective reason for this result is less financial literacy and improper knowledge of the working of the financial markets. The managerial implication of the study extends to the policymakers and the companies issuing the shares. They will be able to target the biases that highly hit the developing states of India and derive policies and customized portfolios to increase the penetration of retail investment in the stock market, leading to the development of the economy as a whole. The social implication of the paper extends to the retail investors in acknowledging their herding bias and taking precautionary steps to avoid them before investing in the stock market.

Keywords: Herding behavior, Financial market, Volatility, Liquidity, and Behavioral Biases.

INTRODUCTION

History is witness to the fact that humans were influenced by others' decisions in many economic and social circumstances. The restaurant most preferred by our neighbor influences our decision of dining also. The school suggested by the relatives also becomes a choice for us. Is this psychology also applicable in a financial investment where money is involved? The dot-com bubble is the best example. Many dot-com companies were not running financially sound, but many investors invested in it because everyone else was buying them. This tendency led to a blast in the market.

The traditional theories indicated that the markets are perfect and investors are rational. However, history proved that the market does not behave as expected by the assumptions of traditional theory. The deviation led to the popularity of behavioral theories, which emphasized investors suffering from certain financial investment biases. Retail investors perceive the market information as per their perception and experience. Investors are influenced by many abstract factors whose accountability is difficult in quantitative

terms. The foundation of behavioral finance indicated that retail market participants and structurally framed symmetric market information influence the financial decision-making of retail investors. However, the last decade has seen high turbulences, which shook the trust and faith of the investors in the stock market. Heuristics and prospect behavior have been studied extensively in developing and developed economies. The impact of herding remains relatively less studied and explored in the developing states of India. Impactful work has been done in the domain of herding in developed economies.

- Herding indicates copying the action of others without any direction of personal objectives.
- Herding involves imitation following interactive observation of actions or outcomes of those actions (Hirshleifer and Teoh, 2003)

Herding in financial markets has been typically described, as a behavioral tendency for an investor to follow the actions of others (N. Hachicha, 2010-11). If investors do not show herding behavior, they can make independent investment decisions, and everything they get out of their investments boosts their confidence as well (Torrecillas, Yalamova, & McKelvey, 2016). The herding mentality of the investors had been influenced by two perspectives. Firstly, the commoner is desirous of acknowledgment and acceptance of himself by the group to which they belong to. Secondly, it is a proven myth that a group cannot make the wrong decision, and even if the decision is faulty, many people are sufferers, which reduces the feeling of guilt. This group decision can be highly faulty as Purchasing stocks based on price momentum while ignoring basic economic principles of supply and demand is known in the behavioral finance area as herd behavior, leading to faculty decision (Byrne, 2007).

Chhattisgarh has been considered as the unit of study as after its separation from Madhya Pradesh it has emerged as one of the most favorable investment destinations in India. The state (including Madhya Pradesh) attracted cumulative Foreign Direct Investment (FDI) worth US\$ 1.43 billion between April 2000 and March 2020. Between October 2019 and December 2020, FDI inflow in Chhattisgarh stood at US\$ 0.03 million. During 2019, 61 Industrial Entrepreneurs' Memorandum (IEMs) were filed in Chhattisgarh with a proposed investment of Rs. 5132 crores (US\$ 743.30 million). Total merchandise exports from Chhattisgarh are estimated at US\$ 1,278.9 million in FY20 and US\$ 1,789.42 million in FY21 till January 2021 (Chhattisgarh state report, IBEF, March 2021). Chhattisgarh state can generate better financially literate investors shortly, and it represents many other developing states of India.

Review of Literature

Previous studies indicated that the commoner hesitated in taking out of the crowd decisions, thinking out of the box, and this leads to their loss of personal perspective. Bikhchandani (2000) gave an overview of the empirical research on herd behavior in financial markets, the meaning of herding, the causes of herd behavior, the success of previous work in identifying the phenomenon, and the outcome that herding had on financial markets. The hypothesis of market efficiency had been disputed by both theoreticians and practitioners, and its main weaknesses were highlighted in the literature (Summers 1986, Schiller 1989). Nevertheless, behavioral finance appeared as a reply to all the anomalies that could not be explained by the traditional financial models. According to Hsieh (2013), the herd behavior exists in both individual and

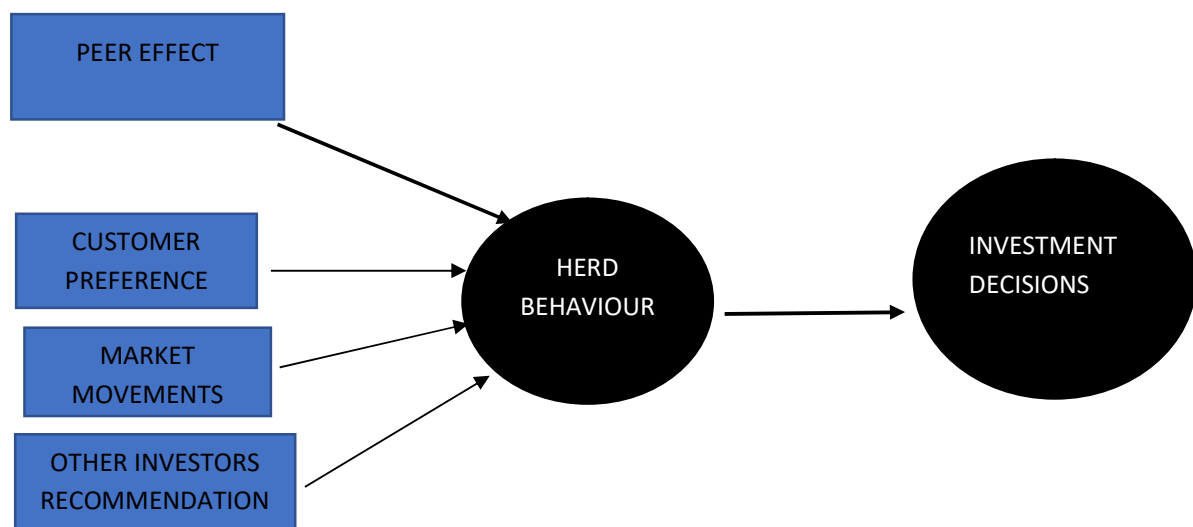
institutional investors in the Taiwanese stock market but this anomaly is more predominant in institutional investors as compared to retail investors. Chang et al. (2000) found significant herding for the emerging but not the developed markets of their sample. Herding is essential and is well acknowledged by academic researchers, as it affects the stock prices, which affect the attributes of risk and return models and ultimately affects the asset pricing theories (Tan et al., 2008).

Herding behavior involves a transition phase developed before a sudden change in the trends of financial markets (Kang, 2013). Herding behavior among investors has constituted the reason for mass errors and the creation of "bubbles" in the markets (Devenow, 1996). In times of high volatility, the information quality may be compromised and misinterpreted, giving rise to noise traders and increment in the herd behavior of the retail investors. (Arjoon, 2016). Novice investors tend to invest usually in familiar and known stocks (Zheng, Li, and Chiang, 2017). He also reported the herd tendency is stronger in low liquid markets and this can be a result of the scarcity of information which compels the investors to follow the crowd (Zheng et. al, 2017). Brogaard, Li, and Xia (2017) assessed how liquidity present in the securities market is related to default risk. Indārs, Savin, and Lubloy (2019) concluded that herding is highly prevalent in the Moscow Stock Exchange, especially when important macroeconomic news or policy changeovers are announced in the market.

Gap analysis:

Herding results in destabilization of the markets, unforecastable volatility, and group level Irrationality. These irrationalities lead to market bubbles. As the literature review conducted above indicates, the maximum research had been conducted in the developed countries or the developed states of the country. A huge bunch of retail investors resides in the emerging states of India which when propelled properly can lead to holistic regional development and hence the development of the nation as a whole. This paper aims to study the herding bias existent in the retail investors of one of the most developing states of India named Chhattisgarh.

Figure 1: Conceptual Model



Objectives of the Study

- (i) To identify the causes of herding behavior in the retail investors of Chhattisgarh.
- (ii) To study whether the herding bias impacts the investment decision of the retail investors of Chhattisgarh.

METHODOLOGY

The study aims to identify the psychological biases existing in the retail investors and the probable source of its conception using exploratory research. Subsequently, causal research was employed to analyze the impact of Herd behavior on the financial investment decision-making of the retail investors of Chhattisgarh. The data was collected from December 2020 to June 2021.

Primary data was collected using a closed-ended structured questionnaire. The target respondents were brokers and active investors of the stock market. Questionnaires were mailed to 475 prospective respondents but only 417 filled questionnaires were obtained. The respondents consisted of 63% males and 37% females within the age group of 25-55 with at least 1 year of experience in stock market investment. The research design was descriptive and causal. The sampling technique used was convenient sampling and snowball sampling. Respondents were from 5 primary divisions of urban Chhattisgarh, Raipur, Durg, Bilaspur, Surguja, and Bastar division. The sample size was 417 and, Smart PLS 3 was used for analysis. The herd behavior was measured by four statements using a 7-point Likert scale where VSD stood for very strongly disagree, SD stands for Strongly disagree, D stands for Disagree, N stands for Neutral, A stands for Agree, SA stands for strongly agree and VSA stands for very strongly agree. The statements were

HRDB1: You prefer to invest in stocks in which your peers and relatives have invested.

HRDB2: You analyze the company's customer preference before you invest in their stocks.

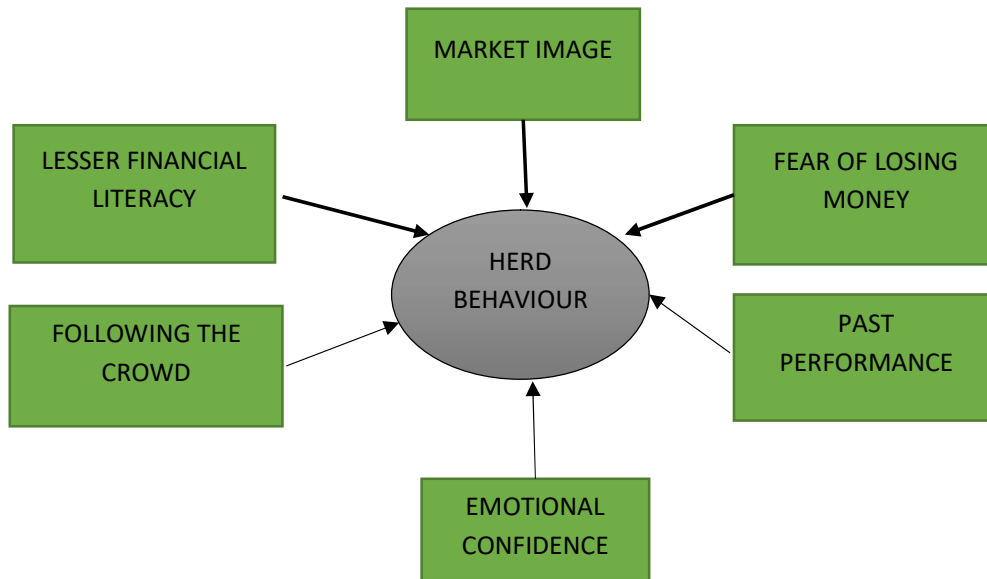
HRDB3: You follow the market movements while buying or selling stocks.

HRDB4: Other investors' recommendation of investment impacts your stock purchases.

RESULTS AND DISCUSSION

The first objective of identification of causes for herding behavior indicated less financial literacy within the investors of Chhattisgarh, and they fail to coordinate the personal goals with the futuristic investment goals. Another reason observed was the fear of facing the loss alone. This inherent fear makes the investors follow their peers, family, and friends without proper fundamental and technical analysis of the company shares. The past performance of the company also mattered a lot while investors took their investment decision. Another major psychological factor was the market image of the company and its relevant shares. The investors considered it a status symbol to hold shares of large-cap companies without analyzing the conglomeration of their objectives with the company goals. Humans are social beings. The emotional security of belonging to a group and compromising with the return was always thought better than standing out with personal objectives and perspectives.

Figure 2: Causes for Herd behavior



Source: Author’s study

The second objective of the paper was to study the impact of herd bias within the investors of Chhattisgarh in their financial investment decision. The descriptive statistics of the respondents related to herd behavior are shown in Table 1.

Table I: Descriptive statistics of the respondents related to herd behavior

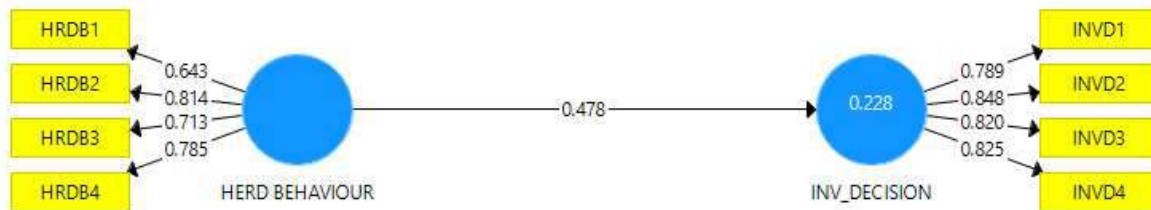
Item	VSD		SD		D		N		A		SA		VSA		Mean
	F	%	F	%	F	%	F	%	F	%	F	%	F	%	
HRDB1	46	11%	6	1%	65	16%	268	64%	10	2%	14	3%	8	2%	3.49
HRDB2	28	7%	8	2%	20	5%	310	74%	17	4%	11	3%	23	6%	3.73
HRDB3	35	8%	7	2%	65	16%	254	61%	29	7%	11	3%	16	4%	3.54
HRDB4	22	5%	11	3%	32	8%	320	77%	15	4%	5	1%	12	3%	3.73

Source: Author’s calculation

VSD: Very strongly disagree; SD: Strongly disagree; D Disagree; N: Neutral; A: Agree; SA: strongly agree; VSA: Very strongly agree

Table 1 indicated that investors had a neutral approach towards herding in the stock market. As calculated from the mean value ranging from 3.49 for HRDB1 “You prefer to invest in stocks in which, your peers and relatives have invested”, to 3.73 for HRDB2 “You analyze the company’s customer preference before you invest in their stocks” and HRDB4 “Other investors’ recommendation of investment impacts your stock purchases”, investors were least effected by other investor's reference while deciding their investment plans. The statistics indicated a less dependence of investors of Chhattisgarh on this psychological bias.

The analysis of the measurement model is depicted in Figure 3:

Figure 3: The Measurement Model

Source: Author's calculation from PLS-SEM

The model proposed is reflective. The first step in reflective measurement model assessment involves examining the indicator loadings. Loadings above 0.708 are recommended since the construct explains more than 50 percent of the indicator's variance, thus providing acceptable item reliability. The above figure suggests that the value of "r" meets the minimum requirement of 0.708 (Hair et al., 2011) for all statements except for HRDB1 which implies that the investors of Chhattisgarh are not influenced by the investments of peers and relatives. The value of R^2 is 0.228, which indicates that only 22.8% of the investment decision-making is influenced by herd behavior, and 77.2% of the behavior remains unexplained. The R^2 ranges from 0 to 1, with higher values indicating a greater explanatory power. As a guideline, the R^2 values of 0.75, 0.50, and 0.25 can be considered substantial, moderate, and weak (Henseler et al., 2009; Hair et al., 2011).

The second step is assessing internal consistency Reliability, most often using Jöreskog's (1971) Composite Reliability. Reliability values between 0.60 and 0.70 are considered "acceptable in exploratory research," values 0.70 and 0.90 range from "satisfactory to good." But values of 0.95 and higher are problematic since they indicate that the items are redundant, thereby reducing construct validity (Diamantopoulos et al., 2012; Drolet and Morrison, 2001)

Construct Reliability and validity

Table II: Testing the Reliability and Validity of the data

	Cronbach's Alpha	Rho A	Composite Reliability	Average Variance Explained (AVE)
HERD BEHAVIOUR	0.726	0.741	0.829	0.550
INV DECISION	0.842	0.869	0.892	0.674

Source: Author's calculation

The value of AVE (average variance extracted) also known as convergent validity indicates the extent to which the construct converges to explain the variance of its items. The minimum value of AVE is 0.5. The calculated AVE in the study is 0.550, well within the acceptable range indicating the existence of convergent validity. The standardized Beta of the model is 0.478, as depicted in figure 2. Higher Beta means higher reflection, magnitude, and sensitivity of IDVs on DV. However, it indicates that herd behavior has less impact on the sensitivity and impact on the Investment decision-making of the retail investors of Chhattisgarh.

Practical Implications

The above study highlights the fact that herding is a common cognitive bias existing in India. However, developing states of India like Chhattisgarh possess it to a lesser degree than metro or developed cities. This influences the portfolio construction pattern of the low cap, mid-cap, and higher cap companies to increase the penetration of their shares at the regional level also. This study will equip the decision-makers and retail investors about their inherent bias and take more independent decisions. The government can suggest a customized portfolio in a nation like India, with a mixed class of investors. The density of investment in India will be promoted by customization of portfolios leading to the holistic development of the country.

Social implication

The psychological tools help in explaining the personality traits, emotions, and personality type of an investor. The risk profile of the investors can be judged from it. Taking precautions and steps to eliminate and recognize the herding psychology can prevent asset bubbles and market volatility. Society will not be led by biased decisions in the financial landscape and result in individual and societal growth.

Limitations and scope of the study

The limitation of the study was the confinement of the sample to the state of Chhattisgarh. The scope of the study can be extended to other developing states also. The heuristics biases like overconfidence, representativeness, and prospect biases like regret aversion and loss aversion can be taken into consideration together with herd bias for the overall psychological analysis of the investor. The scope can be extended by considering the socio-cultural variables existing in the economy. The biggest problem faced was the availability of data related to retail investors as no database exists publicly, and they are considered confidential data.

Conclusion

Human beings being social animals, have the tendency to be accepted and affirmed in their decisions. Herding bias is latently inherent in every individual and investor too. The latest study concludes herding as the most apparent bias, in the financial market. Word of mouth, related to financial information of the past experiences of family and friends, pre-exist in the investors' minds.

The above study indicated that in Chhattisgarh, the retail investors were not very financially literate, which prohibited them from understanding the market information and made them, less reliant on the word of mouth of peers and colleagues. In India, where the share market, is seen as a scary and volatile investment platform, retail investors believe that one could not obtain optimum returns. The investors believed in taking decisions based on Representative shares of income-generating companies and avoiding regret on the decisions made. The prominent factors that impact the herd behavior identified in the study were less financial awareness and literacy, tendency to follow the crowd, build emotional confidence, the fear of losing money, the past performance of the securities, and the image of the market.

The study revealed, contrary to other observations, that herding was not a psychological bias impacting the investment decisions of the retail investors in Chhattisgarh. The investors were least impacted by the reference of the other investors. The behavioral finance field still lacks the predecessor and successor

of the capital markets, in herding, it believes that investors follow the footsteps of each other. The probable reason for the lack of herd behavior might be the lack of a role model from the developing state of Chhattisgarh in the stock market or the various myths related to the stock market. The education system of Chhattisgarh and other developing states of India needs to be reframed, targeting the young minds for more strategic decisions rather than theoretical concepts. Hands-on experience in investment and exposure to the right channel is the demand of the hour.

The absence of herding in a high return market of Chhattisgarh is a positive sign that the young investors can be trained, in the right direction to adjust their investment sails with the defined risk-return tradeoff depending on the financial personality of the individual. Thus, the study facilitates understanding the herding biases associated with the investment decisions of investors of an emerging smart city like Chhattisgarh that might help corporate stakeholders, financial analysts, and stock market regulators to devise their strategic and regulatory policies accordingly.

REFERENCES

- Arjoon, V. (2016). Microstructures, financial reforms, and informational efficiency in an emerging market. *Research in International Business and Finance*, 36, 112–126.
- Bikhchandani (2000). Herd behavior in financial markets. *IMF Economic Review*, 47(3), 279 – 310. *Business Research*, 6(6), 31
- Brogaard, J., Li, D., & Xia, Y. (2017). Stock liquidity and default risk. *Journal of Financial Economics*, 124(3), 486-502.
- Byrne, A. (2007). Investment employees saving and investment decisions in defined contribution pension plans: Survey evidence from the UK. *Financial Services Review*, 16 (3), 19 - 40.
- Chang, E.C., Cheng, J.W., Khorana, A. (2000). An examination of herd behavior in equity markets: An international perspective, *Journal of Banking and Finance*, 24, pp. 1651-1679.
- Devenow, A., & Welch, I. (1996). Rational herding in financial
- Diamantopoulos A, Sarstedt M, Fuchs C, et al. (2012) Guidelines for choosing between multiitem and single-item scales for construct measurement: a predictive validity perspective. *Journal of the Academy of Marketing Science* 40(3): 434-449.
- Drolet AL and Morrison DG. (2001) Do We Really Need Multiple-Item Measures in Service Research? *Journal of Service Research* 3(3): 196-204.
- Economics. *European Economic Review*, 40(3), 603-615.
- Hachicha N. New sight of herding behavioral through trading volume. *Economic Discussion Papers*. Kiel Institute for the World Economy; 2010-11.
- Hair JF, Ringle CM and Sarstedt M. (2011) PLS-SEM: Indeed, a Silver Bullet. *Journal of Marketing Theory and Practice* 19(2): 139-151.
- Henseler J, Ringle CM and Sinkovics RR. (2009) The Use of Partial Least Squares Path Modeling in International Marketing. In: Sinkovics RR and Ghauri PN (eds) *Advances in International Marketing*. Bingley: Emerald 277-320.

- Hirshleifer, D. and Teoh, S.T. (2003). Herd behavior and cascading in capital markets: a review and synthesis, *European Financial Management*, 9, pp. 25-66.
- Hsieh, S.F. (2013), Individual and institutional herding and the impact on stock returns: Evidence from Taiwan stock market, *International Review of Financial Analysis*, vol. 29, pp. 175-188.
- Indārs, E. R., Savin, A., & Lubloy, A. (2019). Herding behavior in an emerging market: Evidence from the Moscow Exchange. *Emerging Markets Review*, 38, 468–487.
- India, and Economy & GSDP About Chhattisgarh: Information on Industries. 2021. "About Chhattisgarh: Information on Industries, Geography, Economy & GSDP." *Ibef.Org*. <https://www.ibef.org/states/chhattisgarh.aspx>.
- Jöreskog K.G. (1971) Simultaneous factor analysis in several populations. *Psychometrika* 36(4): 409-426.
- Kang, W. (2013). Herd behavior in financial markets. *International*
- Tan L, Chiang TC, Mason JR, Nelling E. Herding behavior in Chinese stock markets: An examination of a and b shares. *Pacific-Basin Fin J.* 2008;16(1-2): 61–77.
- Torrecillas, M. J. M, Yalamova, R., & McKelvey, B. (2016). Identifying the transition from efficient market to herding behavior: Using a method from Econophysics. *Journal of Behavioral Finance*, 17 (2), 157 -182. DOI: <http://dx.doi.org/10.1080/15427560.2016.1170680>
- Zheng, D., Li, H., & Chiang, T. C. (2017). Herding within industries: Evidence from Asian stock markets. *International Review of Economics & Finance*, 51, 487–509.

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Understanding the burden of stress among caregivers of dependent elderly in middle socio-economic families of Ludhiana city

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ABSTRACT

Family caregivers play a pivotal role in the long-term healthcare of the elders in our society by taking care of the them and offering remarkable quantity of their time and energy in assisting the aged person who is suffering from functional dependency and seek assistance for their daily basic activities. Offering care is a highly tiresome job, and it becomes even more taxing when the seeker is entirely dependent. Thus, along with other responsibilities, caregivers often experience burden and stress due to caregiving. Additionally, it puts a massive toll on their health and well-being. The present study was planned to understand the caregiver stress as an essential and determining factor among the middle socio-economic families providing care to their dependent elderly and its impact upon their quality of life. The sample comprised 60 caregivers providing care to their dependent elderly and residing in the Ludhiana city of Punjab. Zarit Burden Interview scale (Zarit et al. 1980) was used to assess caregiver stress, and the quality of life of caregivers was investigated through WHOQOL-BREF QOL Questionnaire (WHO 1997). Results revealed a severe burden among caregivers. The regression analysis reflected a significant negative impact of caregiver stress across the various domains as well as overall quality of life of caregivers.

Keywords: Caregiver, Caregiver Burden, Dependent Elderly, Quality of Life.

INTRODUCTION

Aging is a natural biological phenomenon that brings various irreversible changes in the body with advancement in age. Aging includes multiple physical, functional, and psychological changes that take place in the process of growing old. These changes are gradually declining. Dannefer and Phillipson (2010) reported that population aging is a global phenomenon and also found that the Indian aged population is currently the second-largest in the world.

Conventionally, in the Indian families, joint and extended family were the two most familiar forms of family structure. Extended families consisted of two or more generations living together, which usually served as favorable for the elderly as they enjoyed power and special status in the family. Nevertheless, with rising globalization and modernization, the young generation of the family has to migrate to the urban areas to seek employment opportunities and simultaneously re-establish themselves as nuclear families and leaving behind their extended 'empty nests'.

However, in developing countries like India, even now, caregiving is immensely, the responsibility of the family members as there are minimal alternative institutional facilities and social support systems for

the elderly with long-standing illnesses such as mental disorders and chronic illnesses. A dependent elderly is a senior citizen who is dependent on others for his/her daily activities. The dependency could be due to disease, disability, and sudden accident.

A caregiver is the person who is primarily responsible for taking care of the daily as well as specific activities of the elderly. Caregiver devotes maximum hours of his/her day in fulfilling the needs of the elderly along with that, also, supports the elderly in psychological, and emotional domain of their lives.

Due to the sudden onset of unpredictable conditions, caregivers often feel unprepared to provide care, have insufficient knowledge to grant proper care, and receive little guidance from the various formal health care resources. This insufficient knowledge and understanding led family caregivers no idea about the kind of care they must provide or the amount of care needed to the care recipients. Family caregivers may not have any idea at what point of time they require external assistance through community resources and what are the best ways to use external services in caregiving process. In bridging the gaps between their unfamiliarity and available assistance, family caregivers, unknowingly avoid their health and well-being and simultaneously causing deterioration in their health and well-being.

Caregiver burden can be described as a multidimensional response towards negative appraisal and perceived stress resulting from providing care to an ill and dependent individual. Caregiver burden negatively impacts the physical, psychological, emotional and functional health of caregivers (Kim et al. 2012). Caregivers who try to balance caregiving tasks with their other activities of daily lives, such as workplace roles, family responsibilities, and leisure activities, often experience it challenging to focus on the positive aspects of caregiving and instead experience comparatively adverse reactions, such as an increased sense of burden (Pavalko & Woodbury 2000; Schumacher et al. 1993; Stephens et al. 2001).

The time for leisure is shortened when caregiving lasts for hours or must be combined with routine responsibilities. Caring for co-residing dependent elderly, in particular, not only influences a family's daily life but affects the well-being of both caregivers as well as family members (Bauer & Poza 2015). The process of caregiving is highly unpredictable, consists of multiple highs and lows, and often it is out of control. The uncertainty in the caregiving process puts physical as well as psychological exertion when performed for long periods, and therefore, negative consequences of caregiving responsibilities impact the quality of life of the caregivers. Also, it may lead to secondary problems in other domains of life such as interrelationships with family members, caregiver's health and well-being, workplace, etc.

Chow and Ho (2015) conducted a study on older spousal caregivers in Hong Kong to assess the psychological well-being differs by the age of the caregivers and strain experienced by them while performing their caregiving roles. They reported that caregivers who experience low levels of stress and strain were more likely to report lower caregiving distress. They also showed better mental health, lesser depressive symptoms, higher subjective well-being, higher life satisfaction, and higher purpose in life. Quality of life is recognized as the individual's perception of their position in their life in the terms of culture and value systems from where they belong and what are their goals (WHO 1997) in life. Quality of life is a comprehensive term and is comprised by the individual's physical health, psychological state of mind, social relationships, the extent of independence, personal beliefs, and their association with the

surrounding characteristics.

Settineri et al. (2014) conducted study on 294 caregivers who were helping patients undergoing physiotherapeutic, psychiatric, and neurorehabilitative treatment. The results of the study revealed that both the burden experienced by the caregivers and the quality of life were significantly worse who were taking care of the patients with physical and mental diseases.

Nguyen et al. (2015) studied the relationship between burden factors and quality of life of primary caregivers. They revealed that caregivers, who primarily responsible for caregiving process, had lower levels of mental well-being when the burden and other related factors increased due to caregiving of partially and wholly dependent elderly. They also demonstrated a high prevalence of mood disorders like anxiety, depression among caregivers who were persistent in caregiving tasks of the dependent elderly for longer period of time.

Thus, considering the pessimistic ramifications of the burden of stress on caregivers' well-being from the above studies, it is essential to have thorough understanding and consideration of the unrecognized burden experienced by the family caregivers. Therefore, keeping in view, the following objectives were framed: (i) To understand and assess the overall burden of stress experienced by the family caregivers across their stage of adulthood. (ii) Consideration of the burden of stress as an essential factor in impacting the quality of life of family caregivers.

METHODOLOGY

Sample

The sample comprised of 60 caregivers who were taking care of dependent elderly in their family for at least six months. An in-depth interview method was used to gather information. The sample was selected by using purposive and snowball sampling methods.

Tools of the study

Zarit Burden Interview

Zarit Burden Interview was used to assess the burden of stress by Zarit et al. (1980). It contains 22 items to be assessed on a 5-point Likert scale, ranging from 0= "never" to 4= "nearly always." High scores on the test indicate severe burden upon primary caregivers, whereas low scores on the test indicate mild or no burden.

World Health Organization Quality of Life-BREF

The quality of life of the respondents was examined by using a brief version of the Quality-of-Life Questionnaire (WHOQOL-BREF) developed by World Health Organization (WHO 1997). It comprised of 26 items that measured the quality of life in four broad domains for example: physical health, psychological health, social relationships, and environment. High scores indicated the high quality of life of family caregivers, whereas low scores indicated the low quality of life.

Socio-Economic Status Scale by Kuppuswamy

The 2019 modified version of the Kuppuswamy Socio-Economic Status scale (1981) was used to assess the socio-economic status of the families under the study. The modified scale includes components such as head of families' educational status, occupational status, and overall aggregate income of the whole family.

All the research tools were standardized and pre-tested on 20 non-sampled respondents before applying in the final sample under study.

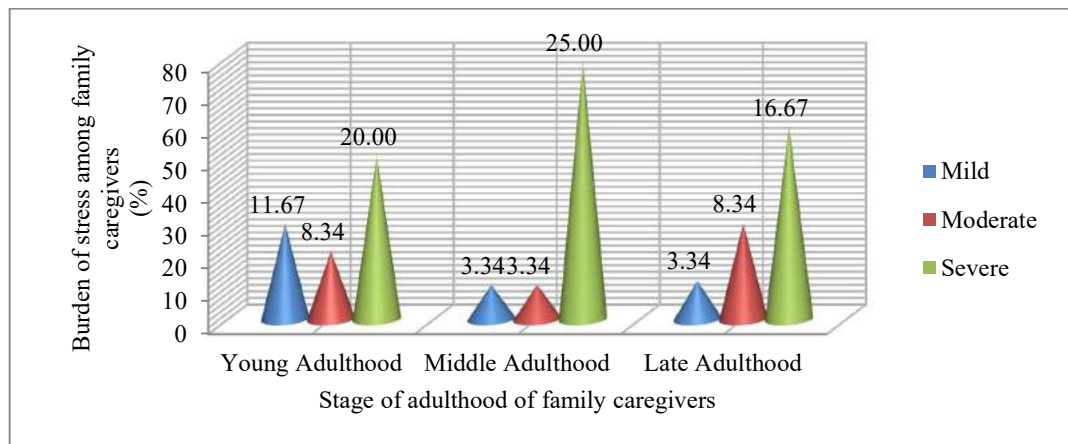
Procedure

The sample was selected with the help of doctors and staff of neurology and neurosurgery department of selected hospitals of Ludhiana city. The Director/Head of the shortlisted hospitals was approached to seek their permission to select respondents. The families were contacted for the collection of data in their homes as per their convenience. The in-depth interview method was used for the data collection. All the research instruments used for the present study were standardized.

RESULTS AND DISCUSSION

1. To understand and assess the overall burden of stress experienced by the family caregivers across their stage of adulthood.

Figure 1 level of burden of stress in various stages of adulthood of family caregivers



The above graph (Figure 1) represents the distribution of the caregivers as per their experience of the burden of stress across their stage of adulthood. As per the figure, most family caregivers (61.67%) were experiencing the severe levels of burden of stress, followed by 20 percent moderate and 18.36 percent of respondents who were experiencing mild stress. The stages of adulthood of the caregivers were divided into three groups that are: young adulthood, middle adulthood, and late adulthood. The young adulthood stage consists of the caregivers who were in the age group of 26-42 years; the middle adulthood group ranges from 43 to 59 years, while the late adulthood ranges from 60 to 76 years of age.

The in-depth observation of the above figure revealed that among the caregivers who belong to young adulthood, one-fifth of them (20%) were experiencing a severe levels burden of stress, followed by 11.67 percent experiencing mild and 8.34 percent moderate level of burden of stress. Respondents from middle adulthood revealed that one-fourth (25%) of the caregivers were experiencing a severe levels burden of stress and percent of respondents experiencing moderate and mild level of burden of stress were at par (3.34%). However, among the caregivers in late adulthood, 16.67 percent of respondents were experiencing a severe level of burden of stress, followed by 8.34 percent with moderate, and only 3.34 percent of caregivers experienced the mild level of burden of stress.

2. Consideration of the burden of stress as an essential factor in impacting the quality of life of family caregivers.

Table 1 association of the burden of stress being experienced by the family caregivers and their domain-wise quality of life (n=60)

Level of Burden of Stress	Domains of quality of life												χ^2 value			
	Physical health			χ^2 Value	Psychological health			Social relationships			χ^2 Value	Environmental				
	Low f(%)	Average f(%)	High f(%)		Low f(%)	Average f(%)	High f(%)	Low f(%)	Average f(%)	High f(%)		Low f(%)		Average f(%)	High f(%)	
Mild	10 (16.67)	0 (0.00)	1 (1.67)	10 (16.67)	1 (1.67)	0 (0.00)	9 (15.00)	2 (3.34)	0 (0.00)	9 (15.00)	2 (3.34)	0 (0.00)	9 (15.00)	2 (3.34)	0 (0.00)	16.01*
Moderate	10 (16.67)	2 (3.34)	0 (0.00)	6 (10.00)	6 (10.00)	0 (0.00)	7 (11.67)	5 (8.34)	0 (0.00)	17.75***	2.83 ^{NS}	6 (10.00)	6 (10.00)	0 (0.00)	16.01*	
Severe	37 (61.67)	0 (0.00)	0 (0.00)	36 (60.00)	1 (1.67)	0 (0.00)	28 (46.67)	8 (13.34)	1 (1.67)	12.74**	*	36 (60.00)	1 (1.67)	0 (0.00)	16.01*	

Note: *** Significant at 1% level, NS: Non-significant.

Table 1 represents the association between the burden of stress and domain-wise quality of life of the family caregivers. The first domain of quality of life is the physical health domain which reflects the perception of pain or discomfort, dependence on medication, level of fatigue or energy, capacity for mobility, quality of sleep or rest, and energy level for daily household activities and caregiving work.

The association between caregivers' stress and physical health domain of quality of life was statistically significant. It reflects that the burden of stress experienced by the family caregivers have a deep impact on the physical health of the family caregivers. According to Zarit et al. (1985), the physical health of the family caregiver is an important variable to consider in understanding their burden. It is not uncommon to hear of caregivers suffering from physical exhaustion or being physically injured as a result of their caregiving duties.

Further probe into the data depicted that among the family caregivers in a poor state of physical health, a majority (61.67 %) had the severe burden of stress due to caregiving while the respondents experiencing mild and moderate burden were at par (16.67 %).

Fengler and Goodrich (1979) found that a caregiver's health status was associated with their life satisfaction and ability to cope with the rigorous task of caregiving. Pearlin & Schooler (1978) have also suggested that as per the perception of the caregivers, their overall health is a significant predictor of life satisfaction which also indicated that the health status may act as a mediating variable of the strain experienced by them while caregiving of the elderly.

Further, the association between the burden of the stress of the caregivers and their psychological health was significantly associated. It is well acknowledged that psychological health and well-being are essential elements of the quality of life of the family caregivers. Mental stress and storm lead to dysfunctional thinking and disharmony in carrying out recurring role and responsibilities, which ultimately interfere in providing care to the dependent patient.

The data presented unveils that among the caregivers who were experiencing poor psychological well-being, a significant proportion of them (60.00%) were experiencing severe burden, followed by 16.67 percent in mild stress and 10 percent experiencing moderate stress. It reflected that most respondents were experiencing severe stress in their daily routine tasks, which impacted their psychological harmony and well-being.

Thus, there was a reciprocal impact of these two variables on each other where they were adversely impacting each other. Rodriguez-Perez et al. (2017) examined 86 caregivers by conducting a cross-sectional study in which they found coping strategies related to superior psychological and environmental dimensions of quality of life; therefore, they proposed the use of coping strategies among caregivers to overcome their caregiver burden and other variables.

While assessing the association between burden being experienced by the caregivers and their social relationships domain of quality of life, it was found to be non-significant. Thus, it points out that the social relationship domain of quality of life of family caregivers was not directly connected, and the results suggested that the support and assistance from social circles such as friends, well-wishers, relatives, etc., counts comparatively less. Contrary to the above findings, Conde-Sala et al. (2003) reported that the quality

of life of female caregivers is more distressful than men caregivers, and their perception shows the strongest association with mental health and the burden of caregiving.

Furthermore, the in-depth analysis of the data depicted that among the respondents perceiving themselves as poor in social relationships, 46.67 percent reported a severe burden of stress, followed by 15.00 percent experiencing mild stress and 11.67 percent having the moderate burden of stress. Thus, caregivers of dependent elderly who remained occupied in household and other routine jobs and took care of the needs and demands of the dependent elderly could not get time to socialize and develop supportive social connections. They often missed the family functions and abstained from community participation. Thus, they often lack the much-needed social warmth and support from family and friends.

Whereas, the fourth domain of quality of life, that is, the environmental domain, was found to be significant with the burden being experienced by the caregivers. This clearly reflected the importance of the environmental aspect of quality of life and impacted upon the burden of stress experienced by them. The environmental domain of the quality-of-life deals with the place where dependent elderly and the caregiver cohabitates, physical safety and security, accessibility of healthcare and transport, participation in recreation activities, rate of pollution in the surroundings etc. Therefore, for a better quality of life and the mentioned aspects, the burden upon the caregivers should be well-managed.

The results corroborate with the study conducted by Amendola et al. (2011), in which they identified that as the burden upon caregivers and time (months) dedicated to caring for the elderly increased, the perception of quality of life in all domains, especially in the environment domain get worse, which can be associated with the deficit of informal support and lack of proper support received by them.

Table 2 regression analysis of various domains of quality of life on the burden of stress being experienced by the caregivers of dependent elderly (n =60)

Domains of Quality of Life	Regression Coefficient(β)	Standard Error	Constant (α)	R ²	F-value
Physical Health	-0.35	1.18	77.12	0.12	7.95**
Psychological Health	-0.13	0.66	63.50	0.02	1.03
Social Relationships	0.24	0.68	44.63	0.05	3.61
Environmental	-0.27	0.64	68.33	0.07	4.67**
Overall Quality of Life	-0.26	0.18	69.21	0.08	4.26**

Note: ** Significant at 5% level

Table 2 exhibits the contribution of various domains of quality of life (independent variable) towards the burden of stress (dependent variable) experienced by the caregivers of the dependent elderly. The regression analysis of the data reveals a negative contribution of all domains of quality of life on caregiver stress except the social relationship domain. The regression analysis of two domains of quality of life i.e., physical health (F =7.95; $p \leq 0.05$) and environmental (F =4.67; $p \leq 0.05$), had contributed

significantly and negatively towards the burden of stress experienced by the caregivers. Also, the significant negative contribution of overall quality of life on the burden of stress was observed ($F = 4.26$; $p \leq 0.05$).

The R^2 indicates that the domains and overall quality of life contributed 12.0, 2.0, 5.0, 7.0, and 8.0 percent, respectively, towards caregiver stress. The regression coefficient (β) indicated a negative contribution by the three domains of quality of life such as physical health, psychological health & environmental domain as well as the overall quality of life also reflected a negative on the burden of the stress experienced by the family caregivers.

Conclusion

The full-time job of caregiving is unrecognized as a challenging job as it is mainly linked with the way which paves to heaven. Caregivers can be termed as 'hidden patients' who may possess some adverse severe physical and mental health consequences from their physically and emotionally demanding work as caregivers and reduced attention to their health and health care. This ignorance can further deteriorate their quality of life and this fact has been clearly proved by the present study. Therefore, caregivers' burden of stress is an essential factor to consider because it brings adverse outcomes in the lives of family caregivers of dependent elderly relatives.

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Conflict of interests

The authors declare that no competing interests exist.

Author's contributions

All the authors contributed equally to the theoretical development, analysis, interpretation, and writing of the manuscript.

SREFERENCE

- Amendola, F., Oliveira, M. A. C., & Alvarenga, M. R. M. (2011). Influence of social support on the quality of life of family caregivers while caring for people with dependence. *Rev Esc Enferm USP*, 45, 884-89.
- Bauer, J. M., & Poza, A. S. (2015). Impacts of Informal Caregiving on Caregiver Employment, Health and Family. *Bonn Germany Journal*, 8851:3:90. Retrieved from <http://ftp.iza.org/dp8851.pdf>.
- Chow, E. O., & Ho, H. C. (2015) Caregiver strain, age, and psychological well-being of older spousal caregivers in Hong Kong. *Journal of Social Work*, 15, 479-497. doi: 10.1177/1468017314549709
- Conde-Sala, J. L., Garre-Olmo, J., Turro-Garriga, O., Vilalta-Franch, J., & Lopez-Pousa, S. (2003) Quality of life of patients with Alzheimer's disease: Differential perceptions between spouse and adult child caregivers. Research Unit and Memory and Dementia Assessment Unit, Hospital Santa Caterina, Institute of Health Care, Salt, Spain.
- Dannefer, D., & Phillipson, C. (2010). *The SAGE Handbook of Social Gerontology*. Sage Publications Ltd, India. Retrieved from <http://www.theseus.fi/bitstream/handle/10024/75830/Thesis%20print%20final.pdf?sequence=1>

- Fengler, A., & Goodrich, G. (1979). Wives of elderly disabled men: The hidden patients. *The Gerontologist, 19*, 175-83.
- Kim, H., Chang, M., Rose, K., & Kim, S. (2012). Predictors of caregiver burden in caregivers of individuals with dementia. *Journal of Advanced Nursing, 68*, 846–55. doi: 10.1111/j.1365-2648.2011.05787.x
- Kuppuswamy, B. (1981). Manual of socio-economic status scale (urban). Delhi; Manasyan
- Modified Kuppuswamy Scale [cited 2019 Mar 2]. Available from: <http://www.ihatepsm.com/blog/modified-kuppuswamy-scale>
- Nguyen, D. L., Chao, D., Ma, G., & Morgan, T. (2015). Quality of life and factors predictive of burden among primary caregivers of chronic liver disease patients. *Ann Gastro-enterol, 28*, 124-29.
- Pavalko, E., & Woodbury, W. (2000). Social roles as process: Caregiving careers and women's health. *Journal of Health and Social Behaviour, 41*, 91–105.
- Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19*, 2-21.
- Rodriguez-Perez, M., Abreu-Sanchez, A., & Rojas-Ocana, M. J. (2017). Coping strategies and quality of life in caregivers of dependent elderly relatives. *Health and Quality of Life Outcomes, 15*:71 (Abstr).
- Schumacher, K., Dodd, M., & Paul, S. (1993). The stress process in family caregivers of persons receiving chemotherapy. *Research in Nursing & Health, 16*, 395–404.
- Settineri, S., Rizzo, A., Liotta, M., & Mento, C. (2014). Caregiver's burden and quality of life: caring for physical and mental illness. *International Journal of Psychological Research, 7*, 30–39. <https://doi.org/10.21500/20112084.665>
- Stephens, M., Townsend, A., & Martire, L. (2001). Balancing parent care with other roles: Interrole conflict of adult daughter caregivers. *The Journals of Gerontology Series B, 56*, 24–34.
- World Health Organisation (1997). WHOQOL. Measuring Quality of Life. Retrieved from http://www.who.int/mental_health/media/68.pdf
- Zarit, S. H., Reever, K. E., & Back-Peterson, J (1980). Relatives of the impaired elderly: correlates of feelings of burden. *Gerontologist, 20*, 649-55.
- Zarit, S. H., Orr, N. K., & Zarit, J. M. (1985). The hidden victims of Alzheimer's disease-families under stress. New York University Press, New York.

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Internet addiction: A predictive role of contextual factors for Indian adolescents

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ABSTRACT

In the present era of the COVID--19 pandemic, the internet, or dependency on the technology have become a significant revolution in human lives. However, it is undeniable that excessive use of it increases the likelihood to be internet addict. Recognizing the adversity associated with excessive use of the internet or internet addiction (IA), the present investigation aimed to analyze the predictive role of contextual factors to determine the level of internet addiction among school-going adolescents. The contextual factors refer to aspects related to internet usage such as purpose, device, and preferred time to use the internet. The sample comprised of 182 adolescents who were diagnosed with internet addiction. The sample was selected through purposive sampling technique from various schools in the state of Rajasthan. A correlational research approach was adopted. The information on contextual aspects was obtained on Internet Information Index (III), developed for the present study. Young's Internet Addiction Test (YIAT) developed by Young (1998) was used to diagnose and assess the level of internet addiction. Obtained data were analyzed using Binary Logistic Regression analysis (BLRA). Results revealed that using the internet for purpose ($B = 1.42$, $OR = 4.15$, $p < .01$), and devices ($B = -.97$, $OR = .37$, $p < .05$) are significant factors, whereas time involvement in internet activities ($B = .30$, $OR = 1.35$, $p > .05$) either during day or night is analyzed to be non-significant to contribute one to be high internet addict for school-going adolescents. To conclude, the current study illustrates the significance of contextual factors to predict the level of high internet addiction among adolescents. Certainly, the internet has been a source of knowledge. However, its excessive use for time pass for so many individuals, leads them to become internet addicts. In aforesaid reference, this study has successfully contributed towards the understanding of several contextual factors that leads to higher levels of IA amongst Indian adolescents. Moreover, the future implications are that it provides a new perspective to the professional health care workers to look into these contextual factors to prevent internet addiction (IA).

Keywords: Internet Addiction, Time, Purpose, Device, Adolescents

INTRODUCTION

Tremendous development in the different areas of health, scientific, economic, technological, and infrastructure sectors has given a new outlook to modern India. Despite these enormous developments, an intemperate use of the internet has been acknowledged worldwide as a major health concern beyond all ages and social groups. Moreover, the worldwide statistics have displayed that Asia has delineated the highest number of internet users and comprises almost 49.9% share of the world's internet user population (Sharma, & Sharma, 2018). Therefore, amongst that list, India is ranked higher than China in their use of the internet (Statista Research Department, 2018).

Past evidence, and studies to date have concluded that internet addiction is a cause of significant public health concern, especially among adolescent life stages (Aboujaoude et al. 2006; Shek, & Yu, 2016; Saikia, Das, Barman, & Bharali, 2019). Nevertheless, every individual belonging from different age groups

and occupational background has a different justification for using the Internet, notwithstanding the motive for the youth population, which includes excessive gaming, intensive social media use, and timely research to gain better information (Vadher et al. 2019). Moreover, individuals in this age group are developmentally very vulnerable and are amongst some of the heaviest users of the internet (Mathew, & Raman, 2020).

A previous study conducted by Wang et al. (2012) proposed that the common problem with the increasing usage of the Internet is; that there are a few entrenched habits, which are related to poor lifestyle patterns among young individuals, such as displaying psychological symptoms of track of losing time, being ignorant of basic drives such as hunger, sleep (Rustam, Kumar, Zahid, & Rafiq, 2019) isolation, and displaying symptoms of withdrawal (Kawabe, Horiuchi, Miyama, Jogamoto, Aibara, Ishii, et al., 2019). Similarly exhibiting physical symptoms such as back pains, headaches and poor vision are very common (Burleigh, Griffiths, Sumich, Wang, & Kuss, 2020). On the contrary, using the Internet in a productive manner, such as gathering information or learning a new skill, has been undoubtedly associated with healthy lifestyles. Nonetheless, unrestricted use of the internet leads to an internet addiction disorder. Internet addiction disorder is commonly described as troublesome, and obsessional surfing on the internet, and as a consequence, it causes a significant blighting in one's routine functioning in different life aspects (Restrepo et al. 2020).

There is a plethora of research that has been conducted in the area of IA and its associated factors that highlights the contribution of multivariate factors for IA. In regards to the contextual factors, the existent evidences are dispersed, such as it was reported that most adolescent prefer to use internet everyday and spend an extra hour surfing on the web during the night (Ekinci, Celik, Savaş, & Toros, 2014). Additionally, another research revealed that adolescents belonging to the age group of 13-17 years use their mobile phones to access social media and other platforms such as YouTube because mobile phones are handy and easily accessible (Symons, Ponnet, Walrave, & Heirman, 2017). In various studies, it was reported that adolescents use internet mainly for the purpose of new learning, which enhances their social and moral development (Oluwafemi, Bibire, Mebu, Dung, & Aderibigbe, 2020). Although, these studies highlight association of contextual factors with internet usage but seem to be inconclusive in terms of methodological limitations. Furthermore, there is a lack of empirical evidence on role of contextual factors to determine level of IA. Therefore, it is advantageous to scrutinize the role of contextual factors for adolescents in the Indian context.

Operational definition of the variables *under study* are -

- Adolescent: In the present study students between the age ranges from 15 to 18, studying in different schools situated in Rajasthan state were considered as adolescents.
- Internet Addiction: Internet addiction (IA) refers to the extent a person indulges in various activities on the internet, which limits their daily normal functioning in different domains. In the present study, the level of internet addiction was determined with the help of Young's Internet Addiction Test developed by Young (1998).

- Contextual factors: Factors associated with internet usage such as purpose, device, and time to use internet were considered as contextual factors.

Objective - to ascertain the predictive role of contextual factors (Purpose, device & Time) of internet usage to determine the level of internet addiction (Low/High) among school-going adolescents.

Hypothesis - that contextual factor will be significantly predict the level of internet addiction (Low/High) among school-going adolescents.

METHODOLOGY

Sample

To select the sample, the students from class 9 and 11 were decided as student population. Those who were reported they are using the internet on a daily basis were administrated on YIAT. The whole sample comprised 182 Internet addict adolescents with the age group of 15 to 17 years. A Purposive (Non-probability) sampling technique was used to select the sample.

The sample selection criteria were-

Inclusion Criteria - i) Adolescents between the age of 15 years to 17 years. ii) Adolescents who scored 40 or above on the measure of internet addiction, i.e., Young Internet Addiction Test (YIAT).

Exclusion Criteria - i) Adolescents who scored below 40 on the measure of internet addiction i.e., Young Internet Addiction Test (YIAT). ii) Refused to involve in the study.

Sample Profile - Sample profile revealed the different contextual characteristics of the selected sample (N=182), which is described in Table 1 depicted as below-

Table 1 Sample profile based on contextual characteristics

Contextual Characteristic	Groups	Frequency (f)	Percent (%)
IA Level	Low	131	72
	High	51	28
	Total	182	100
Purpose	Essential (Aca. /Comm.)	94	52
	Non-Essential (Shop. /Entertain)	88	48
	Total	182	100
Device	Mbl/Tab	105	58
	PC/Lap	77	42
	Total	182	100
Time	Day	87	48
	Night	95	52
	Total	182	100

Table 1 presents the contextual characteristics of the present sample of adolescents with IA. Based on obtained scores on Young's Internet Addiction Test (YIAT), 72% and 28% reported being low and high internet addictions, respectively. Accordingly, in their purpose to use internet, 52 % of participants reported their preference to use the internet for essential needs, such as academics (Aca), and communication (Comm.). Whereas 48% of participants reported, their usage was non-essential such as, shopping (Shop), and entertainment (Entertain). For device, the distribution of the sample was found as 58% and 42% for two groups namely using mobile phones/tablets, and using Personal Computers (PC)/laptops, respectively. In regards to preferred time to use internet, 48% of adolescents, reported that they used it in the daytime. While 52 % said their dominating time to use internet was during the night.

Tests/Tools

- **Internet Information Index;** Internet Information Schedule consists of those items which provide detailed information related to participants personal, and demographical information such as Name, Sex, Age, Area of Residence, School, Class, and SES as well as their contextual aspects related to internet usage like purpose of using the internet (Essential use i.e. Education/Communication & Not essential use i.e. Entertainment/Social Media), device (Mbl/Tab & PC/Lap) they use for internet access, preference of time either day or night of using internet etc.
- **Young's Internet Addiction Test (YIAT);** To assess the internet addiction, Young's Internet Addiction Test (YIAT) was used. YIAT was originally developed by Young in 1998. This test comprises 20 statements based on diagnostic criteria of pathological gambling described in DSM-IV-TR (American Psychiatric Association, 2000). Psychometric properties include internal consistency, and concurrent validity of YIAT-20 is analyzed satisfactory (Widyanto, & Mcmurran, 2004). This is a five-point scale. For each item, a graded response against six options i.e. Does not apply, Rarely, Occasionally, Frequently, Often, and always are scored as 0, 1, 2, 3, 4, and 5, respectively. The minimum score is 20 while the maximum is 100; the higher the score, the greater the level of Internet addiction. The level of internet addiction is segregated into three categories -
 - I) Average online user - A score of 20-39 is labeled as an average online user (characterized as an individual who have complete control over his/her usage).
 - II) Low Internet Addict or Problematic Internet User - A score of 40-69 is considered a problematic Internet User (signify frequent problems due to Internet usage).
 - III) Highly internet addict - A score of 70-100 means highly internet addict (the Internet is causing significant problems).

Statistical Analysis

Data were analyzed under both descriptive (Frequency and percentage by different contextual characteristics) and inferential statistical analysis (Binary Logistic Regression Analysis (BLRA), with the help of Statistical Package for Social Sciences (SPSS) by using version 22.0 (Windows, 2010). The

computed p values were less than 0.05 and 0.01 respective to each analysis determined to be statistically significant.

RESULT

The present study dealt with contextual factors such as device, purpose & time to use the internet and analyzed their predictive role to determine the level of IA for the sample of school adolescents identified with excessive use of the internet (n=182). These factors were analyzed under a single model using Binary Logistic Regression Analysis (BLRA). This model examined the role of contextual factors to predict the probability of an internet addict to be highly internet addict.

Table 2 Omnibus Tests of Model Coefficients

		Chi-square	df	p
Step 1	Step	28.625	3	0.001
	Block	28.625	3	0.001
	Model	28.625	3	0.001

Model Coefficients ($\chi^2(3, 182) = 28.62, p = .000$) inspected that contextual factors analyzed under this model are significant to predict the case of the higher level of internet addiction for school-going adolescents (Table 2).

Table 3 Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	187.286a	0.146	0.21

The “pseudo” R estimates further indicates that the predictors under this model are explained in between 14% (Cox & Snell R Squared) and 21% (Nagelkerke R Squared) of the variance for internet addiction (Table 3).

Table 4 Classification Table

		Predicted		Percentage Correct	
Observed		IA			
		Low	High		
Step 1	IA	Low	113	18	86.3
		High	29	22	43.1
Overall Percentage					74.2

The classification table further indicates that this model correctly classifies 43.1% cases of highly internet addict and 86.3 % cases of the low internet addicts, with an overall success rate of 74.2 % for both levels of internet addicts (Table 4).

Table 5 Variables in the Equation

		B	S.E.	Wald	Df	Sig.	Exp (B)
Step 1 ^a	Purpose	1.423	0.381	13.92	1	0.001	4.15
	Device	-0.971	0.422	5.3	1	0.021	0.379
	Time	0.303	0.384	0.62	1	0.430	1.354
	Constant	-2.334	1.220	3.66	1	0.056	0.097

Note. Reference category was High Internet Addiction

Table 5 presents a summary of factors or variables in the equation by revealing coefficients [B], wald statistics, Odd Ratio [(Exp (B))] values, and the reference category was High Internet Addiction. Wald statistics indicate that except time, purpose and device factors are significantly predict a higher level of IA for school-going adolescents. To elaborate, equations for purpose (B = 1.42, OR = 4.15, $p < .01$) and device (B = -.97, OR = .37, $p = .05$) are analysed as significant, whereas for time (B=.30, OR = 1.35, $p > .05$) it is endorsed as non-significant to predict higher level of IA for school-going adolescents. More precisely, these equations revealed that-

- School adolescents, those using the internet for the not essential purposes such as entertainment and various other purposes such as shopping, purchasing, etc. are significantly 4.15 times expected to be highly internet addict as compared to those who use internet for their academics and communication purpose, which are classified on the basis of essential needs.
- School adolescents, using devices like a personal computer (PC) or Laptops for internet activities, are significantly .38 times less likely to be highly internet addicts than those who are using devices such as mobile or tablets.
- The probability of individuals to be the highly internet addict is insignificantly increased by 1.35 times for those using internet during night as compared to those using internet during the daytime for school-going adolescents.

To conclude, high internet addiction is said to be associated with using internet for not essential or less significant purposes such as for entertainment and other usage like banking, shopping, etc., having more handy devices such as mobile and tablet, involved in internet activities during the night for school-going adolescents.

Concisely, the findings outlined that except time, two of the contextual factors, namely purpose and device are significant to determine a higher level of internet addiction for school-going adolescents identified with IA. Hence, speculated Hypothesis has been remarkably accepted in the present study.

DISCUSSION

Results under the Binary Logistic Regression (BLR) highlighted the significance of contextual factors (Purpose, device, & Time) to predict the high level of Internet Addiction among school-going adolescents who are classified as internet addicts (Table 3). Result revealed odd ratio (OR) for the purpose (OR = 4.15), and device (OR = .37) are as significant, whereas for time (OR = 1.35), it is endorsed to be non-significant to predict the higher level of IA for school going adolescents (Table 5). More precisely, this model revealed

that a higher level of internet addiction is associated with using the internet to meet their unnecessary needs such as for entertainment and other purposes (Not Specified such as surfing, shopping, etc.), having more handy devices such as mobile and tablets, involved in internet activities during the night for school-going adolescents.

The significance of purpose and time factor for higher internet addiction is further corroborated in a recent study by Wright, Heiman, & Olenik-Shemesh (2021), where in different causes and consequences associated with problematic Internet Use (PIU) among adolescents, were addressed. While indicating causes, contextual factors were reported to be more prominent among internet users. The consequences were found in physical, behavioural and academic outcomes. In same line, Mamun, et al (2020), further revealed that sleep disturbance (more or less than 6-7 hours sleeping time), not using internet for academic purposes, and online chatting were risk factors for problematic Internet Use. Likewise, Abdel-Salam (2018), revealed that internet usage in adolescents is predominantly for entertainment reason, and their preferred usage time is midnight. According to the present study, severely addicted students mostly used the Internet for entertainment reason, whereas non-addicts used it to gain information. Similarly, Soleymani, et al. (2016) reported that individuals who use the internet for academic purposes are less likely to be addicted to the internet. The association of High Internet Addiction with using internet for entertainment purposes is also substantiated in other studies of Alshehri, Azahrani, & Alotaibi (2015), and Kesici, & Şahin (2009). According to Young (2004), non-addicts commonly used the Internet for research or gaining additional knowledge. However, addicts or potential addicts predominantly use it for entertainment purposes. In the same context, other studies by Desouky, & Ibrahim (2015), and Alhajjar (2014) revealed that students with severe addiction used the Internet to alleviate their sense of loneliness and other entertainment purposes.

Withal the association of high internet addiction with devices such as mobiles and tablets can be best explained by its portability aspects as these are comparatively small in size and lightweight so one can carry it in their hands and therefore the devices can be taken everywhere. In this line, Katie (2010) reported that adolescents use cell phones, instant messaging, and social media such as Facebook because they feel these instruments are efficient and convenient. Consistently, in various studies the detrimental effects of smartphone (over-use) have been reported for over-use of internet (Montag, et al., 2021; Gligor, & Mozoş, 2019; Montag, & Becker, 2019). The significance of mobile for higher IA is further substantiated in some studies such as Saied et al. (2016), and Reda et al. (2012). Overall, the available literature indicate that the predominant factor of internet addiction is mobile phone.

However, the individual role of the time factor is analyzed as non-significant in this study, but the emerged model indicates combined role of these all contextual factors including the time are significant to determine the level of internet addiction. Likewise, for the time factor Abdel-Salam (2019), reported that students who are severely addicted to the internet are reported to be indulged in internet activities during the night. Similar findings were reported in research conducted by Al-hantoushi & Al-abdullateef (2014), Salehi et al. (2014), and Chebbi et al. (2001).

Moreover, the potential strengths of the study were reported to be that it helped the researcher in narrowing down the factors that determine internet Addiction (IA), and focus only on the contextual factors

that affects IA among adolescents. This led them to gather insights on contextual factors associated with high internet addiction among school-going adolescents. Furthermore, standardized questionnaires were used, which increased the reliability and validity of this study. However, contradicting the above strengths, there were several consequential limitations of the current study. This study undermines the effect of contextual factors on different populations and individual differences as it only considers adolescents and limits its sample size. Lastly, the results were based on a particular questionnaire presented to the students, and there is a likelihood of them selecting options that may or may not relate to them. Hence the above could have a drastic and false impact on the results of the current study.

Conclusion

In the current pandemic era, technology is known to fulfil most of the routine tasks performed by individuals such as working from home, shopping, online classes, virtual events, and several other things. Along with its significance in human life, it is also substantiated as an inevitable factor for behaviour addiction which leads one's life towards pathetic living. More precisely, the internet has been a stumbling block for many individuals over the past years resulting in Internet addiction. In line of the aforementioned, the present finding portrays the significance of contextual factors to predict the higher level of internet addiction amongst the young generation. The theoretical significance of the present finding can be described as it contributed to the understanding of various contextual factors that lead towards the high level of internet addiction amongst adolescents. As far as practical significance is concerned, the finding provides a new perspective for the health professionals to design preventive measures, where these factors could be monitored by parents, teachers, and students in order to prevent IA. In this context, the present study will be conducive to restraining the usage of the internet, which eventually reduces its adverse outcomes on human life.

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REFERENCES

- Abdel-Salam, D. M., Alrowaili, H. I., Albedaiwi, K. K., Alessa, A. I. & Alfayyadh, H. A. (2019). Prevalence of Internet addiction and its associated factors among female students at Jouf University, Saudi Arabia. *Journal of the Egyptian Public Health Association*, 94 (12). <https://doi.org/10.1186/s42506-019-0009-6>
- Alhajjar, B. (2014). Internet addiction and psychological morbidity among nursing students in Gaza-Palestine. *Am J Appl Psychol*, 3,99–103. <https://doi.org/10.11648/j.ajap.20140304.13>
- Al-hantoushi M, & Al-abdullateef S. (2014). Internet addiction among secondary school students in Riyadh city, its prevalence, correlates and relation to depression: a questionnaire survey. *International Journal of Medical Science and Public Health*, 3,10–5. <https://doi.org/10.5455/ijmsph.2013.130920131>
- Aziz, N., Wal, A., Wal, P., & Bhalla, R. (2020). internet addiction in india: Its current prevalence and psychological and complementary treatment techniques. *Current Psychiatry Research and Reviews Formerly: Current Psychiatry Reviews*, 16 (1), 20-30. <https://doi.org/10.2174/2666082216666200106120104>
- Burleigh, T. L., Griffiths, M. D., Sumich, A., Wang, G. Y., & Kuss, D. J. (2020). Gaming Disorder and Internet Addiction: A systematic review of resting-state EEG studies. *Addictive Behaviors*, 106429. <https://doi.org/10.1016/j.addbeh.2020.106429>
- Chebbi, P, Koong, K. S., Liu L., & Rottman, R. (2001). Some observations on internet addiction disorder research. *J Info Sys Educ.*, 1, 3–4.
- Desouky, D, & Ibrahim, R. (2015). Internet addiction and psychological morbidity among Menoufia university students, Egypt. *American Journal of Public Health Research*, 3, 192–8. DOI:10.12691/ajphr-3-5-3
- Ekinci, Ö., Celik, T., Savaş, N., & Toros, F. (2014). Association between Internet use and sleep problems in adolescents. *Nöro Psikiyatri Arşivi*, 51(2), 122. <https://dx.doi.org/10.4274%2Fnpa.y6751>.
- Gligor, Ş., & Mozoş, I. (2019). Indicators of smartphone addiction and stress score in university students. *Wiener klinische Wochenschrift*, 131(5–6), 120–125. doi:10.1007/s00508-018-1373-5
- Katie, S., & Alpizar (2010). New media use among high achieving adolescents. Thesis for Master degree, The department of journalism and mass communication studies, san José state university. DOI: <https://doi.org/10.31979/etd.vhjc-2pj9>
- Kawabe, K., Horiuchi, F., Miyama, T., Jogamoto, T., Aibara, K., Ishii, E., & Ueno, S. I. (2019). Internet addiction and attention-deficit/hyperactivity disorder symptoms in adolescents with autism spectrum disorder. *Research in Developmental Disabilities*, 89, 22-28. <https://doi.org/10.1016/j.ridd.2019.03.002>
- Kesici S, & Şahin I. (2009). A comparative study of uses of the internet among college students with and without internet addiction. *Psychol Rep.*, 105,1103–12. <https://doi.org/10.2466%2FPR0.105.F.1103-1112>
- Mathew, P., & Raman, K. (2020). Impact of problematic internet use on the self-esteem of adolescents in the selected school, Kerala, India. *Archives of Psychiatric Nursing*. <https://doi.org/10.1016/j.apnu.2020.02.008>
- Oluwafemi, O. O., Bibire, A. H., Mebu, V. A., Dung, P. H., & Aderibigbe, J. K. (2020). Conditional indirect effects of gender and school on internet use for academic activities and social-moral development among secondary school students in Nigeria. *Cogent Social Sciences*, 6 (1), 1748478. <https://doi.org/10.1080/23311886.2020.1748478>
- Reda M, Rabie M, Mohsen N, & Hassan A. (2012). Problematic internet users and psychiatric morbidity in a sample of Egyptian adolescents. *Journal of Psychology*, 3, 626–31.

- Restrepo, A., Scheininger, T., Clucas, J., Alexander, L., Salum, G. A., Georgiades, K., & Milham, M. P. (2020). Problematic Internet Use in Children and Adolescents: Associations with psychiatric disorders and impairment. *BMC Psychiatry, 20*, 1-11. <https://doi.org/10.1186/s12888-020-02640-x>
- Rustam, Z., Kumar, A., Zahid, M. J., & Rafiq, N. (2019). Internet addiction among medical students of Rehman Medical College. *Journal of Medical Students, 3*(1-2).
- Saied S, Elsabagh H, & El-Afandy A. (2016). Internet and face book addiction among Egyptian and Malaysian medical students: a comparative study, Tanta University, Egypt. *International Journal of Community Medicine and Public Health, 3*, 1288–97. DOI: <http://dx.doi.org/10.18203/2394-6040.ijcmph20161400>
- Saikia, A. M., Das, J., Barman, P., & Bharali, M. D. (2019). Internet addiction and its relationships with depression, anxiety, and stress in urban adolescents of Kamrup District, Assam. *Journal of family & community medicine, 26*(2), 108. https://dx.doi.org/10.4103%2Fjfcmm.JFCM_93_18
- Salehi M, Khalili M, Hojjat S, & Danesh A. (2014). Prevalence of internet addiction and associated factors among medical students from Mashhad, Iran in 2013. *Iran Red Crescent Med J., 16*, 1–5. doi: 10.5812/ircmj.17256
- Sharma, A., & Sharma, R. (2018). Internet addiction and psychological well-being among college students: A cross-sectional study from Central India. *Journal of family medicine and primary care, 7*(1), 147. https://doi: 10.4103/jfmpe.jfmpe_189_17
- Shek, D. T., & Yu, L. (2016). Adolescent internet addiction in Hong Kong: prevalence, change, and correlates. *Journal of pediatric and adolescent gynecology, 29* (1), S22-S30. <https://doi.org/10.1016/j.jpjag.2015.10.005>
- Soleymani, R., Garivani, A., & Zare-Farashbandi, F. (2016). The effect of the internet addiction on the information-seeking behavior of the postgraduate students. *Mater Sociomed, 28* (3), 191–195. <https://doi: 10.5455/msm.2016.28.191-195>
- Statista Research Department, (2018). Internet usage in India - Statistics & Facts. From: <https://www.statista.com/topics/2157/internet-usage-in-india/>
- Symons, K., Ponnet, K., Walrave, M., & Heirman, W. (2017). A qualitative study into parental mediation of adolescents' internet use. *Computers in Human Behavior, 73*, 423-432. <https://doi.org/10.1016/j.chb.2017.04.004>
- Mamun, M. A., Hossain, M. S., Moonajilin, M. S., Masud, M. T., Misti, J. M., & Griffiths, M. D. (2020). Does loneliness, self-esteem and psychological distress correlate with problematic internet use? A Bangladeshi survey study. *Asia-Pacific Psychiatry, 12*(2), e12386. <https://doi.org/10.1111/appy.12386>.
- Montag, C. (2019). The neuroscience of smartphone/social media usage and the growing need to include methods from 'Psychoinformatics'. *In Information systems and neuroscience.29*, 275-283. Springer, Cham. https://doi.org/10.1007/978-3-030-01087-4_32
- Montag, C., Wegmann, E., Sariyska, R., Demetrovics, Z., & Brand, M. (2021). How to overcome taxonomical problems in the study of Internet use disorders and what to do with “smartphone addiction”? *Journal of Behavioral Addictions, 9*(4), 908-914. <https://doi.org/10.1556/2006.8.2019.59>
- Wright, M. F., Heiman, T., & Olenik-Shemesh, D. (2021). Problematic internet use: causes, consequences, and future directions. *In Child and Adolescent Online Risk Exposure*, 13-32. Academic Press. <https://doi.org/10.1016/B978-0-12-817499-9.00002-8>

Impact of evolutionary human resource management in pharmaceutical sector

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ABSTRACT

Human resource management for an organization has become the utmost priority and challenging day by day. The Pharmaceutical sector has grown in past years; with the changing environment and expanding business, the roles in the pharmaceutical sector have increased. Increasing workforce demands changes in order increase our profits; hence we have conducted this study to analyze the impact of evolution in humans resource management in the pharmaceutical sector. The Period of study is five years, and six companies in the pharma sector are considered for research. With the help of Revenue and number of employees, we have calculated Revenue per employee. It helps to measure the efficiency of an organization as it estimates the average revenue earned by each employee. Revenue per employee is metric used by Human Resource analytics to analyze the impact of employees on the performance of the company. The strong correlation between number of employees and revenue implies that the company is more inclined towards recruiting employees to increase its performance, while the strong correlation between revenue per employee and revenue implies that the company is more focusing on training and development of employees for better performance. From the study, it can be concluded that in the pharmaceutical sector, every company follows a different HR practice and at different levels. The Sun pharma, Aurobindo, and Divi's shows strong correlation between revenue and number of employees, while Cipla, Biocon, and Dr, Reddy shows strong correlation between revenue per employee and revenue of the company.

Keywords; Human Resource Management, Employment, HR Analytic Metric, Pharmaceutical Sector

INTRODUCTION

Human resource management is the core of any business. Qualitative human resource management determines the success and failure of any business. Human resource management is related to the management of human capital, it's necessary as human capital is the most important asset of a company. HRM works towards the integration of the employees' goals and the organization's goals. HRM's motive is to achieve the target with the full cooperation of the people. HRM is the art of procuring, developing, and maintaining a competent workforce to achieve the goals of an organization, effectively and efficiently. HRM is a function that cannot be separated from an organization. Any organization working needs HRM in their companies; if the resources of the company are less, then they can outsource HRM. Organizations cannot develop if there is no one to monitor and regulate the work and people. Some essential functions of HRM are acquisition (involves planning, recruiting, selection, and placement), development (of career, organization, and training), and Performance appraisal. The development in technology have emerged the need of transpose in HR. New practices must be adopted to walk side-by-side. HRM works towards increasing the productivity and morale of the employees. With the extension to foreign countries, arrangements according to different times and regions need to be made through HRM. Now the trends to

work from home have emerged, which is challenging for people who need to work in groups; therefore, HRM requires to develop new team-building operations. In the early period HRM was based on intuition now, many companies use HR analytics which is based on data. Through data use in HRM, we can select the best candidates with better capabilities, retention has become more accessible. HRM includes creating innovative ideas for training, organizing events for engaging employees, and planning to integrate employees with the organization as early as possible.

Literature review

¹**John T. Delaney and Mark A. Huselid, (1996)** the study was conducted on 590 companies in the United States, including profit and non-profit-oriented companies. Researchers had used Likert-type scale methodology to analyze the change in the efficiency of employees after training. Researchers analyzed the impact of companies' investment in training on the increase in productivity of employees. The coefficient of all the HR practices was calculated by the number of HR practices included in each firm. The most significant factors were the selection of staff and training; hence it was concluded that training and staff selection have positive impact on the perpetual performance of the companies. ²**Baron, A. (2011)**, the author focuses that there are various measures to examine the performance of people in organisation and it is very necessary to measure the contribution of employees in the performance of the company. According to author all the resources of the organisation be it finance or human need to be analysed, if the company wants to progress. ³ **Amin, M., Khairuzzaman, W., Rasid, A., & Selemani, R. D. A. (2014)**, the research paper was written with the objective to determine the impact of human resource management on the performance of the organization. The survey was conducted on 300 employees in the public university of Malaysia. Under the study, both academicians and the non-academic staff were considered. It was concluded that the performance of an organization is directly related to human resource management functions. More amelioration is required when it comes to the selection of staff, staff assessment, development of career, and compensation. Education is the crucial step of nation-building; hence the researcher had considered analyzing the human resource practices in university. ⁴**Thimmanna G Bhat (2016)** the study focuses on human resource management challenges in a new and developing environments. It addresses the issues in HR practices and recommends how those issues can be overcome. Challenges mentioned by the researcher are Globalization in HRM (recruitment from all over countries), Multicultural workforce (people at an organization varies in moral, culture, sex, marital status, etc.), Employee selection (need competent people but disturbance caused by external and internal factors), Law and Regulation of hiring of the individuals, Training and Retaining of the employees, Disputes between employees, and stability in public and private life of employees. Some helping aids for HRM suggested by the researcher are intensive planning, employment facilities, behavior adopted by HR managers, maintaining kinship between employees, proper communication system, and opportunities for development to the employees. Some future challenges for HRM are tensile working hours, conflict management, career building, selection, motivational strategies, industrial relationship, managing five R's, and multicultural workforce. ⁵**Dr Swapna H.R. and Dr. B.S. Patil (2019)**, the study was conducted on the bank employees in the Karnataka state of India to distinguish the human resources practices adopted by commercial banks in Karnataka. The study includes a survey

conducted on 125 employees from private and public banks. The methodology used is Duncan mean test and the Likert scale. Results of the study stated that there is a difference in the HR practices of Canara bank and Karnataka bank limited. The difference lies in the reward, and compensation system, working environment, redressal of grievance and incentives provided. When employee's productivity was regressed with independent factors such as workforce, planning, selection, motivation, reward system, training and development, career planning, team building, grievance redressal, and innovation all showed positive relation. The highest relationship is seen between motivation and employee productivity; on the other hand, the lowest relationship is seen between incentive and employee productivity. **Varma, C. & Chavan, C. R. (2019)**. The study was conducted to understand the importance of HR analytics in human resource management. The author emphasized that in changing scenario where company need to change from old practices to new HR practices HR analytics can help the organization in managing their human capital for the better performance of the company. Now organizations need to focus on training and development of employees for retaining the best employees in the organization.

Importance of the study

The study is an attempt to analyze the influence of human resource on the profits of the company. It will be beneficial for the company managers, aspirant workers and the researchers. The study reveals the contribution by employees towards the profit of the company, The study also describes the efficiency of the workers.

Objective

1. The purpose of the study is to analyze the employee's efficiency through their contribution in revenue generated.
2. To examine the human resource practice of the selected the pharmaceutical company in recruiting and development of employees.

METHODOLOGY

The companies considered for the study are Sun Pharma, Cipla, Biocon, Aurobindo, Dr. Reddy, and Divi's laboratories. The data is collected for five years from the financial year 2015-16 to the financial year 2019-20. For the understanding the impact of evolution in human resource management in the pharmaceutical sector, we have considered analyzing the total revenue of the company and the total number of employees. Through revenue and employment data, we can conclude revenue per employee. Revenue per employee is equal to companies' revenue divided by the total number of employees. It helps us to measure the efficiency of an organization as it estimates the average revenue earned by each employee. Revenue per employee is metric used by Human Resource analytics to analyze the impact of employees on the performance of the company. Correlation is calculated between revenue and number of employees and revenue and revenue per employee. Strong correlation between revenue and number of employees, implies that the change in revenue is due to the change in number of employees. Strong correlation between revenue and revenue per employee

indicates change in revenue is due to efficiency of the workers. Therefore, we can determine whether the company focuses on recruitment or training of employees for increasing their profits.

RESULT AND DISCUSSION

Sun Pharmaceutical is an international specialty pharma company. Israel Makov is the current chairman. Sun pharma has developed its markets in Africa, America, Russia, Europe, Australia, Canada, New Zealand, and Japan and has adopted a multicultural workforce. Sun pharma focuses on the health, productivity, and development of employees.

Table1: shows efficiency of employees and correlation of Sun Pharma.

Year	Revenue	No. of employees	Revenue per employee
2019-20	3,28,375	36,000	9.12153
2018-19	2,90,659	32,000	9.08309
2017-18	2,64,895	30,000	8.82983
2016-17	3,15,784	30,000	10.5261
2015-16	2,84,870	30,000	9.49567
<i>Correlation</i>	Revenue	No. of employees	Revenue per employee
Revenue	1	-	-
No. of employees	0.668482	1	-
Revenue per employee	0.468216	-0.34417	1

Source* Annual reports of Sun pharma limited taken from <https://sunpharma.com/investors-annual-reports-presentations/>

Interpretation: In table 1, we can see the revenue of the Dr. Reddy Lab has increased over the last five year. It has increased by 43,505 million rupees, which is increment by 15.27%. The revenue per employee has no increment. The number of employees has increased by more than 6,000, which is increment by 20%. The correlation between revenue and number of employees is 0.66, and the correlation between revenue and revenue per employee is 0.46. Data conveys strong positive relation between revenue and number of employees and weak positive relation between revenue and revenue per employee. From the data interpreted, we can say that Sun pharma focuses more on recruiting than training and development of employees.

Dr. Reddy Laboratories was established in 1984 by Dr. Anji Reddy. The current chairman of the company is K Satish Reddy. It provides more than 200 generic versions of expensive medicines to 80 countries. Dr Reddy HR policies are inclined towards merit-based, focusing on the productivity of employees than hierarchy. Various programs such as flagship young leaders (leadership), Chrysalis (women leader), and ASPIRE (recruitment, performance appraisal) are injected into system for the growth of employees. Digitalization is the prime focus now for the company. Amy, a digital personal assistant and gamified apps launched for the learning of employees.

Table2: shows efficiency of employees and correlation of Dr. Reddy.

Year	Revenue	No. of employees	Revenue per employee
2019-20	1,74,600	21,650	8.06467
2018-19	1,53,851	21,966	7.00405
2017-18	1,42,028	23,524	6.03758
2016-17	1,40,809	22,681	6.20824
2015-16	1,54,708	21,669	7.1396
Correlation			
Revenue	1	-	-
No. of employees	-0.76728	1	-
Revenue per employee	0.984955	-0.86649	1

Source* Annual reports of Dr. Reddy lab taken from <https://www.drreddys.com/our-story/about-us/milestones/>

Interpretation: In table 2, we can see the revenue of the Dr. Reddy Lab has increased over the last five year. It has increased by 19,892 million rupees, which is an increment by 12.85%. The revenue per employee have increased by 1, which is 12.95%. The number of employees has decreased by 19, which is a decrement of 0.08%. The correlation between revenue and number of employees is -0.76 and the correlation between revenue and revenue per employee is 0.98. Data conveys negative relation between revenue and number of employees and strong positive relation between revenue and revenue per employee. From the interpretation, we have seen a percentage increase in revenue is equal to a percentage increase in revenue per employee. Therefore, we can say that Dr. Reddy's lab has put more focus on increasing the efficiency of the employees than recruiting employees. More emphasis on results into more profits for the company.

Aurobindo pharma limited has a product presence in key therapeutic segments like SSPs, cephalosporins, antivirals, CNS, cardiovascular, gastroenterology, etc. Aurobindo focuses on the holistic development of the employees. They have introduced many programs in last three years such as Diversity Management Program (increase in women employees), Train the Trainer program (trained employee provides 20 hrs training to peers), Nalanda (online learning programme), LAB (leadership at the best), and Training Within Industry Job Instruction (TEI-JI for technical skills). Implemented reward system such as Talent of the Month and Uttam Vyavahar Puraskar for motivating employees.

Table3: shows efficiency of employees and correlation of Aurobindo.

Year	Revenue	No. of employees	Revenue per employee
2019-20	2,30,985	18,469	12.5066
2018-19	1,95,636	17,885	10.9386
2017-18	1,64,998	17,332	9.51985
2016-17	1,50,899	13,982	10.7924
2015-16	1,39,552	13,288	10.5021
Correlation			
Revenue	1	-	-
No. of employees	0.871073	1	-
Revenue per employee	0.761473	0.34528	1

Source* Annual reports of Aurobindo limited (<https://www.aurobindo.com/investors/results-reports-presentations/annual-reports/>)

Interpretation: In table 3, we can see the revenue of Aurobindo limited has increased over the last five year. It has increased by 91,433 million rupees, which is increment by 56.51%. The revenue per employee has increased by 2, which is 19%. The number of employees has increased by 5,181, which is increment by 39%. The correlation between revenue and number of employees is 0.87, and the correlation between revenue and revenue per employee is 0.76. Data shows the positive impact of the number of employees and revenue per employee on the performance of the Aurobindo. From the data interpreted, we can say that number of employees has more impact on revenue than revenue per employee. Hence, the Aurobindo limited is more influenced by the recruitment of employees than the training of employees.

Divi's Laboratories is engaged in the manufacture of Active Pharma Ingredients (APIs) and intermediates. Divi lab provides a healthy environment for the employees. Engage employees in various activities such as marathons, planting trees, yoga etc. engaging in the activities provides mental relief and increases the fitness of employees.

Table4: shows efficiency of employees and correlation of Divi's.

Year	Revenue	No. of employees	Revenue per employee
2019-20	5,50,043	13,884	39.617
2018-19	5,03,624	11,947	42.1549
2017-18	3,94,971	10,762	36.7005
2016-17	4,14,172	9,735	42.5446
2015-16	3,84,579	9,481	40.5631
Correlation			
Revenue	1	-	-
No. of employees	0.939908	1	-
Revenue per employee	0.191627	-0.15407	1

Source* Annual reports of Divi's lab (<https://www.divislabs.com/api-manufacturing-company/>)

Interpretation: In table 4, we can see that the revenue of the Divi's lab has increased over the last five year. It has increased by 1,65,464 million rupees, which is increment by 43.02%. The revenue per employee has decreased by 1. The correlation between the revenue and the number of employees is 0.93 and the correlation between the revenue and the revenue per employee is 0.19. Therefore, we can say there is no significant relationship between the revenue and revenue per person, but strong and positive relation between revenue and number of employees. Increment in number of employees is by 46.44% that is by 4,403. Data indicates that number of employees has increased more than revenue per employee, implying that the increase in revenue is due to more recruitment of employees than training and development.

Biocon Limited provides the eco-friendly environment to employees. Encourages diversity in employees through stabilizing the ratio between the men and women. Introduced zero -tolerance programme for cultural improvement in working sites. Selection criteria of Biocon is strong, talents include 58% to graduates, and 37% of PhDs and postgraduates. Biocon provides certificate courses in technical, soft skills, and digital. Provides sponsorship to employees for career development.

Table5: shows efficiency of employees and correlation of Biocon.

Year	Revenue (Millions)	No. of employees	Revenue per employee
2019-20	65,286	3,155	20.6929
2018-19	56,588	6,725	8.41457
2017-18	43,359	6,149	7.05139
2016-17	40,787	5,747	7.09709
2015-16	34,602	5,267	6.56958
Correlation			
Revenue (Millions)	1	-	-
No. of employees	-0.46196	1	-
Revenue per employee	0.834044	-0.8734	1

Source* Annual reports of Biocon limited (https://archive.biocon.com/biocon_invrelation_annualreports.asp)

Interpretation: In table 5. we can see the revenue of the company has increased in the last five years, and it has increased by 30,684 million rupees from the year 201-16 to 2919-20, which is 88.7 % increment. The number of employees increased by 1,458 in 2018-19 but decreased by 3,570 in 2019-20. But the decrement in the number of employees did not have any impact on the revenue of the company, because the revenue of the company increased instead of decreasing. With this interpretation, which can say number of employees have no impact on revenue of Biocon, well according to the correlation results of revenue and number of employees have a negative relationship (-0.4). On the other hand, the correlation between revenue and revenue per employee is 0.83, which is significantly positive. Over the last five years, the revenue per employee has increased by 214.9%. The data depicts that increment in revenue is due to training and development of the employees. The increase in revenue per employee is the symbol of an increase in the production efficiency of employees.

Cipla Limited is the third largest pharma company in India. Cipla provides a healthy environment and multi-generational workforce. Employees comprise more than 20 nationalities, and 33% of women in the board of directors and management council. They have implemented ALIVE (aspire, learn, innovate, voice, and engage) programs for acquiring, retaining, and training youths. Cipla has various training programs for employees under categories of technology, leadership, behavior, and induction of new employees.

Table 6: shows efficiency of employees and correlation of Cipla.

Year	Revenue (Millions)	No. of employees	Revenue per employee
2019-20	17,132	25,865	0.66236227
2018-19	16,352	26,719	0.61199895
2017-18	15,219	23,610	0.64459975
2016-17	14,630	23,643	0.6187878
2015-16	13,740	25,000	0.5496
Correlation			
Revenue	1	-	-
No. of employees	0.600888	1	-
Revenue per employee	0.772653	-0.04286	1

Source* Annual reports of Cipla limited taken from <https://www.cipla.com/investors/annual-reports>

Interpretation: In table 6, we can see the revenue of the Cipla has been increasing in five years. It has increased by 3,392 million rupees, which is increment by 24%. The revenue per employee has also

increased by 0.12. The correlation between revenue and employee is 0.66 and the correlation between revenue and revenue per employee is 0.77. Therefore, we can say there is a positive relationship between the revenue and the number of employees and revenue per person. Increment in number of employees is by 3.4% whereas increment in revenue per person is by 22.2%. Data indicates that revenue per person has increased more than number of employees, implying that the increase in revenue is more due to the training and development of employees than the recruitment of employees.

Conclusion

Companies	Correlation Between Revenue and No. of Employees	Between Revenue and Revenue Per Person	HR Practice Focus
Sun Parma	Strong Positive	Weak Positive	Recruitment
Dr. Reddy	Negative	Strong Positive	Training and Development
Aurobindo	Positive	Positive	Both, more of recruitment
Divi's	Strong Positive	Weak Positive	Recruitment
Biocon	Weak Negative or No Significant	Strong Positive	Training and Development
Cipla	Positive	Positive	Training and Development

Source* Author presentation

From the study, we can conclude that in the pharmaceutical sector, every company follows a different HR practice and at different levels. Recruitment is essential for companies because it brings new ideologies, initiatives, and innovations in the company. Training and development of employees are also vital as through our study we have seen some companies increase in profits are equal to the efficiency of the employees. The study reveals that the number of employees as well as the revenue per employee both affects the revenue of an organization. Therefore, companies should focus on the recruitment as well as on increasing the efficiency of employees through the training to achieve the desired goals of the organization. Over the years, role of HRM has increased, and many innovative HR practices have been implemented. For further studies impact of other practices and factors on the profits of the companies can be analyzed.

Conflict of interests

The authors declare that no competing interests exist.

Author's contributions

All the authors contributed equally to the theoretical development, analysis, interpretation, and writing of the manuscript.

REFERENCES

Baron, A. (2011). Measuring Human Capital. *Strategic HR Review*, 10(2), 30-35.

Bhat, G.T. (2016). A Study on Challenges in Human Resource Management, *International Journal of Research and Analytical Reviews*, 3(1), 176-184.

Delaney, J.T. & Huselid, M. (1996). The Impact of Human Resource Management Practices on Perceptions of Organizational Performance, *Academy of Management Journal*, 39(4), 949–969.

Dr Swapna H.R. and Dr. Patil, B.S. (2019). Sustainable Human Capital Management Practices to Enhance Employee Productivity, *Project: Human Resource Development Policies and Practices In Private And Public Sector Banks- An Analysis on Employee Engagement*

Muslim, A., Khairuzzaman, W., Rasid, A., & Selemani, R. (2014), The Impact of Human Resource Management Practices on Performance Evidence from A Public University, *TQM Journal*, 26(2), 125-142.

Varma, C. & Chavan, C. R. (2019). A case of HR Analytics- to Understand effect on Employee Turnover. *Journal of Emerging Technologies and Innovative Research*, volume 6, issue 6.

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A study on the psychological behavioral attributes impacting the adoption of branded agri-food products

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ABSTRACT

The Indian agri-food business has undergone a huge transformation relating to change in consumption patterns and retailing. Historically, the consumers preferred raw agricultural items to processed and pre-packaged labels. The current pandemic has significantly impacted the consumer's perception and preference relating to pre-packed agri-food brands. Efforts were created to explore the understanding of psychological attributes or propositions and factors causative to the acceptableness of branded agri-food products. Understanding and formulation of psychological traits, as well as the development of a scale of buying behavioral patterns on agri-food brands, are the key goals of this research. A total of 240 respondents were surveyed with a structured questionnaire. Quota sampling was used to judge and select subjects from the Presidency division of West Bengal based on a specified proportion (percentage share of population). To uncover the behavioral constructs influencing the shoppers' buying behavior, exploratory factor analysis was used. The scales' convergent and discriminant validity were determined using confirmatory factor analysis. The result highlights four primary behavioral traits, namely information, value, health, and attributes emphasizing the need for consumer awareness on product utility, implementing value pricing strategy, and feel-good aspects of healthy living has an important contribution in agri-food business.

Keywords: Psychological factors, Consumer behavior, Agri-food brands, Exploratory factor analysis, confirmatory factor analysis

INTRODUCTION

Consumer preferences are changing dramatically in the food business, notably in the agri-food sector, thanks to strong spending power Mittal et al. (2011). A shift has occurred from purchasing agri-food at unorganized bazaars to marketing packaged food labels through organized retail channels where customers can inspect and compare brands in a calm environment, and are eager to pay a reasonable price. Food retailing is one of the most significant retail segments in India, with a turnover of Rs 7400 billion Chengappa et al. (2007) with an estimated 3.7 million food retail outlets. Large Corporate houses joining the organized retail revolution with large-scale expansions across the country with the able implementation of strong distribution and logistics network, the introduction of omnichannel retailing by leveraging partnership, collaborative venture, and able implementation of value-added offers are the primary strategies in the current era. Even due to the pandemic and subsequent lockdown, online portals like Grofers, Big Basket, etc, had pitched in their business model during the last 12 months. With rising income and demand for quality products, the consumption story seems optimistic.

Review of literature

The dominance of non-branded agri-food products in India has shifted as a result of the pandemic of 2019. A shift in attitude toward branded agri-food products has occurred as a result of the desire for higher quality products and greater immunity Kundu et al. (2021). Consumer purchasing behavior has changed in recent years, necessitating inquiry into the factors that influence it. Organic and processed foods have been the subject of previous study in this area. However, the impact of branded items, including private labels offered by retailers has not been studied specifically to behavioral perception.

According to Fischer, C. (2009), agri-product consumption is a measure of intent, mindset, and other parameters that the theory of planned behavior postulates. It presents direct relationships among the variables across consumer categories and emphasizes a meaningful correlation between attributes and purchasing intention. However, reduced prices, good value, and shopping convenience are preferable outcomes, according to Acharya, S. S. (2007), mainly in a neighborhood setting. Kumar et al. (1987) investigated the elements that influence food purchase decisions. The product's country of origin and brand were compared to age, gender, and income. Freshness, affordability, durability, range, labelling, and non-seasonal supply were highlighted as significant promotional strategies for success in the modern food retail based on consumer want and behavior by Ali et al. (2010). Sweeney and Soutar (2001) looked at organic food and found that the most important criteria of choice were a low price guarantee, the highest expectation of product quality, and reliability. Lindenberg & Steg (2007), on the other hand, underlined that organized food retailing is all about excitement, interest, and pleasure, as well as being pleasant and comfortable, whereas Aluja et al. (2010) focused on hassle-free shopping in terms of availability. Bardi & Schwartz (2003) highlighted the importance of food safety, food ingredient, and healthy living regarding processed foods. Jover et al. (2004) and Thogersen et al. (2017) investigated the role of the geographical origin on agri-product quality, preservation, longevity, and waste minimization in organic foods. Vieira et al. (2015), focused on the formation of an image to establish a good quality perception. Chovanová et al. (2015) investigated processed foods from the perspectives of a wide range of products, various quality assessments, tastes, and financial restrictions. However, Tournier et al. (2007) and Fortin et al. (2009) investigated raw F&V and found that key constructs such as flavor, aroma, taste, and texture are important freshness indicators that influence consumers' attitudes, willingness to pay, and preference. In addition, Ježovičová et al. (2016) underlined the importance of nutrition and health in food research. According to Burton et al. (1998), the popularity of organized food retail trade is largely due to elements like the attraction of low prices, best value for money, and excellent promotions through coupons, gifts, and discounts. Chemical issues, spoilage issues, health difficulties, regulatory issues, and certification are important features and labels for organic food items were explored by Michaelidou & Hassan (2008), Kim (2006), and Tarkiainen & Sundqvist (2005).

Research Gap

In recent times, the global pandemic has had a significant impact on consumer purchasing interests, spending, and shopping habits in terms of platforms and buying trends. Many feel that, in comparison to

earlier pandemics, this one posed the greatest threat to global public health, socioeconomic stability, food security, and quality of life Kundu et al. (2021). The impact of the outbreak on consumer behavior has varied disproportionately in terms of personal behavior, interpersonal and household experiences, and features, after the indiscriminate hoarding of food that was recorded in numerous nations following the execution of the lockdown. In India, consumers have long preferred non-branded agri-food products, but consistent brand positioning, organized product communication, and deal-specific promotional offers have pushed them to move to branded agri-food items in recent years Kundu et al. (2021). Furthermore, there has been an increase in public awareness of health and the need for immune system strengthening. A large number of consumers have switched to buying healthier, more sustainable goods in the face of price volatility, and concerns about personal household incomes. There has never been a bigger demand for high-quality branded products. The research gap relates to the study on the behavioral aspects and examining agri-food purchasing behavior that leads to consumer tolerance post the pandemic.

Research objective

A structured inquiry was developed to get the reflection or outlook of the shoppers who critically has analyzed the buying behavioral attributes. Manufacturers and retailers are trying to position new brands relating to agri-food especially in cereals and pulses, process foods, etc. It's eminent how the brand impacts the behavior of customers relating to general merchandise products. But still, consumers in today's era tend to buy non-branded agri-products. The question is what behavioral factors impact buying of Agri based brands from organized retail. The rationale of the study is to identify the major factors influencing consumer buying behavior of agri-food brands post the pandemic. The primary objective is to develop a psychological, behavioral scale based on exploratory research relating to agri-food brands whereas the secondary objective is to test the validity of the constructed scale of buying behavior traits on agri-food brands. The following labels were used to test consumer buying behavior relating to agri-food brands:

Core Constructs
Value for Money: Reasonable price, and a low price guarantee
Quality: The highest expectation of product quality, and reliability
Stimulation: Shopping is exciting, interesting, and fun
Convenience: Comfortable shopping environment, and ease of accessibility
Social Acceptance: Acceptability, and image impression among peers and society
Food Hygiene: Safety of food, food ingredient, and healthy living
Place of Origin: Impact of geographical origin on Agri product quality
Packaging: Preservation, longevity, ease to use, and minimizing waste
Brand: Development of an image to create a positive quality perception.
Variety: Wide range of merchandise, different quality valuations, tastes, and budget constraints
Taste & Flavour: Flavour, aroma, taste, and texture
Freshness: freshness indicators on consumers' attitudes, and willingness to pay, and preference

Ingredient information: information to labels about nutrition and health
Price Consciousness: attracted to a retailer that offers low price
Social Affiliation: Strongly of the opinion that shopping is like a social experience
Value Consciousness: the best value for the money
Impulsiveness: Occasionally indulge in impulse purchases while shopping
Deal-specific Proneness: Sales promotional, coupons, gifts, and discounts
Food Safety Concern: Chemical issues, spoilage issues, health issues, and certification
Health Consciousness ethical, environmental, hedonic, and "feel good" aspects in healthy living
Manufacturer Credibility: (Reinforcement): Producers credibility, reputation, and farming technique
Advertisement (Response): Data accessibility, and availability to make informed decisions, draw conclusions, and create added value
Peer suggestions (Cues): Recommend, and share shopping experience with my friends and peers
Product knowledge (Drive): Shopping to improve knowledge about products and to get new ideas
Personal Drive (Drive): Looking for new products from new formats

METHODOLOGY

Research Design: The study entails the use of both exploratory and descriptive research design techniques. The data were collected using a questionnaire and a mall intercept interview survey. The acquired data has been analyzed using both descriptive, and inferential statistical approaches. For data analysis, the study suggests using statistical software tools such as SPSS. The model hypothesizes the identified labels of buying behavior are not significant predictors of the constructor.

Sample and Sampling Method: The aim was to recognize a representative sample from the population wherefrom organized retail shoppers were identified. Thereby, the selection of respondents is non-random, non-probability sampling was considered. The population is first classified into mutually exclusive sub-groups. Quota sampling was used to judge and select the units (overall population) from each segment (districts) based on a specified proportion (percentage share of population). As a part of the pilot study, 240 samples were considered.

Data Collection: Data were collected from the presidency division of West Bengal namely, Kolkata (n=38, 16%), Howrah (n=43, 18%), North 24 Parganas (n=89, 37%) and South 24 Parganas (n=70, 29%). Respondents are required to answer the questionnaire as per their preferred shopping format. A total of 275 respondents' opinions were taken, data cleaning was conducted. The response rate calculated is 12.73 percent. Relating to the time of data collection, it was collected during the pandemic of 2020.

Demographic information: Demographic factor includes respondent's age, domicile details, gender, household category, whereas socio-economic variables include characteristics of any social groups related to levels of education, income, occupation, etc [Table – 1]. Representations of the same are as follows:

Table 1 – Demographic Profile

Factor	Frequency	Percentage
Gender:		
Female	101	42.08
Male	139	57.92
Age:		
18-24	67	27.92
25-40	51	21.25
41-60	71	29.58
Above 60	51	21.25
Family Income:		
Less than 2 Lakhs	55	22.92
2 to 5 Lakhs	79	32.92
5 to 10 Lakhs	62	25.83
Above 10 Lakhs	44	18.33
Education:		
Secondary	41	17.08
Higher Secondary	63	26.25
Graduate	89	37.08
Post Graduate	47	19.59
Family Size:		
Less than 3 members	69	28.75
3 to 5 members	131	54.58
6 & Above	40	16.67

Reliability: Since the survey instrument included multiple Likert items in which respondents were required to answer whether they agreed or disagreed with a criterion, the reliability of the scale was tested using Cronbach's alpha. The reliability statistics showed an Alpha of 0.939 relating to the 25 items used. The possibility of CMV among the variables evaluated was investigated using Harman's Single-factor test. The test's basic premise is that if a significant degree of CMV is prevalent, one generic factor will constitute the majority of the covariance between the variables (>50%) Podsakoff et al. (2003). Multiple variables were recovered as a consequence of this test, with the first component accounting for just 40% of the overall variance

RESULTS AND DISCUSSION

To determine the aspect of respondent's purchasing behavior, exploratory factor analysis was conducted by Hooper, (2012) to ascertain the data fitness. To decide the suitability of factor analysis: Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy was done. A value of Kaiser-Meyer-Olkin MSA test 0.50 or more shows data adequacy for exploratory factor analysis Hair et al. (1995). The initial exploratory factor analysis was conducted [Table – 2]. The analysis was performed based on item analysis composed of 25 statements reported on the Likert scale with five levels. The reliability statistics show the Alpha value 0.939 and Hotelling's T- Squared ($F=7.702$, $p=0.000$). The study retained factors with initial loadings more than 0.50 and Eigenvalues higher than 1.0. Items with cross-loading were removed, but those with a loading score of 0.50 or above were retained in the study Hooper (2012), Hair et al. (1995).

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.940
Bartlett's Test of Sphericity	Approx. Chi-Square	4699.806
	df	300
	Sig.	.000

Data compatibility for factor analysis was determined using the Kaiser-Meyer-Olkin sample adequacy test (0.940) and Bartlett's test of sphericity ($p=.000$). The EFA results from highlight four-factor solutions with greater than 1.0 Eigenvalues. The four-constructs was identified namely, 'information', 'vale', 'attribute', and 'health' parameters [Table – 3]. The four-factor with varimax rotation resulted in 73.13 % total variance. Factor loadings ranged from 0.69 to 0.85 and alphas ranging from 0.901 to 0.938

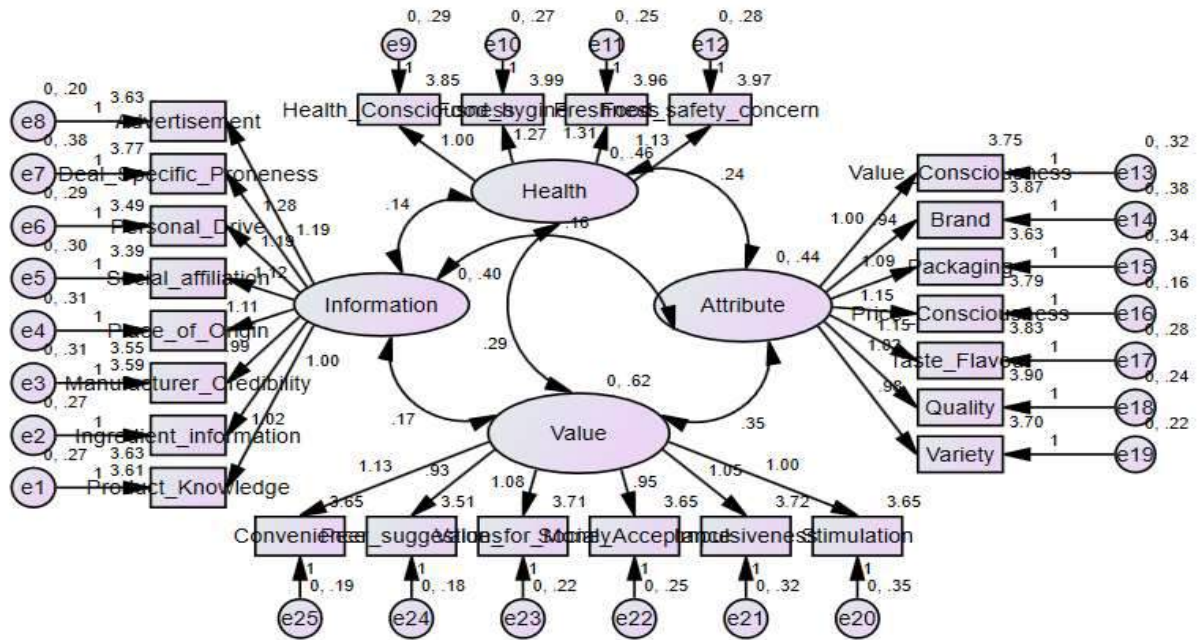
Table 3: Summary Table: EFA results and Cronbach's α

Behavior Construct	Items	Eigen Value	Factor Loading	Variance Explained (%)	Cronbach's Alpha
Information Seekers	Advertisement	10.425	0.857	21.806	0.930
	Deal-specific Proneness		0.843		
	Personal Drive		0.831		
	Social affiliation		0.823		
	Place of Origin		0.780		
	Manufacturer Credibility		0.777		
	Ingredient information		0.750		
	Product knowledge		0.725		
Affluence - Value Seekers	Convenience	3.979	0.849	19.588	0.938
	Peer suggestions		0.824		
	Value for Money		0.816		
	Social Acceptance		0.801		
	Impulsiveness		0.800		
	Stimulation		0.768		
Attribute Seekers	Value Consciousness	2.066	0.804	18.856	0.926
	Brand		0.798		
	Packaging		0.784		
	Price Consciousness		0.766		
	Taste & Flavour		0.745		
	Quality		0.738		
	Variety		0.694		
Health Seekers	Health Consciousness	1.814	0.843	12.884	0.901
	Food Hygiene		0.834		
	Freshness		0.832		
	Food Safety Concern		0.763		

Measurement fit and validity of the factor constructs as per the objective: An estimated measurement model was employed in conjunction with a confirmatory factor analysis. The findings from the experiment well matched the measurement model: relative Chi-square (χ^2) = 480.091, DF = 269, $p = .000$; model fit: minimum discrepancy (CMIN/df) = 1.785, NFI = .902, RFI = .890, IFI = .954, TLI = .949, CFI = .954 and RMSEA = .057 [Figure – 1] [Hair et al. (2010): Absolute/predictive fit - Chi-square (χ^2) - Ratio of χ^2 to $df \leq$

2 or 3; NFI, CFI, TLI \geq .90); and RMSEA $<$.05 to .08 are acceptable level.] All measurement fit is as per recommendation Hair et al. (2010).

Figure 1: Unstandardized Estimate of buying behavior constructs



The corresponding loading of latent factors was significant [$p=.000$] and factor loading $\geq .50$ Hair et al. (2010). The result highlights a strong validity of the constructs used in the study. The hypothesis test on the labels of buying behavior and validation of the constructor or factor was conducted. The test result implies that all the underlying labels which construct a factor were significant [Figure – 2] predictors where $p = 0.000$ [$p < 0.05$]. Thus the hypothesis stands rejected [Table – 4].

Figure 2: Standardized Estimate of buying behavior constructs

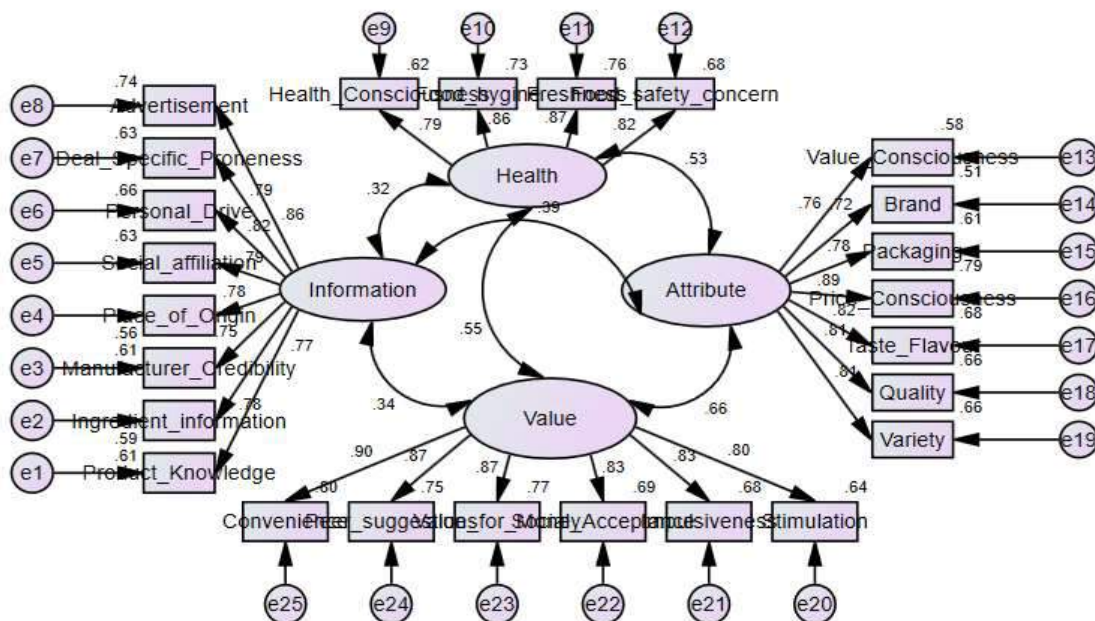


Table 4: Regression Weights (Default Model)

Regression Weights (Default Model)			Estimate	S.E;	C.R;	P (Sig)
Product Knowledge	<---	Information	1.000			
Ingredient information	<---	Information	1.023	.079	12.882	***
Manufacturer Credibility	<---	Information	.991	.081	12.205	***
Place of Origin	<---	Information	1.110	.086	12.896	***
Social affiliation	<---	Information	1.117	.085	13.105	***
Personal Drive	<---	Information	1.187	.087	13.571	***
Deal Specific Proneness	<---	Information	1.277	.097	13.157	***
Advertisement	<---	Information	1.193	.082	14.478	***
Health Consciousness	<---	Health	1.000			
Food hygiene	<---	Health	1.266	.088	14.429	***
Freshness	<---	Health	1.311	.089	14.760	***
Food safety concern	<---	Health	1.131	.082	13.757	***
Value Consciousness	<---	Attribute	1.000			
Brand	<---	Attribute	.944	.082	11.519	***
Packaging	<---	Attribute	1.094	.086	12.782	***
Price Consciousness	<---	Attribute	1.149	.077	14.890	***
Taste Flavour	<---	Attribute	1.150	.085	13.601	***
Quality	<---	Attribute	1.015	.076	13.359	***
Variety	<---	Attribute	.978	.073	13.388	***
Stimulation	<---	Value	1.000			
Impulsiveness	<---	Value	1.047	.072	14.640	***
Social Acceptance	<---	Value	.949	.064	14.812	***
Value for Money	<---	Value	1.083	.068	15.898	***
Peer suggestions	<---	Value	.934	.060	15.664	***
Convenience	<---	Value	1.128	.069	16.461	***

The factor loadings, together with reliability and construct validity and extracted AVE values, were tested [Table – 5]. The construct reliability (C.R,) values (relationship with the construct) are as per the recommended minimum level of 0.70 Hair et al. (2010), Paul & Gaskin (2014). The AVE values all fit the minimum level of 0.50 Hair et al. (2010). The values of AVE extracted have been further validated and compared with maximum shared variance (MSV) and average shared variance (ASV) as a part of the discriminant validity.

Table 5: Construct Validity – Buying Behavior

Construct	Convergent Validity			Discriminant Validity		
	Construct Reliability (C.R;)	Average Variance Explained (AVE)	Recommended Level	Max Shared Variable (MSV)	Avg Shared Variable (ASV)	Recommended Level
Information	0.931	0.593	CR > .70 AVE > .50 CR > AVE	0.153	0.121	AVE > MSV
Value	0.939	0.693		0.434	0.264	
Attribute	0.926	0.624		0.434	0.277	AVE > ASV
Health	0.902	0.697		0.298	0.215	

Conclusion

The study entails developing a psychological traits scale about the buying behavioral pattern relating to agri-food brands. Using exploratory factor analysis, four primary behavioral components related to buying agri-

food brands were identified: information, value, health, and attribute-seeking buying behavior. To access the scale's validity, confirmatory factor analysis was performed. All relevant validity checks have been done and are acceptable as per the standards. Today's organized food retail business should place a strong emphasis on building a brand image. More focus on consumer-centric sales promotional design, as well as communicating, and educating customers about the benefits of health consciousness, and healthy living as offered by the agri-food retailers in the post-pandemic scenario. To create a unique selling proposition, the importance should be on bargain pricing methods, ease of use, and quality packaging.

Conflict of interests

The authors with this declare that there is no competing interest.

Author's contributions

All the authors contributed equally to the theoretical development, analysis, interpretation, and writing of the manuscript.

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REFERENCES

- Ali, J., Kappor, S., and Moorty, J., (2010), "Buying behavior of consumers for food products in an emerging economy": British Food Journal, Emerald Group Publishing Limited, Vol 112 No 2, 2010, pp 109 – 124.
- Acharya, S. S., (2007), "Agribusiness in India: Some facts and Emerging Issues"; Agricultural Economics Research Review, Vol 20 (Conference Issue) 2007; pp 409 – 424.
- Ajzen, I. (1991). "The theory of planned behavior": Organizational Behavior and Human Decision Processes, Vol. 50 No. 2, pp. 179-211, 1991.
- Aluja, A., Kuhlman, M., & Zuckerman, M. (2010), "A factor/facet version of the Zuckerman-Kuhlman Personality Questionnaire" (ZKPQ): Journal of Personality Assessment, 92 (5), 416-431, 2010.
- Bardi, A., & Schwartz, S. H., (2003), "Values and behavior: Strength and structure of relations". Personality and Social Psychology Bulletin, 29, 1207-1220.
- Chovanová, H.H., Korshunov, A.I., Dagmar Babčanová, D., (2015), "Impact of Brand on Consumer Behavior", Procedia Economics and Finance 34 (2015) 615 – 621
- Fortin, C., Goodwin, H.L., and Thomsen, M., (2009), "Consumer Attitudes toward Freshness Indicators on Perishable Food Products", Journal of Food Distribution Research 40(3). 2009.
- Fischer, C (2009): "Opportunities for Innovation in Fruit & Vegetable Retailing: A value chain Approach; International Food and Agribusiness Management Association, 19th Annual World Forum and Symposium, Budapest, June 20 -23, 2009.
- Hooper, D. (2012), "Exploratory Factor Analysis", in Chen, H. (Ed.), Approaches to Quantitative Research – Theory and its Practical Application, a Guide to Dissertation Students, Cork, Ireland: Oak Tree Press (2012).
- Hair, J. F. Jr., Anderson, R. E., Tatham, R. L. & Black, W. C., (1995), "Multivariate Data Analysis" (3rd edition). New York: Macmillan (1995).

- Hair, J.F., Black, W.C., Babin BJ, and Anderson, R.E., (2010), "Multivariate Data Analysis": A global perspective, Prentice-Hall: Upper Saddle River, New Jersey. (2010).
- Jover, A.V.J., Montes, F.J.L., and Fuentes, M.M.F., (2004), "Measuring perceptions of quality in food products: the case of red wine", *Food Quality and Preference* 15 (2004) 453–469
- Jakštienė, S., Susnienė, D., Narbutas, V., (2008), "The Psychological Impact of Advertising on the Customer Behavior": *Communications of the IBIMA Volume 3*, 2008.
- Kim, Y.A., (2006), "The Impact on Customers' Perception of Product Variety", *Korea Review of International Studies* (2006). 9 (1), 37 – 50.
- Kundu, S., Bagchi, C., Banerjee, S., (2021), "The mediating role of consumer's attitude on selected brand parameters and purchase intention – A study on agri-food brand's". *SECOM Management and Technology Review*. Vol – 8, Issue 2, 63 -72.
- Lindenberg, S., & Steg, L., (2007), "Normative, gain and hedonic goal frames guiding environmental behavior": *Journal of Social Issues*, 63, 117-137, 2007.
- Michaelidou, N., and Hassan, L.M., (2008), "The role of health consciousness, food safety concern, and ethical identity on attitudes and intentions towards organic food": *International Journal of Consumer Studies* 32 (2008) 163–170
- Mittal, K.C., Prashar.A., and Mittal.E., (2011), "A study on the impact of demographics on buying behavior of food and grocery consumers in Punjab", *Journal of Business and Retail Management Research (JBRMR)*, Vol 5, Issue 2, April 2011.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.Y., & Podsakoff, N. P.(2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, 88(5), 879–903.
- Sweeney, J. C., & Soutar, G. N. (2001), "Consumer Perceived Value: The development of a multiple-item scale". *Journal of Retailing*, 77 (2), 203–20, 2001
- Tarkiainen, A., and Sundqvist, S., (2005), "Subjective norms, attitudes, and intentions of Finnish consumers in buying organic food": *British Food Journal*, Vol. 107 No. 11, pp. 808-822, 2005.
- Thøgersen, J., Pedersen, S., Paternoga, M., Schwendel, E., Aschemann - Witzel, J., (2017), "How important is country-of-origin for organic food consumers"? A review of the literature and suggestions for future research, *British Food Journal*, Vol. 119 Issue: 3, pp: 542-557.
- Tournier, C., Sulmont-Rosse, C., & Guichard, E., (2007), "Flavour Perception: Aroma, taste and texture interactions", *Global Science Book* (2007), *Food* 1 (2), 246 – 257.

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Moderation effect of a self-help group in reducing domestic violence among rural women – Women psychological empowerment analysis using structural equational modeling

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ABSTRACT

The goal of this study is to examine the linkage between SHG membership and a reduction in domestic violence on the basis of identified factors like verbal abuse, physical abuse, emotional abuse, and psychological abuse among rural women beneficiaries, resulting in psychological and total empowerment among rural women in the state of Chhattisgarh. Primary data was collected using a survey method from four districts of Chhattisgarh: Raipur, Bilaspur, Durg, and Dhamtari divisions. The study included 416 rural women, including both SHGs and non-SHG women beneficiaries. Data analysis is conducted firstly through item analysis and exploratory factor analysis by using SPSS 24.0. Further analysis is done through measurement models and structural models by using Smart PLS 3.2.2 software. In comparison to women who are not members of SHG, the paper indicates that women who are members of SHG experience less domestic violence. According to the findings, women in rural areas are acquiring psychological strength in the face of domestic violence. Paper also advises that SHG women beneficiaries have a lot of support behind them, and they are always better ready to confront abusive behavior than non-SHG women beneficiaries who are all alone in their home troubles.

Keywords: Domestic violence, Empowerment, Physical and psychological abuse, Self Help Group, Women, PLS-SEM.

INTRODUCTION

Domestic abuse has far-reaching physiological and psychological consequences for women, according to a growing corpus of studies. Domestic violence occurs in all forms, regardless of age, religion, societal, ethnic, or geographical boundaries. Women who are living below the poverty level, on the other hand, are more vulnerable to domestic abuse than women in higher socioeconomic groups (WHO, 2005). Domestic violence is linked to gender inequality, a well-known result of women's inferior standing (Khan ME, Ubaidur R, Hossain SMI, 2001). Policymakers have stressed women's psychological and social empowerment as a strategy of eliminating gender inequity in this situation. During the 1990s, microfinance programs were implemented throughout developing nations as income-generating ventures to provide credit and savings services, primarily to impoverished women with little or no formal education. Microfinance programs have been linked to lower child mortality, improved nutrition, increased immunization coverage, and increased contraceptive use. (Schuler SR, Hashemi SM, 1994) Furthermore, studies linking microfinance programs to domestic violence have revealed promising results of reduced domestic violence (Mayoux L., 1998).

Domestic violence has been described as a socio and psychological problem among rural women in India, and it has been linked to gender inequalities. This study objective to see if there was a link between

participation in SHG programs and a decrease in domestic violence among rural women beneficiaries which led to psychological and overall empowerment among rural women living of Chhattisgarh. Keeping this in mind, the study has been divided into six segments to achieve the researcher's goal. The first segment includes an introduction and the study's purpose, which includes the research intent and goal. The second segment includes a comprehensive literature review along with the research model. The third segment deals with research methodology. The fourth segment is dedicated to data analysis and inference. The fifth portion presents the research findings and implications, while the sixth segment presents the conclusion, as well as the limitations and scope for future research.

The need and importance of the study

According to the author's understanding, only a few researches on microfinance and domestic violence have been undertaken in Chhattisgarh. To bridge this gap, the study's major goal was to see if microfinance organisations can aid rural women who are victims of domestic violence.

Literature Review

Domestic violence and women's psychology

Domestic violence is a difficult concept to describe because it occurs in intimate relationships and is directed at women, domestic violence is a tough subject to articulate. Any act of sex-based viciousness that causes, or is likely to cause, bodily, sexual, or mental harm or suffering to women, including the dangers of such acts, intimidation, or self-assertive hardship of freedom, whether it occurs in public or private life. Mukherji & Jain (2009).The researcher in this study established a collection of findings by applying criteria to the components observed and discoveries that may be related on a ground level.

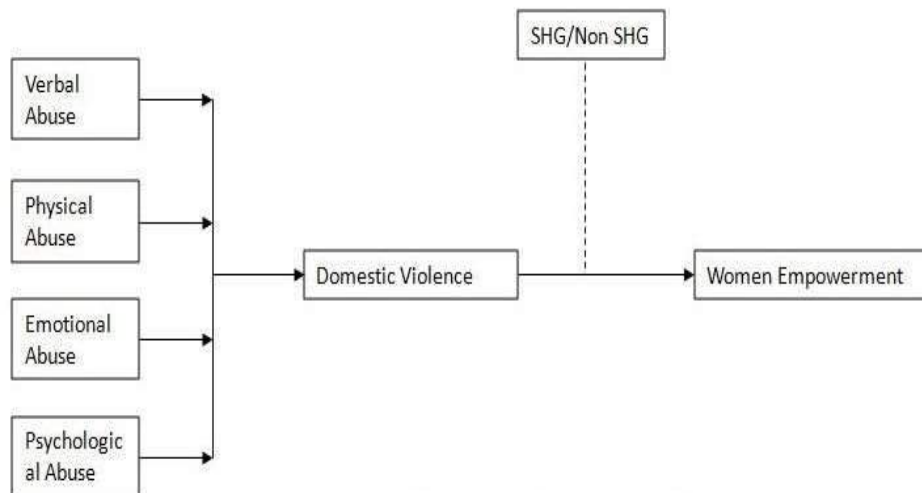
Table no. : 1 definition of constructs

Constructs	Definition	Reference
Domestic Violence	Any act of sex-based viciousness that causes, or is likely to cause, bodily, sexual, or mental harm or suffering to women, including the dangers of such acts, intimidation, or self-assertive hardship of freedom, whether it occurs in public or in private life.	Al-Shamiet <i>et al.</i> , (2016); Amudha& Banu (2009); Chakraborty &Vasanthagopal (2016); Jewkes <i>et al.</i> , (2002); Mukherji & Jain (2009); Ranganathan <i>et al.</i> , (2019)
Psychological Empowerment	Mental toughening entails a variety of mental expressions that are necessary for individuals to feel in control of their work.	Amudha& Banu (2009); Banerjee <i>et al.</i> , (2016); Chatterjee <i>et al.</i> , (2018); Gangadhar <i>et al.</i> , (2017); George (2014); Kumar (2016); Medhi (2021); Moyle <i>et al.</i> , (2006); Ngono (2020); Patel & Patel (2021)

Domestic violence and microfinance

Several types of research on the impact of microfinance on domestic violence have been undertaken. According to Vonderlack-Navarro (2010), microloans usually give a clear and unobstructed path to economic and psychological independence for women, because the unintended consequences of microcredit participation can often enhance women's dependency on others to handle debt. Microfinance is mostly used to strengthen households' productive assets, which are largely owned by men, according to Garikipati (2012). Garikipati further claims those men with their wives in the credit program spend much more time in self-employed business, and their social status has improved. There are fewer cultural barriers and is effective in making decisions, reducing domestic violence, and managing household expenses loans. The researchers are interested in finding the impact of microfinance services on domestic violence or intimate partner abuse. While some studies have found a positive link between microfinance and domestic violence (Khan et al., 1998; Ahmed 2004; Christian, 2015; Green et al., 2015), others have found a negative link (Leach and Sitaram, 2002; Hussain et al., 1998; Ranganathan et al., 2019), and still others have found no link (Khan et al., 1998; Ahmed 2004; Christian, 2015; Green (Abdullah et al., 2015). Domestic violence is used as a predictor of women's empowerment in this study, and the researcher is aiming to explore the relationship between domestic violence and women's empowerment through microfinance schemes. Based on the above literature, below theoretical research model has been developed:

Fig. 1 research conceptual framework



METHODOLOGY

Data was collected through the survey method with the help of a questionnaire. The first section contained the questions measuring the respondents' demographics. The below table depicts the respondent's response and demographic profile:

Table no.: 2 respondent's profile

Demographic Variable	Category	Frequency	Percentage
Age	25-35	138	33.17%
	35-45	162	38.94%
	Above 45	116	27.89%
Marital Status	Single	97	23.31%
	Married	293	70.43%
	Separated	9	2.17%
	Widow	17	4.09%
Member of SHG	Yes	219	52.64%
	No	197	47.36%
Family Size	Less than or equal to 4	211	50.72%
	4 or more	205	49.28%
Education	Illiterate	105	25.24%
	Up to 10 th standard	147	35.34%
	Upto 10+2	103	24.76%
	Graduate	23	5.53%
	Postgraduate	10	2.40%
	Professional	28	6.73%
Occupation	Agriculturist	197	47.36%
	Industrialist	107	25.72%
	Employee	48	11.54%
	Business	57	13.70%
	Others	7	1.68%
Annual income of the family	<=1,50,000	89	21.39%
	1,50,001 – 2,00,000	147	35.34%
	2,00,001 – 2,50,000	106	25.48%
	>2,50,000	74	17.79%

Twenty-two different items are used to quantify domestic abuse. Descriptive research design was used in the present study. Data was collected from January to July 2020, from rural women who have benefited from MFI initiatives. It took seven months to complete the data collection process. Purposive random sampling has been used in the current study. The target population for the study includes both SHG and non-SHG members, who have availed the micro-financial services from the MFIs in their area. 219 of the 416 respondents were members of a self-help group, whereas 197 had received microfinance but were not members of an SHG. The present study covered rural areas of Raipur, Bilaspur, Durg, and Dhamtari divisions of Chhattisgarh. Simple random sampling was used to identify individual participants from each division. For each district, the data collection process was divided into two stages. The first phase consisted of scheduling as many interviews as possible and collecting responses. During this step, around 600 participants were contacted to schedule an interview. Four hundred eighty of them agreed to help in data collection, and interviews were planned around their schedules, and responses were collected. To overcome the shortage of 15 responses from Raipur, 7 from Durg, 28 from Bilaspur, and 11 from Dhamtari, a second round of data collection was devised and implemented. Once the data was collected, the subsequent step was to process and analyze the information. Firstly, the EFA was done to rule out any items with low factor loadings and higher cross-loadings. After the components have been retrieved using EFA, Confirmatory Factor Analysis (CFA) is used to examine and validate the measurement model. The relevance and impact of

independent factors on the dependent variables are evaluated, and the study hypotheses were tested, using structural model assessment. Further, the association between domestic violence and women empowerment was assessed with the help of multi-group analysis, and moderating influence of self-help group (SHG) participation was examined. Based on this study following are the hypothesis designed:

Ha: Domestic violence has an impact on women's psychological and overall empowerment.

H1a: SHG membership moderates the impact of domestic violence on women's psychological and overall empowerment.

RESULTS AND DISCUSSION

Demographic profile of the respondents

The analysis of this study is based on 416 responses. 52.64% of women were part of the Self-help groups, whereas 47.36% of women, although availing microfinance services, were not a part of any Self-help group.

Descriptive statistics of constructs

Table no. 3 below presents the descriptive statistics of domestic violence constructs. Almost 80 to 90 percent of respondents said they can now withstand any type of abuse much better than they could before. Using microfinance services and applying the loans toward the beneficiaries' progress allows them to become self-reliant. They will be able to stand up to any sort of maltreatment if they are self-reliant.

Table no. -3: descriptive statistics of constructs

<u>Item</u>	<u>SD</u>		<u>D</u>		<u>N</u>		<u>A</u>		<u>SA</u>		<u>Mean</u>
	F	%	F	%	F	%	F	%	F	%	
DMVLNC1	4	1%	13	3%	41	10%	290	70%	68	16%	3.98
DMVLNC2	8	2%	19	5%	62	15%	276	67%	51	12%	3.86
DMVLNC3	5	1%	11	3%	31	7%	282	68%	87	21%	4.08
DMVLNC4	2	0%	15	4%	63	15%	271	65%	65	16%	3.92

DMVLNC1: Stand up to verbal abuse.

DMVLNC2: Stand up to physical abuse.

DMVLNC3: Stand up to emotional abuse.

DMVLNC4: Stand up to psychological abuse.

Exploratory factor analysis

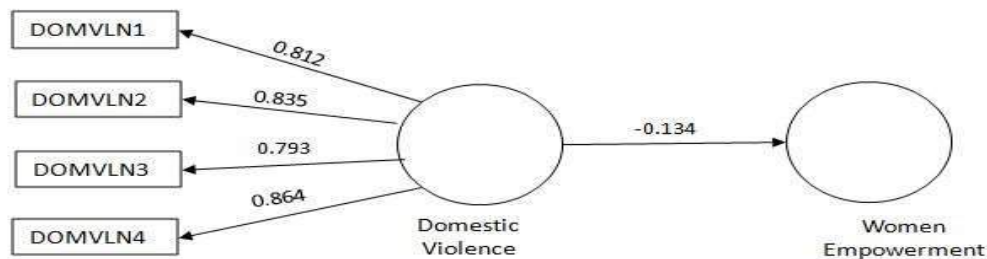
Domestic violence components were extracted using EFA, in accordance with the theoretical model proposed by the literature review. The higher the value of commonalities, the more variance in the variable has been extracted by the factor. For better EFA assessment, the value of commonalities should be equal to or greater than 0.4 as a rule of thumb. Below, table 4 depicts the good variance shared between variables.

Table no. -4: exploratory factor analysis results

Factor	Symbol	Factor	Communalities
Domestic Violence			0.717
$\alpha = 0.849$	DMVLNC1	0.821	
	DMVLNC3	0.821	0.694
	DMVLNC2	0.813	0.694
	DMVLNC4	0.794	0.673

Measurement model assessment or confirmatory factor analysis

A measurement model is used to calculate the association between a latent construct and its indicators/variables. The measurement model, which includes both first-order (reflective) and second-order (formative) constructs, is evaluated in the first step of SEM, the measurement model evaluation. Verbal abuse, physical abuse, emotional abuse, and psychological abuse act as latent variables, and domestic violence act as a first-order construct in the measurement model. SmartPLS 3.3.2 was used to assess the outer model's accuracy and validity (Ringle *et al.*, 2015). The reflective measurement model will be measured and evaluated given by Hair *et al.*, (2018).

Fig.-2: measurement model - outer loadings

The average variance extracted (AVE): The commonalities and AVE are similar. The AVE is calculated by squaring the loading, adding the squares, dividing by the number of indicators for that construct. A value of 0.5 or above for the average variance extracted (AVE) indicates good convergent validity, as a rule of thumb. The results of the measurement model assessment, as shown in Table 5, show that the values are above 0.5, which meets the acceptance criterion.

Table no. -5: construct reliability and validity matrix

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Domestic Violence	0.850	0.896	0.896	0.683

After checking the AVEs, the constructs are then tested for discriminant validity. The term discriminant validity refers to the fact that a construct is distinct from other constructs in the model. Finding discriminant validity can be done in two ways: Fornell-Larcker criterion and HTMT criteria. Recent trends show that the

HTMT criterion is becoming more popular than the Fornell-Larcker criterion. Calculated HTMT is 0.827, which is less than 0.9, imply discriminant validity, according to the criterion (Gold et al., 2001; Henseler et al., 2010; Voorhees et al., 2016).

Structural model assessment:

(i) To assess multicollinearity in the model:

Following the successful evaluation of the measurement model, the structural model is estimated in the manner given by Hair et al. (2019). The first stage in evaluating a structural model is to look for problems with multicollinearity. The VIF values are calculated to check for multicollinearity in the structural model. VIF values less than 3.33 and 5, respectively. According to Diamantopoulos & Siguaw (2006) and Hair et al., (2016), indicate the absence of multicollinearity in the model. The VIF value is 1.159, which passes the acceptance criteria.

(ii) To evaluate relevance and significance of structural model:

The next phase in the PLS-SEM process is to calculate the path coefficient, which examines the link between dependent and independent variables. The standardized path coefficient values range from -1 to +1. Positive values indicate statistically significant positive relationships. The study's hypotheses were then put to the test. In the hypotheses, women empowerment was the dependent variable, while domestic violence was the predictor variable. According to the data, domestic violence ($\beta = -0.134$, $t = 3.683$) and women empowerment have a significant negative connection. The below figure illustrates the same point.

Fig.3- structural model

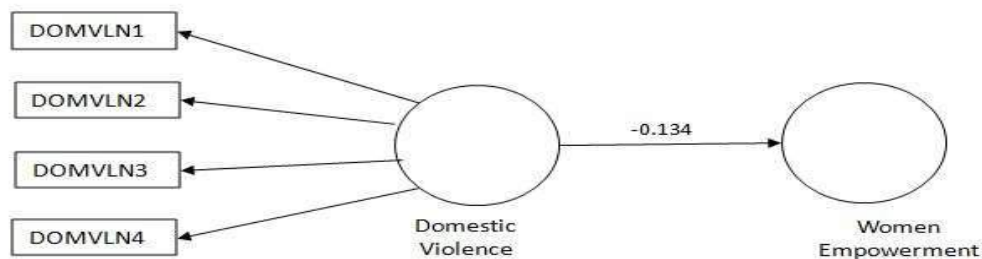


Table no.-6: Path coefficients mean, standard deviation, t-value, p- values

	(O)	(M)	(STDEV)	T (O/STDEV)	P Values
Domestic Violence -> Women Empowerment	-0.134	-0.122	0.036	3.692	0.000

To evaluate f^2 :

Cohen (1988) stated that an f^2 value greater than 0.35 indicated a large impact size, 0.15-0.35 indicated a moderate effect size, and less than 0.15 indicated a minor effect size. Domestic violence had a minor impact on women's empowerment ($f^2 = 0.032$), as shown in the below table:

Table no. -7: f-square mean, standard deviation, t-value, p- values

	(O)	(M)	(STDEV)	T (O/STDEV)	P Values
Domestic Violence -> Women Empowerment	0.032	0.029	0.016	2.012	0.044

To evaluate the predictive relevance Q2:

Calculating the Q2 value for verifying the correctness and precision of the path model using PLS-SEM has been suggested by Geisser and Stone (1974). In smart PLS software, the Q2value is determined using the blindfolding approach. The blindfolding approach is made with the omission distance of 9. As shown in the below table value coming is 0.1, which shows the model has medium precision.

Table no. -8: blindfolding-construct cross-validated redundancy

	SSO	SSE	Q ² (=1-SSE/SSO)
Domestic Violence	1664.000	1664.000	0.1

Moderating effect of SHG membership:

The SHG women members were used to conduct the first multi-group analysis. 219 of the 416 respondents were members of a self-help group, whereas 197 had received microfinance but were not members of an SHG. The figure below shows SHG members had a significant effect of reduced domestic violence leading to women empowerment ($\beta = -0.153$) because they had the support of their other women to help them in battle.

Fig.4: moderating effect of SHG membership and domestic violence

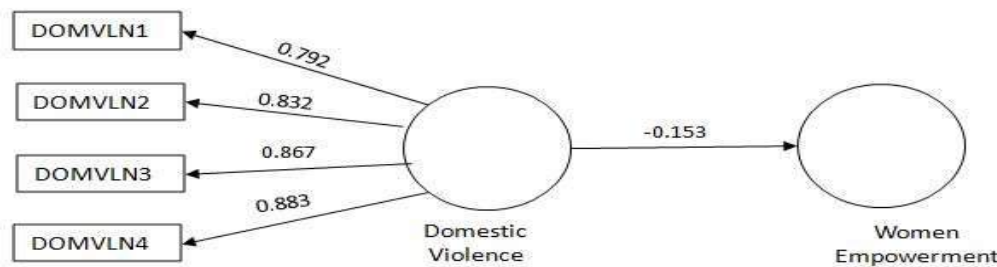
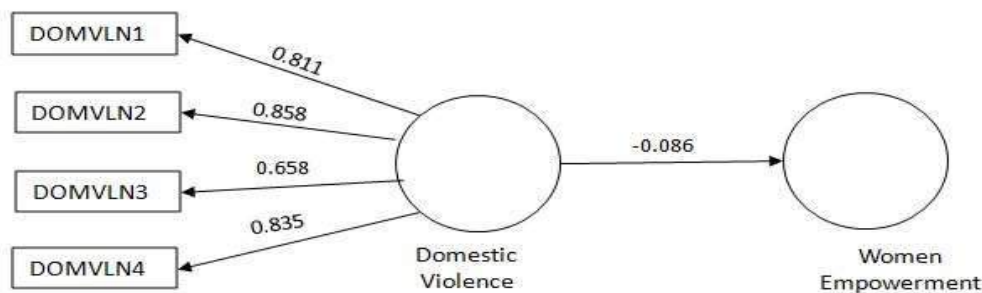


Fig.5: moderating effect of non- SHG membership and domestic violence



Findings and implication

The study's goal was to determine the impact of women's SHG membership on reducing domestic violence, which comprises four latent variables: verbal, physical, emotional, and psychological abuse. The descriptive

statistics of domestic violence constructs are presented in table no. 3 due to the data set provided. Almost 80 to 90 percent of those polled said they can now withstand any form of abuse much better than they could before. Table 3 shows that the variables' variance is shared adequately. The more commonalities there are the more variation the factor has extracted from the variable. The value of commonalities should be equal to or greater than 0.4 for a better EFA assessment. The EFA coming value is 0.849, which is having a good effect. The measurement model is used to calculate the connection between latent variables and their indicators in order to check the outer model. Table 5 shows that the AVE value is greater than 0.5, the composite reliability is .896, and the rho A is .896, indicating that the measurement model passes the acceptance criteria. The inner model is checked next, and the structural model is evaluated. The first step is to determine whether or not there is multicollinearity. In order to investigate multicollinearity issues, VIF values are verified, and the value that comes up is 1.159, which meets the acceptance criterion. The path coefficient, which is used to investigate the link between dependent and independent variables, is the next step in the PLS-SEM process. The hypotheses of the investigation were subsequently put to the test. Women's empowerment was the dependent variable in the hypotheses, whereas domestic violence was the predictor variable. In table 6, the path coefficients ($\beta = -0.134$, $t = 3.692$) show the negative impact on women empowerment. The next stage is to determine the f^2 effect size; the value of f^2 , as shown in table 7 for domestic violence, is 0.032, indicating that it has a minor impact on women's empowerment. After checking F^2 , the Q^2 value is tested for the path model's precision accuracy using PLS with an omission distance of 9. The Q^2 score in table 8 is 0.1, indicating that the model is satisfactory with medium precision. Hence, with the help of the above data analysis null hypothesis is rejected, and the alternative hypothesis is accepted, and it can be said that domestic violence harms women's empowerment. Figures 5 and 6 show the effect of domestic violence reduction leading to women empowerment was considerably more among SHG members ($\beta = -0.153$) because they support their peers' group members to help them fight against domestic abuse. With the help of data analysis, it is inferred that SHG membership moderates the impact of domestic violence on women's psychological and overall empowerment. Microfinance, in particular, has resulted in a greater appreciation of women's productive role. Women, in particular, have major challenges to generate continuous increase in income and status, necessitating further help in areas such as training, marketing, literacy, social mobilisation, and other financial services which must be provided by MFIs, NGOs, Self-Help Groups should all work together to improve their situations.

Conclusion

According to the findings, women who belong to SHG groups are less likely to experience domestic violence than women who do not belong to any SHG organizations. This study also demonstrates the importance of SHG in mentally and psychologically empowering rural women by enabling them to stand up against verbal, physical, emotional, and psychological abuse. The present research shows that the level of domestic abuse that microfinance beneficiaries were able to resist has a significant positive component on women empowerment through microfinance. Almost 80 to 90 percent of the respondents stated that they can now stand up to any kind of abuse considerably better than they could before. Using microfinance services

and applying the loans toward the beneficiaries' progress allows them to become self-sufficient. Results show that they are able to stand up to any sort of maltreatment if they are self-sufficient. Women in rural areas are gaining their psychological strength against domestic violence. The study further evaluated that domestic abuse hurts women's psychological and total empowerment. This study also shows that women who belong to any Self-Help Group are now experiencing less domestic abuse in their daily lives and are now becoming psychologically and mentally empowered.

Limitation and scope for further research

The current study focuses on the single moderation effect (SHG/Non-SHG membership) on women's empowerment. As a result, in the future, researchers may include other moderating variables in their studies, such as age, family size and wealth.

REFERENCES

- Al-Shami, S. S. A., Razali, M. M., Majid, I., Rozelan, A., & Rashid, N. (2016). The effect of microfinance on women's empowerment: Evidence from Malaysia. *Asian Journal of Women's Studies*, Vol. 22, No. 3, pp. 318-337.
- Amudha, R., & Banu, C. V. (2009). Micro finance—A tool for elevation of social entrepreneurship through women empowerment. *Asia Pacific Business Review*, Vol. 5, No. 1, pp. 77-86.
- Banerjee, M. P., Sayed, M. V., & Abraham, M. S. (2016). Self Help Group: A Pathway towards Credit & Economic Empowerment of Women. *Management*, Vol. 7, No. 1, pp. 13-19.
- Chakraborty, R., & Vasanthagopal, R. (2016). Empowerment of microfinance beneficiaries in India and Bangladesh: A factor analysis approach. *MANTHAN: Journal of Commerce and Management*, Vol. 3, No. 1, pp. 55-64.
- Chatterjee, S., Gupta, S. D., & Upadhyay, P. (2018). Empowering women and stimulating development at bottom of pyramid through micro-entrepreneurship. *Management Decision*. Vol. 56, No. 1, pp. 160-174.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*: Lawrence Erlbaum Associates.
- Diamantopoulos, A., Sarstedt, M., Fuchs, C. (2012). Guidelines for choosing between multiitem and single-item scales for construct measurement: a predictive validity perspective., *Journal of the Academy of Marketing Science*, vol. 40(3), pp.434-449.
- Fornell, C.G. & Larcker, D.F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error, *Journal of Marketing Research*, vol. 18(1), pp. 39-50.
- Gangadhar, C. H., & Malyadri, P. (2015). Impact of microfinance on women empowerment: An empirical evidence from Andhra Pradesh. *Journal of Entrepreneurship & Organization Management*, Vol. 4, No. 2, pp. 2-8.
- Garikipati, S. (2012). "Microcredit and Women's Empowerment: Through the Lens of Time-Use Data from Rural India," *Development and Change*, International Institute of Social Studies, vol. 43(3), pp. 719-750.
- Geisser, S. (1974). A Predictive Approach to the Random Effects Model. *Biometrika*, vol.61 (1), pp. 101- 107.
- Goetz, Anne, M. & Gupta, Rina, S. (1996). "Who takes the credit? Gender, power, and control over loan use in rural credit programs in Bangladesh," *World Development*, vol. 24(1), pp. 45-63.
- Hair, J.F., Sarstedt, M. & Ringle, C.M. (2019). Rethinking Some of the Rethinking of Partial Least Squares. *European Journal of Marketing* forthcoming.

- Henseler, J., & Fassott, G. (2010). Testing moderating effects in PLS path models: An illustration of available procedures, *Handbook of Partial Least Squares* (pp. 713-735). Berlin Heidelberg: Springer.
- Khan, G.F., Sarstedt, M., Shiau, W.L., Hair, J.F., Ringle, C.M. & Fritze, M.P. (2019). "Methodological research on partial least squares structural equation modeling (PLS-SEM): An analysis based on social network approaches", *Internet Research*, Vol. 29 No. 3, pp. 407-429.
- Khan, M.E, Ubaidur, R., Hossain, SMI.(2001). Violence against women and its impact on women's lives—some observations from Bangladesh, *J Fam Welfare*; vol. 46, pp.12–24.
- Kumar, H. (2016). Role of micro finance in women's empowerment (A study on Rural Area of Patna India). *International Journal of Social and Economic Research*, Vol. 6, No. 4, pp. 131-141.
- Mayoux, L. (1998). Women's empowerment and microfinance programs: strategies for increasing impact. *Dev Pract*, vol.8, pp.235–41.
- Medhi, J.(2021).Role of self-help groups (SHGS) in economic empowerment of women in India through SHGS -bank linkage programme. *International Journal of Multidisciplinary Educational Research*, Vol. 10. No. 1, pp. 98-102.
- Moyle, T. L., & Dollard, M. F. (2008). Rural Indian and Indigenous Australian women working towards empowerment: A proposed cross-cultural study. *International Journal of Rural Management*, Vol. 4, No. 1-2, pp. 153-168.
- Mukherji, S. & Jain, N. (2009). women empowerment through transformational leadership: Case of Satya Jyoti, *Vision*, vol. 13(4): pp. 63-69.
- Ranganathan, M., Knight, L., Abramsky, T., Muvhango, L., PolzerNgwato, T., Mbobelatsi, M., Ferrari, G., Watts, C. &Stöckl, H. (2021). Associations between women's economic and social empowerment and intimate partner violence: Findings from a microfinance plus program in rural Northwest Province, South Africa. *Journal of interpersonal violence*, Vol. 36, No. 15-16, pp.7747 – 7775.
- Rahman, M.M., Khanam, R. and Nghiem, S. (2017), "The effects of microfinance on women's empowerment: new evidence from Bangladesh", *International Journal of Social Economics*, Vol. 44 No. 12, pp. 1745-1757. <https://doi.org/10.1108/IJSE-02-2016-0070>.
- Ringle, C. M., Wende, S., & Becker, J. M. (2015). Boenningstedt Patent No. <http://www.smartpls.com>.: S. GmbH.
- Schuler, S.R., Hashemi, S.M. (1994). Credit programs, women's empowerment, and contraceptive use in rural Bangladesh, *Stud Fam Plan*, vol. 25, pp.65–76.
- Vonderlack, N.R. (2010). Targeting Women Versus Addressing Gender in Microcredit: Lessons From Honduras. *Affilia*, vol. 25(2), pp. 123-134.
- Voorhees, C.M., Brady, M.K. & Calantone, R. (2016). Discriminant Validity Testing in Marketing: An Analysis, Causes for Concern, and Proposed Remedies, *Journal of the Academy of Marketing Science*, vol.44 (1), pp. 119-134.
- WHO. (2005). Multi-country study on women's health and domestic violence against women. Geneva, Switzerland: World Health Organization.

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Effect of social skills training through parents and teachers support among disabled adolescents

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ABSTRACT

The study 'Effect of Social Skills Training Through Parents and Teachers Support among Disabled Adolescents'- was conducted in Chennai, at the 'National Institute for the Empowerment of Persons with Multiple Disabilities' (NIEPMD) and the 'Spastic Society of Tamil Nadu' (SPASTN) by using Convenient Sampling Method. The main purpose of the research was the importance of awareness and acceptance of disability, involvement of parents and teachers as support system in the intervention to assist the adolescents in creating and sustaining a positive outcome. Initially, 50 adolescents were randomly selected. They were screened for categorization and final selection (n=30). The sample included 19 boys and 11 girls in the age range of 12-18 years. Standardized tools were used for assessment. The Social Skills Training was applied to the sample with the help of their parents and teachers as support system. After two months, the re-assessment was done using the DBC tool. The follow-up session was conducted to analyze the sustenance of the outcome. The aim was to reduce the social deficits in the adolescents with the help of their parents and teachers. Repeated measures- One-Way ANOVA was conducted to obtain the statistical results. The findings indicated a significant reduction in the social deficits. This indicates that the effect of social skills training shows promising result among the sample.

Keywords: Social Skills Training, Parents, Teachers, Adolescents, Disabilities

INTRODUCTION

Disabilities Cerebral Palsy and Intellectual Disabilities in combination were assessed and intervened. Social deficits were assessed. Intervention was designed as a remedy to overcome the social deficit challenges. Standardized measures were used for administration. The research topic is linked to the discipline of "Rehabilitation Psychology" since the data collection procedure involved assessment and intervention for clinical population. A board group of adolescents with disabilities were selected to expose them to improvement and modification as it is the transition stage between childhood and adulthood. Intervention sessions included rehabilitative strategies like counseling, social skills training and teacher workshops. The sample included adolescents, their parents and teachers as support system. They were taken from two institutes for the differentially abled in Chennai. The focus was on the following aspects for the benefit of the sample, like facilitation, practice, motivation and feedback. Social component was taken as the main focus for the research. The study was taken to enlighten parents and teachers in managing the adolescents efficiently for their betterment. Rehabilitation means to restore the ability of the disabled person. It is the health care, provided to the people with permanent or temporary disabilities, to help them learn to overcome their disabilities. (Teotia, 2018). The application of psychological principles on adolescents with disabilities

due to injury or illness is called Rehabilitation Psychology (APA, 2019). Disability is a condition of the body or mind that makes it more difficult for the person to do certain activities and interact with world (National Centre on Birth Defects and Developmental Disabilities-Centre for Disease Control and Prevention 2020). Multiple Disabilities is the simultaneous occurrence of two or more disabling conditions that affect learning or other important life functions. These disabilities could be a combination of both motor and sensory nature. In the present research adolescents refer to boys and girls between 12-18 years, enrolled in an institute for the differentially abled, diagnosed with Cerebral Palsy co morbid with Intellectual Disability. Adolescents with disabilities are individuals experiencing various difficulties and delays in their developments and maturity. Cerebral Palsy is a neurological condition involving limited physical movement and flexibility. CP varying across the spastic (including monoplegia, diplegia, hemiplegia and quadriplegia), ataxic and athetoid types were considered for the study. Intellectual Disability is a condition involving limited cognitive abilities, affecting daily living skills and the IQ range of 35-69 was considered for the research. Social skills refer to any competence facilitating interaction and communication with others both verbally or through gestures. Common social problems faced by adolescents are anxiety, shyness, emotional connectivity, frustration, sadness, depression and low confidence. This process of learning is termed as socialization. This training is required for an adolescent with disabilities because more chances and exposures are essential for developing social skills. If they are not trained and left at home isolated, they are deprived of outings and participation in social functions. Once they learn to behave appropriately in a group setting, they are honored to be accepted. This training is beneficial since it enhances relationships, develops personality, increases creativity and productivity, encourages collaborative efforts, increases independence with self-regulation and coping skills. A decrease in feelings of loneliness and isolation, reduction in stress and anxiety is also observed. The training is started at the earliest because an adolescent needs stimulation, repeated chance and supervision to develop proper skills. During infancy, the child must get maximum stimulation from the family to play along. This process is continued through adolescence and adulthood. The researcher applied this to minimize social skill deficits in the sample. A literature survey was made considering the nature of the population, variable chosen for the present study and the tools used for administration. The researcher reviewed studies conducted over the past 5-10 years and found that reviews are very limited in cerebral palsy co-morbid with intellectual disability. There are International and Indian studies conducted on cerebral palsy and intellectual disability individually. Previous evidences are limited on both parent and teacher perceptions on the variable social skills in India. Early research stated that among the types of disabilities, physical and intellectual disability possesses greater challenges. The past reviews included in the current research were categorized under the following sub-headings: cerebral palsy, intellectual disability and social skills. Supportive reviews included were both interventional and descriptive. The combination of disabilities in the earlier reviews: Autism Spectrum Disorder & Intellectual Disability, Cerebral Palsy & Attention Deficit Hyperactivity Disorder, and Physical Disability & Visual Impairment. This study was essential for the following reasons. The families having adolescents with CP and ID require constant support programs for the well-being of their wards. The teachers, as special educators, were supported in designing and implementing the educational plan based on the requirement and capacity of the

adolescents. Considering the previous reviews, the researcher envisaged a social skills training approach (a tailor-made intervention package) to be effective in reducing social skills deficits, among adolescents with CP comorbid ID. It focuses on the providence of the basic essential knowledge and support for this combination of disability involving parents, teachers, and adolescents through psycho education and training modules. In the present study, as a psychologist, the researcher would like to focus on the following aspects.

- Importance of awareness and acceptance of disability.
- Effect of social skills training focusing on social deficits of adolescents.
- To educate and demonstrate the practical skills to adolescents, parents, and teachers.
- Involvement of parents and teachers as supporting system to help their wards in fostering a positive outcome.

Objectives

- To assess the level of social deficits among adolescents with cerebral palsy co-morbid intellectual disability through parents and teachers' assessment.
- To design a social skills training module to reduce the social deficits through parents and teachers' support.
- To assess the pre-post and follow-up effect of the intervention on social relations among adolescents with cerebral palsy co-morbid intellectual disability through parents and teachers' assessment.

Hypothesis

- There will be a significant decrease in social relations among adolescents from pre to post and post to follow-up phases as a result of Social Skills Training from parents' perspectives.
- There will be a significant decrease in social relations among adolescents from pre to post and post to follow-up phases as a result of Social Skills Training from teachers' perspectives.

METHODOLOGY

Sample

The sample chosen for the current research is clinical, under the discipline of rehabilitation psychology. Formerly 50 samples were taken scrutinizing the individual case history records as well as observing them, followed by an assessment and screening process. Based on the inclusion and exclusion criteria, a total sample of 19 boys and 11 girls $n=30$ were selected using convenient sampling strategy for the final study. The sample were adolescents falling within the age range of 12-18 years. They were homogenous in their disability. Though the focus was to bring about an improvement in the adolescents, their limitations restrict them from providing reliable information for research. The pre-post and follow-up assessment scores were therefore obtained from parents and teachers and the effect of the intervention on the adolescents were analyzed thereafter.

Inclusion Criteria

- Cerebral Palsy with co-morbid Intellectual Disability.
- Boys and girls between the ages of 12-18 years.
- Boys and girls falling within the IQ range of 35-69.
- Boys and girls with Ataxic, Dystonic and Spastic types.
- Parents and teachers of the above said, boys and girls.
- Boys and girls with Monoplegia, Diplegia, Hemiplegia and Quadriplegia disabilities under Spastic Cerebral Palsy.

Exclusion Criteria

- Cerebral Palsy and Intellectual Disability as separate conditions.
- Other psychological or physiological illness.
- Boys and girls below 12 years and above 18 years.
- Boys and girls with an IQ below 35 and above 69.
- Parents and teachers who are not related to the boys and girls with cerebral palsy and intellectual disability.

Tools of The Study

The screening was done using the Test of Non-Verbal Intelligence (Brown et al, 2010) was applied to identify the level of intelligence quotient in the sample. International Statistical Classification of Diseases and health related problems 10th revision (ICD 10 by WHO, 2016) was applied to categorize the sample under mild, moderate, severe and profound intellectual disability. Gross Motor Functional Classification System (Rosenbaum, 2007). This tool was used to classify the type of cerebral palsy which helped in understanding the samples' physical ability. Swassing Barbie Modality Test (Swassing and Barbie, 1979) This tool was applied to identify the learning styles of the sample under 3 categories: visual, auditory and kinesthetic. The pretest, post and follow up assessment was conducted using the Developmental Behavior Checklist-(Einfield and Tonge, 2002 Parent and Teacher Versions) the purpose is to assess the social deficits of children, adolescents and adults with Developmental and Intellectual Disabilities. This tool was used to measure the level of social problems which were the foundation for the development of the training module. The selected sample was briefed on the purpose of the research and the informed consent was obtained. The adolescents were then observed by the researcher to identify their social deficits based on the observation, appropriate tools were selected. Due to the dearth of standardized tools needed for the current study in the Indian context, foreign tools were selected. Expert opinion was obtained to determine the relevance and usability of the tools in the current study. The researcher approached 4 professionals for validating the tools before data collection which included a

Psychiatrist, Clinical Psychologist, Pediatrician (specialized in Cerebral Palsy) and a Special Educator.

Procedure

Informal experimental research: before and after without control design was adopted, with the experimental group as the study sample. At the onset of the research 50 adolescents diagnosed with Cerebral Palsy co morbid Intellectual Disability were screened from the selected institutions by using convenient sampling. The screening process was done using Test of Non-Verbal Intelligence (Brown, Sherbenou & Johnsen, 2010) and Swassing-Barbe Modality Test (Barbe & Swassing, 1979), After the screening process, 30 adolescents, (19 boys and 11 girls) their parents and teachers, were selected for the final study. Informed consent was obtained before data collection. The participants were briefed on the research and the data was collected using Case History Schedule, Developmental Behavior Checklist (Parent and Teacher Versions). The module was designed incorporating the learning styles visual, auditory and kinesthetic. The pattern of communication was Bilingual-English and Tamil. After the pretest, the social skills training was given for 8 months under the supervision of the researcher and allowed two months of practice without the researcher's supervision. The post-test was assessed after two months and the follow-up was done one month later. Though the focus was to bring about a reduction in the adolescents, the assessments and effect of the intervention was taken from their parents (n=30) and teachers (n=13) as they play an essential role in their wards progress.

Intervention Package

Adolescents often experience difficulty in learning social skills. This, in turn, results in social isolation limiting the development of language and communication. Social skills were taught in a kinesthetic manner, mostly in groups. In the present investigation, social skills training helped in improving the adolescent's ability to function in everyday social situations.

Statistical Analysis

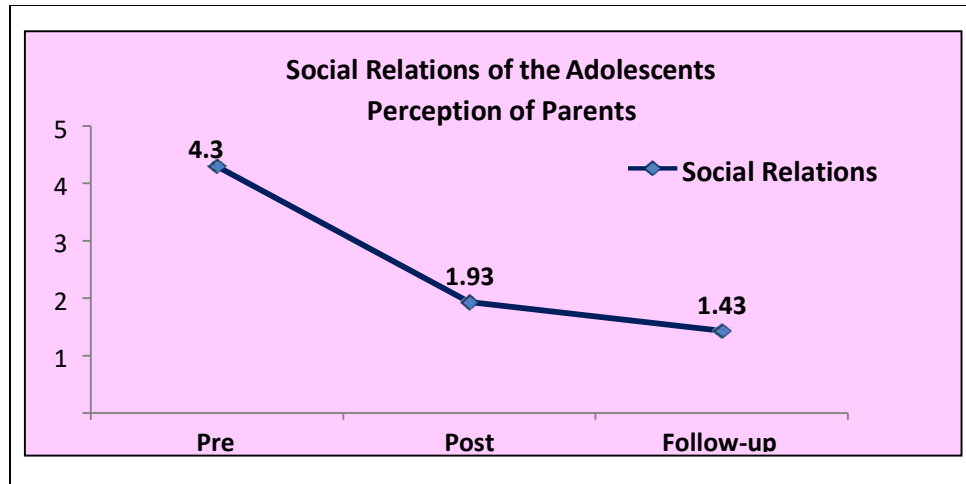
The comparison of the pre, post and follow-up stages was analyzed using the Repeated- Measures One-Way Analysis of Variance (ANOVA), performing pair-wise comparison of the within-group condition, using the Sidak Method of the post hoc analysis. The results were illustrated using line graphs to pictorially represent the changes that happened during the different phases. Statistical analysis was done using the Statistical Package for Social Sciences, Version 20.0.

RESULTS AND DISCUSSION

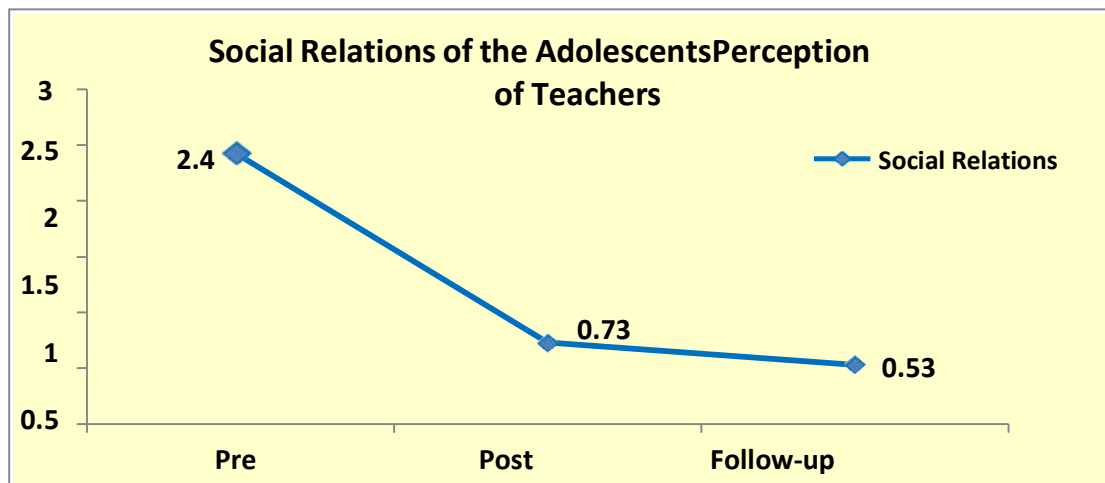
On the graph the horizontal X axis represents the time duration of the Social Skills Training (Pre, Post and Follow-Up Phases). The vertical Y axis represents the Estimated Marginal Means for the dimension measured. The above graph shows that there is a significant difference in the perception of parents on social relations of their adolescents from pre-test to post-test scores, with sustenance from post-test to follow up

scores. It is evident that social skills training has helped the parents to deal with their adolescent's interpersonal problems.

Graph 1 Mean plots of Social Relations in the adolescents: perception of parents in pre-post and follow-up phases of the intervention.



Graph 2 Mean plots of Social Relations in adolescents: perception of teachers in pre-post and follow-up phases of the intervention



On the graph the horizontal X axis represents the time duration of the Social Skills Training (Pre, Post and Follow-Up Phases). The vertical Y axis represents the Estimated Marginal Means for the dimension measured. The above graph shows that there is a significant difference in the perception of teachers on Social Relations of their adolescents from pre-test to post-test scores, with sustenance from post-test to follow up scores. Social skills training has helped the teachers to handle their adolescent's interpersonal problems effectively.

Conclusion

From the key findings of the study, it is appropriate to arrive at a reasonable conclusion regarding the effectiveness of the social skills intervention on adolescents with cerebral palsy and intellectual disability.

The perception of parents and teachers revealed that Social Skills Training was useful in reducing the communication Disturbance in adolescents.

Implications

This study intended to develop a Social Skills Intervention. It was designed for the Indian culture with significance in the areas of disabilities and rehabilitation.

1. The Social Skills Training has helped the adolescents to reduce their social deficits.
2. The results of this study have opened a window for psychologist and other mental health professionals in understanding the efficacy and importance of tailor-made interventions in managing various problems of the disabled population.
3. The intervention not only gave a better effect in reducing the social problems but also long-term sustenance was observed in the follow-up phase.
4. The present study supports and clarifies earlier clinical reviews that suggested Social Skills Training for better outcomes.

Conflict of interests

We have no conflict of interest to declare.

Author's contributions

All the authors have contributed equally to the theoretical development, analysis, interpretation and writing of the manuscript.

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REFERENCES

- American Psychological Association (2019) Rehabilitation Psychology retrieved from <https://www.apa.org>.
- Barbe W.B and Swassing R.H (1979) Swassing Barbe Modality Test Published by Zaner Bloser, Inc Retrieved from <http://people.umass.edu>
- Einfeld. L and Tonge. J (2002) Developmental Behavior Checklist 2nd Edition Publisher Western Psychological Services Torrance Los Angeles California United States of America (USA)
- International Online Resource Centre on Disability and Inclusion (2015) Adolescence and Disability, Humanity and Inclusion, retrieved from <https://asksource.info>
- Johnsen. K, Sherbenou. K and Brown. L (2010) Test of Non Verbal Intelligence 4th Edition Pro- Ed An International Publisher, Austin Texas, United States of America (USA).
- Palisano. R Rosenbaum P Walter. S, Bartlet. D and Livingston M (2007) Gross Motor Functional Classification System (Expanded and Revised) Can Child Centre for Childhood Disability Research Institute for Applied Health Sciences McMaster University Retrieved from <https://www.canchild.ca>.

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Psychological contract and its breach on university employees

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ABSTRACT

'Psychological Contract', an emerging concept in the Human Resources domain has helped employers understand the implicit expectations, feelings and obligations of employees in an organization. The study is an exploratory research on the concept of Psychological Contract (PC) and Psychological Contract Breach (PCB) on Employee Engagement of University employees in the Assam, India. A sample of five hundred was taken and multiple linear regressions are done to analyze the data. A comparative analysis is done based on the type of university (Govt. and Private) and significant relationship has been confirmed between PC, PCB with Employee relationship and Job Role. It has been observed that fulfilment of employees' Psychological Contract leads to higher degree of Employee Engagement, whereas breach in the same leads to lesser engagement. For Government Universities, irrespective of the Job Role, PC and PCB has a major effect on employees whereas in Private Universities, although PC has a significant affect, PCB do not impact much across academics and administration. The study is among the very few works done on the concept of Psychological Contract in the academic sector in the north-eastern part of India. The authors expect the work to contribute significantly in the concerned field.

Keywords: Psychological Contract; Government Universities; Human Resources; Higher Education

INTRODUCTION

In the ever-changing world of business and management, several strategies and concepts have been introduced to manage the Human Resources of an organization. With the dynamic human nature, organizations struggle to provide an ideal work culture for every individual. In the recent past, the theory of 'Psychological Contract' has emerged which explores the implicit psychological expectations and obligations of an employee with their respective organizations. The study attempts to explore the concept of Psychological Contract and its Breach in the Higher Education sector of Assam.

The term 'Psychological Contract' was introduced by Argyris in the 1960s (Argyris C. , 1960). Amongst several experts, who have contributed to the concept of Psychological Contract, the most adapted definition is the one by Rousseau, which is "an individual's beliefs concerning the mutual obligations that exist between him/herself and the employer." (Rousseau D. , 1989) Over the years, several factors have been analyzed in relation with employee expectations and obligations. Initial studies have shown seven responsibilities in the Psychological Contract of employees – "Promotion, High Rewards, Training, Job Security, Career Development, Performance Rewards, and HR support." (Rousseau D. , 1990) Seven years later (Herriot, Manning, & Kidd, 1997) have updated the list by including six employees' responsibilities- Punctuality, Hard Work, Honesty, Loyalty, Protection of Company assets, Mutual assistance. Over the years, several variables were identified for shaping employees' psychological contracts, such as career

motivation, Previous work experience, Job alternatives etc. (Larwood, Wright, Desrochers, & Dahir, 1998) (Cavanaugh & Noe, 1999) (Turnley & Feldman, 1999)

When there is an infringement of Psychological Contract of employees, it is known as 'Psychological Contract Breach (PCB)'. As stated by (Suazo & Stone-Romero, 2011) "A breach in the Psychological Contract occurs when an employee perceives that they have received less than what they were promised." Due to the different nature of employees in an organization, Psychological Contract Breach can occur at an individual level. Psychological Contract Breach can generate negative emotions, (Zhao, Wayne, Glibkowski, & Bravo, (2007) and lack of trust in an employment relationship (Robinson, 1996)

The significance of Psychological Contract (PC) and its breach (PCB) in HR functions can be seen in the several studies done by previous researchers. The relationship between PC and Employment Relationship has been analyzed by (Guest & Conway, 2002) and its relation with the social exchange theory is discussed by (Coyle-Shapiro & Parzefall, 2008) Psychological Contract Breach is related with an employee's intention to quit (Joshy & Srilatha, 2011) Trust is a significant factor in analysing PC and PCB of employees (Robinson, 1996)

Several factors have been identified with relation to PC and PCB of employees. From a thorough literature review, we have identified the factor 'Employee Engagement' and we will be exploring the impact of PC and PCB on the Employee Engagement of our respondents.

Employee Engagement along with Psychological Contract can forecast organizational and financial outcomes as well as mental health of employees, leading to the overall productivity of an employee. The studies have focused employee engagement in addition with Psychological Contract to explore the different outcomes. (Aggarwal, Datta, & Bhargava, 2007) (Parzefall & Hakanen, 2010) Therefore the concerned study attempts to explore the inter-dependency of the two as different entities. The fulfilment in the PC can lead to increase in employee engagement (Rayton & Yalabik, 2014), leading to positive employee attitudes, intention to stay and low turnover rates. (Bal, Chiaburu, & Diaz, 2011). Adding to the findings, the study has included Psychological Contract Breach in addition to Psychological Contract to strengthen the impact of the same.

The study attempts to explore the concept of Psychological Contract and its Breach in the Education sector of Assam, a north-eastern state in India. From the HR domain, majority of researchers confine the works in corporate institutions. It is essential to understand that academicians should be exposed to the different HR techniques and strategies to improve the work culture of educational institutions.

India is considered a young developing country with a significant portion of the population comprising of the youth. There has been a surge in higher education institutions across the country in the recent past. The study explores the situation of Higher Education sector of Assam. There are around 560 institutions in the state offering different programs pertaining to the higher education sector. Several researchers have stated some of the ongoing struggles faced by the education sector of the state, such as- Access to higher education; Research standards; Inadequate number of teachers and classrooms, Cost of education; Infrastructure problems etc. (Saikia, 2013) (Kro, 2015)

Following are the research gaps found in this particular area

- Studies exploring PC and PCB in the Education sector have been minimal and it is important that employees of education institutions are exposed to the importance of the said concept.
- The study attempts to explore the impact of both PC and PCB on Employee Engagement and Job Roles. Most studies discuss the effect of either PC or PCB on HR functions. This work is a very few of the first to discuss the impact of both on a particular HR factor and an employee's job role.

Taking into account the research gap from prior literature, the following objectives are formulated:

1. To determine the effect of Psychological Contract and its Breach on Employee Engagement of Government University employees of Assam.
2. To determine the effect of Psychological Contract and its Breach on the Job Profile of University employees of Assam.

Need for study – For an organization to succeed, employees' role is of utmost importance. To understand the employees, it is necessary to take into account their expectations and obligations. Psychological contract helps us in understanding the same. The study of Psychological Contract in the education industry is minimal. It is time we understand the importance of academicians' contribution in our nation's development. In today's world when the corporate sector is adopting newer techniques to understand employees better, academic sector should also be well equipped to provide better opportunities and development to their employees. Therefore, this study is an attempt to create awareness of the same and show the research community that psychological contract and its different aspects should be introduced to the academic sector. This demand comes from a time where the education sector globally is undergoing major changes to accommodate teaching and learning techniques in and after a pandemic. It is essential to understand employee expectations to boost work and employee engagement.

METHODOLOGY

Time of Data Collection

Data for the study was collected in the beginning of 2021, in the months of March - May

Response Rate

The total population is 2000 and questionnaires distributed were 700 (35% of the population). Responses received are 500 (71.4% response rate)

Sampling method

The sampling technique adopted for the study is Stratified Random Sampling (for identifying the Universities) and Snowball Sampling (for identifying the Respondents). Universities finalized for the study are- Assam Rajiv Gandhi University of Co-operative Management, Bodoland University, Dibrugarh University, Gauhati University, Tezpur University, Assam University, Assam Down Town University and Assam Don Bosco University.

Sample

A sample size of 500 is taken.

Materials used/ tools of the study

Both Primary and Secondary data is collected for the study. The method of data collection is Survey method. The research instrument adopted for the study is a Questionnaire and several scales were reviewed for identifying items to measure the variables- Psychological Contract (PC), Psychological Contract Breach (PCB) and Employee Engagement. Employee engagement - (Robinson & Rousseau, 1994); Cook & Wall (1980); Utrecht Work Engagement Scale; M. Steers, Lyman W. Porter (1979); Psychological Contract - Psychological Contract Inventory Technical Report; Psychological Contract Breach - Psychological Contract Inventory Technical Report. For Psychological Contract scale, the items are designed positively, indicating the greater value of PC indicating more impact on the variable (Employee Engagement; Job Role). For Psychological Contract Breach scale, the items designed are negative indicating more the value, less is the impact of the variable (Employee Engagement; Job Role). The initial analysis done to check the research questionnaire is the Reliability analysis. Cronbach's Alpha is 0.93 which concludes that the tool is reliable.

RESULTS AND DISCUSSION

Objective 1 and Objective 2

To analyze the measure of significance between PC and PCB on Employee Engagement, multiple linear regression is undertaken. The assumptions of linear regression are checked and approved prior to computing the same.

Government University Employees data:

H_0 = There is no significant relationship between Psychological Contract and Employee Engagement among Government University employees.

H_1 = There is significant relationship between Psychological Contract and Employee Engagement among Government University employees.

H_0 = There is no significant relationship between Psychological Contract Breach and Employee Engagement among Government University employees.

H_1 = There is significant relationship between Psychological Contract Breach and Employee Engagement among Government University employees.

From the regression analysis, the following results were achieved:

- Adjusted R square is 0.401, indicating that 40.1% variance in Employee Engagement is affected by Psychological Contract and Psychological Contract Breach.
- The value of ANOVA analysis is 0.00, giving us a statistically significant result.
- The significant values of PC and PCB are 0.000 and 0.011, respectively. We can therefore reject our null hypothesis and interpret that Psychological Contract has a statistically significant relationship with Employee Engagement. Similarly, we can reject the second null hypothesis and conclude that Psychological Contract has a statistically significant relationship with Employee Engagement.

- Beta values for PC and PCB are 0.689 and 0.038, which implies that- for every unit of change in Psychological Contract, there is a change of 0.689 times in Employee Engagement, and for every unit of change in Psychological Contract Breach, there is a change of 0.038 times in Employee Engagement.
- More the fulfillment of Psychological Contract, more is the Employee Engagement. Less the Psychological Contract Breach, more is the Employee Engagement.

Private University Employees:

H_0 = There is no significant relationship between Psychological Contract and Employee Engagement among Private University employees.

H_1 = There is significant relationship between Psychological Contract and Employee Engagement among Private University employees.

H_0 = There is no significant relationship between Psychological Contract Breach and Employee Engagement among Private University employees.

H_1 = There is significant relationship between Psychological Contract Breach and Employee Engagement among Private University employees.

From the regression analysis, the following results were achieved:

- Adjusted R square is 0.734, indicating that 73.4% variance in Employee Engagement is affected by Psychological Contract and Psychological Contract Breach.
- The value of ANOVA analysis is 0.00, giving us a statistically significant result.
- The significant values of PC and PCB are 0.003 and 0.015, respectively. We can reject the null hypothesis and interpret that Psychological Contract has a statistically significant relationship with Employee Engagement. Similarly, we can reject the second null hypothesis and conclude that Psychological Contract has a statistically significant relationship with Employee Engagement.
- Beta values for PC and PCB are 0.814 and 0.453, which implies that- for every unit of change in Psychological Contract, there is a change of 0.814 times in Employee Engagement, and for every unit of change in Psychological Contract Breach, there is a change of 0.453 times in Employee Engagement.
- More the fulfillment of Psychological Contract, more is the Employee Engagement. Less the Psychological Contract Breach, more is the Employee Engagement.

Table 1 indicates the comparative regression analysis of Government and Private University employees concerning Psychological Contract and Psychological Contract Breach with Employee Engagement

Employee engagement						
	Adjusted r square	Significant values		Beta values		Regression equation
		PC	PCB	PC	PCB	
Government universities	0.401	0.00	0.011	0.689	0.038	EE predicted = 1.792 + 0.689PC + 0.038PCB
Private universities	0.734	0.003	0.015	0.814	0.453	EE predicted = 1.082 + 0.814PC + 0.453PCB

Interpretation: From the analyses, we have seen that for both Government and Public Universities, the impact of Psychological Contract and its Breach on Employee Engagement is significant. Although in varying degrees, the combined impact of PC and PCB definitely has an effect on employees, irrespective of the sectors. The ANOVA results conclude the importance of PC and PCB on Employee Engagement of university employees of different types of universities. The results conclude that fulfilling the Psychological Contract of employees can lead to a higher degree of Employee Engagement. On the other hand, breach in the Psychological Contract can likely impact the work engagement. The result is expected to encourage organizations to prioritize awareness and impact of PC and PCB on Employee Engagement.

Objective 3

To analyze the Psychological Contract and Psychological Contract Breach of employees based on their Job roles, One-way ANOVA tests for employees' data of Government and Private Universities were done:

Government Universities:

Psychological Contract (PC)

One-way ANOVA test is done to analyze the relationship between average Psychological Contract (PC) scores across Job roles.

H_0 = Average PC scores for the Job roles are equal for Central University employees.

H_1 = Average PC scores for the Job roles are not equal for Central University employees.

The significance value found is 0.016, which is lesser than the p-value of 0.05. Therefore we reject our null hypothesis and conclude that the average PC scores across all the Job roles are not equal for Central University employees.

Psychological Contract Breach (PCB)

One-way ANOVA test is done to analyze the relationship between average Psychological Contract Breach (PCB) scores across Job roles.

H_0 = Average PCB scores for the Job roles are equal for Central University employees.

H_1 = Average PCB scores for the Job roles are not equal for Central University employees.

The significance value found is 0.021, which is smaller than the p-value of 0.05. Therefore we reject our null hypothesis and conclude that the average PCB scores across all the Job roles are not equal for Central University employees.

Private Universities:

Psychological Contract (PC)

One-way ANOVA test is done to analyze the relationship between average Psychological Contract (PC) scores across Job roles.

H_0 = Average PC scores for the Job roles are equal for Private University employees.

H_1 = Average PC scores for the Job roles are not equal for Private University employees.

The significance value found is 0.041, which is lesser than the p-value of 0.05. Therefore, we reject our null hypothesis and conclude that the average PC scores across all the Job roles are not equal for Private University employees.

Psychological Contract Breach (PCB)

One-way ANOVA test is done to analyze the relationship between average Psychological Contract Breach (PCB) scores across Job roles.

H_0 = Average PCB scores for the Job roles are equal for Private University employees

H_1 = Average PCB scores for the Job roles are not equal for Private University employees

The significance value found is 0.121, which is greater than the p-value of 0.05. Therefore, we do not reject our null hypothesis and conclude that the average PCB scores across all the Job roles are equal for Private University employees.

Table 2 indicates the comparative analysis of Government and Private University employees concerning Psychological Contract and Psychological Contract Breach on the Job Role

Job Role		
	Significant value	Analysis
Government Universities	0.016	The average PC scores across the job roles are not equal
Private Universities	0.021	The average PC scores across the job roles are not equal
Job Role		
	Significant value	Analysis
Government Universities	0.041	The average PCB scores across the job roles are not equal among employees of central universities
Private Universities	0.121	The average PCB scores across the job roles are equal among employees of private universities

Interpretation:

Objective 3 of our study explored the role of employees on Psychological Contract and its Breach. The results have confirmed that for Government Universities, irrespective of the Job Role, Psychological Contract and its Breach have a major effect on employees. Fulfilment of PC and breach of PC have significant affect on administration and academic employees. With respect to Private institutions, although Psychological Contract has a significant affect across employees' job roles, PCB scores are equal among all employees indicating that breach in the Psychological Contract do not have significant affect across academic and administrative employees. . Fulfillment of PC and breach of PC of employees do not affect significantly based on their job roles. The results conclude that policy makers of Govt. universities should take into account Psychological Contract and its breach on both academic and administrative employees. Private Universities should prioritize employees' Psychological Contract over its breach for employees with different job roles.

Implications of the study

The implications of the concerned study can be viewed from two perspectives- theoretical and practical. The theoretical aspect of the study contributes to the existing literature and filling the gaps. The study attempts to introduce the research community to study more of Psychological Contract in the Education sector. Several research models can be developed based on the same which will help develop new techniques and laws related to human resources and employees. For practical purposes, the study attempts to sensitize existing lawmakers and management of education institutions to prioritize employee interests at the earliest to understand their expectations which in turn will lead to the organization's development.

Conclusion

In the cut-throat competition of the business world, organizations introduce several strategies to implement employee engagement as part of the work culture. The study has explored the impact of PC and PCB on the Employee Engagement of University employees. The work has concluded that irrespective of the type of institution (Govt. and Private), employees are highly affected by their Psychological Contract and its Breach. Results conclude that fulfilling the Psychological Contract of employees lead to higher degree of Employee Engagement among employees, whereas Psychological Contract Breach lead to less engagement from employees. This shows us the importance of Employee Engagement and its relationship with Psychological Contract among employees of the education sector.

Although Govt. University employees across academics and administration are significantly affected by their Psychological Contract and Breach, Private University employees do not show significant difference in the concerned concept across their job roles.

The study attempts to create awareness of the importance of Psychological Contract and its breach on the higher education sector in the state of Assam. The work is among the very few researches done on the concerned topic in this domain and region. The authors have attempted to amalgamate the concept of Psychological Contract with Human Resources and Organizational Behavior in the Higher Education sector. The paper explores Employee Engagement, one of the many HR strategies to choose from for future researches. The work is expected to be a reference for several works in this domain in the near future. Psychological Contract is among the very few HR concepts which help in recognizing employee expectations and obligations in an organization. The study is expected to encourage policy-makers of education institutions to implement HR strategies concerning Psychological Contract of employees.

Conflict of interests

The authors declare that no competing interests exist.

Author's contributions

The Corresponding author (Suparna Neog) has contributed the content development and writing of the manuscript. The second author (Dr Runumi Das) has contributed to the supervision of the study and guidance of research.

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REFERENCES

- Aggarwal, U., Datta, S., & Bhargava, S. (2007). The Relationship between Human Resource Practices, Psychological Contract and Employee Engagement - Implications for Managing Talent. *IIMB Management Review*, 19 (3), 313 - 325.
- Argyris, C. (1960). *Understanding Organizational Behavior*. London: Tavistock Publications.
- Bal, P., Chiaburu, D., & Diaz, I. (2011). Does Psychological Contract Breach Decrease Proactive Behaviors? The Moderating Effect of Emotion Regulation. *Group & Organization Management*, 36, 722 - 758.
- Cavanaugh, M., & Noe, R. (1999). Antecedents and consequences of relational components of the new psychological contract. *Journal of Organizational Behavior*, 323-340.

- Coyle-Shapiro, J., & Parzefall, M. (2008). Psychological Contracts. In & C. J. Barling, *Handbook of Organizational Behavior* (pp. 17-34). London: SAGE Publications.
- Guest, D., & Conway, N. (2002). Communicating the psychological contract: An employer perspective. *Human Resource Management Journal*, 12, 22 - 38.
- Herriot, P., Manning, W., & Kidd, J. (1997). The Content of the Psychological Contract. *British Journal of Management*, 8 (2), 151-162.
- Joshy, L., & Srilatha, S. (2011). Psychological contract violation and its impact on intention to quit: A study of employees of public sector and old generation private sector banks in India. *Asian journal of management research*, 274-288.
- Kro, M. S. (2015). Present Education system and its impact on the economically backward students in Assam. *International Journal of Research - Granthaalayah*, 196-201.
- Larwood, L., Wright, T., Desrochers, S., & Dahir, V. (1998). Extending Latent Role and Psychological Contract Theories to Predict Intent to Turnover and Politics in Business Organizations. *Group & Organization Management*, 23 (2), 100-123.
- Parzefall, M., & Hakanen, J. (2010). Psychological contract and its motivational and health-enhancing properties. *Journal of Managerial Psychology*, 25 (1), 4 - 21.
- Rayton, B., & Yalabik, Z. (2014). Work engagement, psychological contract breach and job satisfaction. *The International Journal of Human Resource Management*, 25 (17), 2382 - 2400.
- Robinson, S. (1996). Trust and Breach of the Psychological Contract. *Administrative Science Quarterly*, 41 (4), 574 - 599.
- Rousseau, D. (1990). New hire perceptions of their own and their employer's obligations: A study of psychological contracts. *Journal of organizational behavior*, 11, 389 - 400.
- Rousseau, D. (1989). Psychological and Implied Contracts in Organizations. *Employee Responsibility and Rights Journal*, 121-139.
- Saikia, M. (2013). Challenges of higher Education in Assam for Development of Human Resources. *International Journal of Humanities and Social Science Invention*, 2 (11), 41-44.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study. *Journal of Organizational Behavior*, 25, 293 – 315.
- Suazo, M., & Stone-Romero, E. (2011). Implications of psychological contract breach- A perceived organizational support perspective. *Journal of Managerial Psychology*, 26 (5), 366-382.
- Turnley, W., & Feldman, D. (1999). A Discrepancy Model of Psychological Contract Violations. *Human Resource Management Review*, 9 (3), 367-386.
- Zhao, H., Wayne, S., Glibkowski, B., & Bravo, J. ((2007). The Impact of Psychological Contract Breach on Work-Related Outcomes: A Meta-Analysis. *Personnel Psychology*, 647–680.

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Mother daughter relationship among clinical dyads: A qualitative enquiry

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ABSTRACT

The mother -daughter relationship is embedded in a rich social and cultural context and is crucial in mental health in lives of women. The present paper aimed to explore the dynamics of above relationship using qualitative data obtained from therapy records and diaries during therapy session of two adolescent girls of 13 and 15 years of age. One girl was diagnosed with Dissociative Disorder and her mother had received a diagnosis of General Anxiety disorder, while the other girl was diagnosed with Severe Depression, having a mother living with Schizophrenia) Thematic Network Analysis was used to analyse the data and results were then interpreted by analysing links among the whole data set. Although quartet received separate diagnosis, a common thematic network was able to explain the nature of mother-daughter relationship. One global theme – mother-daughter exist in a relative rather than absolute manner and two organising themes- interdependence of their mental health and focus of subjective emotions on ambivalent feelings toward another rather than self. These findings suggest a vital role of mother daughter relationship in the lives of adolescent girls with mental illness. The findings can have significant contribution in addressing the relationship dynamics while planning therapeutic interventions.

Keywords: Maternal mental health, ambivalent feelings, thematic analysis, relative existence, mother-daughter relationship

INTRODUCTION

Mother –daughter bond is complex, lifelong and diverse intimate connection that significantly affects all the phases of development of their lives (Rastogi & Wampler, 1999). Although mothers and daughters share a healthy relationship, this bond is likely to take different form when mothers and daughter are in a state of psychological distress resulting from mental illness. The current study therefore explores to uncover the defining features of mother-daughter relationship and its impact on their individual functioning.

In families the mothers act as primary care givers, provide higher levels of support and have a more important role as compared with fathers in bringing up children which is likely to be the reason for strong association of mother – child relations with adolescence outcomes (Mckinney & Milone, 2012; Onyali & Erdur-Baker, 2013; Papp, Cummings, & Goeke-Morey, 2005). Adolescent girls are affected greatly by maternal psychopathology and this effect may be mediated by mother-daughter relationship characteristics (Cortes, Fleming, Catalano, & Brown, 2006; Handley et al., 2019). For instance, daughter's positive perception of mother-daughter relationship leads to their healthier functioning with reference to body image (Smith, Erickson, Austin, Lash & Winn, 2016) and mother-child closeness prevents participation in risky behaviours (Aronwitz, Renells, & Todd, 2005). Positive maternal affective behaviour is related with faster decline of borderline personality disorder severity and may serve as a protective mechanism for worsening severity of symptoms associated with borderline personality disorder among adolescent girls at risk for self-

harm and affective instability (Whalen et al., 2014). A possible explanation suggests experiencing positive affect, support, and clear communication from a mother may signal to the daughter that she is worthy and capable as a social partner (Manzack, Donenberg, & Emerson, 2018). However, mothers with any form of psychopathology may result in parenting impairment (Keren & Tyano, 2015; Muzik et al., 2016). Mothers who are depressed tend to show lesser display of warmth, affection, support and frequently display hostile and coercive behaviour and less encouragement of positive effect which may result in further depressed behaviour of adolescents (Katz et al., 2014; Lovejoy, Graczyk, O'Hare & Neuman, 2000; Pineda, Cole & Bruce, 2007).

Explaining interpersonal interaction within mother-daughter relationship, a case study of adolescent girls undergoing treatment for depression revealed mothers' emotional distance with their daughters was associated with increased attention seeking and dependent behaviour in their daughters resulting in further withdrawal of mother indicating negative interaction cycles of mothers and daughters (Jiménez Chafey, DuartéVélez, & Bernal, 2011). However, this interaction cycle was dependent upon existing symptoms in mothers and daughters. For example, Milan and Carlone (2019) reported mothers and daughters exhibit either positive or negative behaviours depending upon the intensity of their symptoms and diagnosis of mental illness affecting the interaction between them. Their study also suggested that girls who were unburdened by their symptoms were likely to have the psychological resources to recognize their mother's emotional distress and might wish to act in a supportive manner. They may take on a care-giving or nurturing role resulting in role-confusion which could have detrimental effects (Macfie, Brumariu & Lyons-Ruth, 2015). This could also result in an emotionally parentified mother-daughter relationship (i.e., where focus is on meeting the mother's emotional needs where the daughter serves as a caregiver and is emotionally supportive of the mother) which has been strong predictor of daughter's depression, state and trait anxiety, separation anxiety, interpersonal sensitivity and awareness, fragile inner self, guilt and shame (Martin, 1996; Wells & Jones, 2000). Maternal psychopathology may also have a positive impact on daughters' lives in presence of cordial environment. For example, resilience may be developed among daughters in presence of supportive family members where daughters hold little or almost no resentment in taking a parental care (Herbert, Manjula & Philip, 2013; Petrowski & Stein, 2016). It is thus, evident that daughters' own mental health difficulties and struggles are likely to shape their relationship with their mothers, thus a need to explore impact of mother-daughter relationship in dyads wherein both are suffering from psychopathologies becomes imperative.

Social support studies predominantly are framed from perspective of mother's critical role in providing her daughter advice and support related to addictive disorders, sexual functioning and overall health functioning (Hutchinson, Jemmot, Jemmot, Braverman, & Fong, 2003; Perry, Luepker, Murray, & Hearn, 1988; Wood, Read, Mitchell, & Brand, 2004), however reciprocal portrait of mother/parent-child relationship has also been explored among clinical populations (Boutelle, Eisenberg, Gregory & Neumark-Sztainer, 2009; Mosavel, Simon & Van Stade, 2006).

The existing literature has studied dynamics of mother daughter interaction suggesting that mother-daughter relationship may get affected by presence of psychopathology majorly focusing depression, anxiety,

addictive and personality disorders. Cummings, Davies and Campbell (2000) described psychopathology as a dynamic interplay of constantly changing individual in an ever-changing environment. This definition is supported by bio-psychosocial model elaborating that nothing exists in isolation and everything is understood as a part of a continuing hierarchy (Engel, 1980), the meaning implied here suggest that individual play a major role both as entity and part of family system. Therefore, any disturbance in one person is likely to impact the two-person subsystem and subsequently entire family.

Amongst various subsystems mother-daughter relationship is of significance as mothers are usually primary care givers as a nurturing the child with attachment that provides a base for all future relationships (Bowlby, 1988). Existing empirical evidences depicts strong correlations between mother variables such as, maternal psychopathology, parenting style, stress, connectedness and child variables i.e., psychopathology, externalising and internalising behavioural problems, self-esteem etc consequently affecting each other (Aronwitz, Renells, & Todd, 2005; Whalen et al., 2014). For example, Beardslee and colleagues (1998) stated that children who grow up in an environment with a mentally ill parent are more likely to exhibit problems with attachment, functioning, and interpersonal problems. Furthermore, family also plays an active therapeutic role. They also suggested that clinicians treating parents with mental illness need to evaluate potential risk factors associated with the transmission of a disorder from a parent to an adolescent. Among both parents' mothers and maternal parenting variables have a stronger relation with wellbeing of adolescent girls.

Within the systems approach paradigm the present study aimed to gain an in-depth knowledge of the inherent features and their interplay in defining the relationship shared by mothers and daughters where both were suffering from psychopathology as it can be assumed psychopathology disturbs individual functioning as well as inter-personal functioning. The present study further sought to answer not only what are the features but also describe the process "how" these features set apart the relationship of mother and daughter in context of presence of any mental illness. The study used qualitative method of inquiry to reach to the answers. Qualitative data is derived from stories, diaries, interviews etc. that can help discover new thoughts, views or perceptions about existing problem. Thus, the present study will help in understanding the unique characteristics of mother-daughter bond in presence of psychopathology. It will also help to understand whether the relationship is causative or protective and the mechanisms through which mothers and daughters impact lives of each other. The findings can help to discover unbiased beliefs and feelings of mothers and daughters using interviews as such data can be missed out in paper pencil tests due to social desirability (Richman et al., 1999). Also recognising the existing nature of relationship shared by mothers and daughters may assist in formulating treatment plan for both mothers and daughters individually and result in better prognosis. It is known that psycho-education such as guidance and support for parents serves as an effective prevention strategy in families with depressed parents and mildly depressed adolescents (Bevan Jones et al., 2017). The study thus, may bring forward new theoretical outlook towards interpersonal relationships and help formulate interpersonal treatment guidelines for cases where both mothers and adolescent girls are suffering from psychopathology.

METHODOLOGY

Sample

The sample consisted of two adolescent girls (aged- 15 and 13 years) and their mothers (aged 42years and 39 years) comprising of two mother-daughter dyads. Four members of both dyads were diagnosed with some form of psychopathology and were receiving medical treatment for same. Additionally, the daughters were enrolled into therapy for their individual concerns after being referred by the psychiatrist. DYAD 1- The daughter was diagnosed with severe depressive episode with suicidal ideations from past one year, while her mother had been diagnosed with Schizophrenia since last 10 years. DYAD 2- The daughter was diagnosed with Dissociative Disorder having complaints of fainting spells for 10 months and her mother was diagnosed with Generalised Anxiety Disorder around 6 years ago.

Procedure

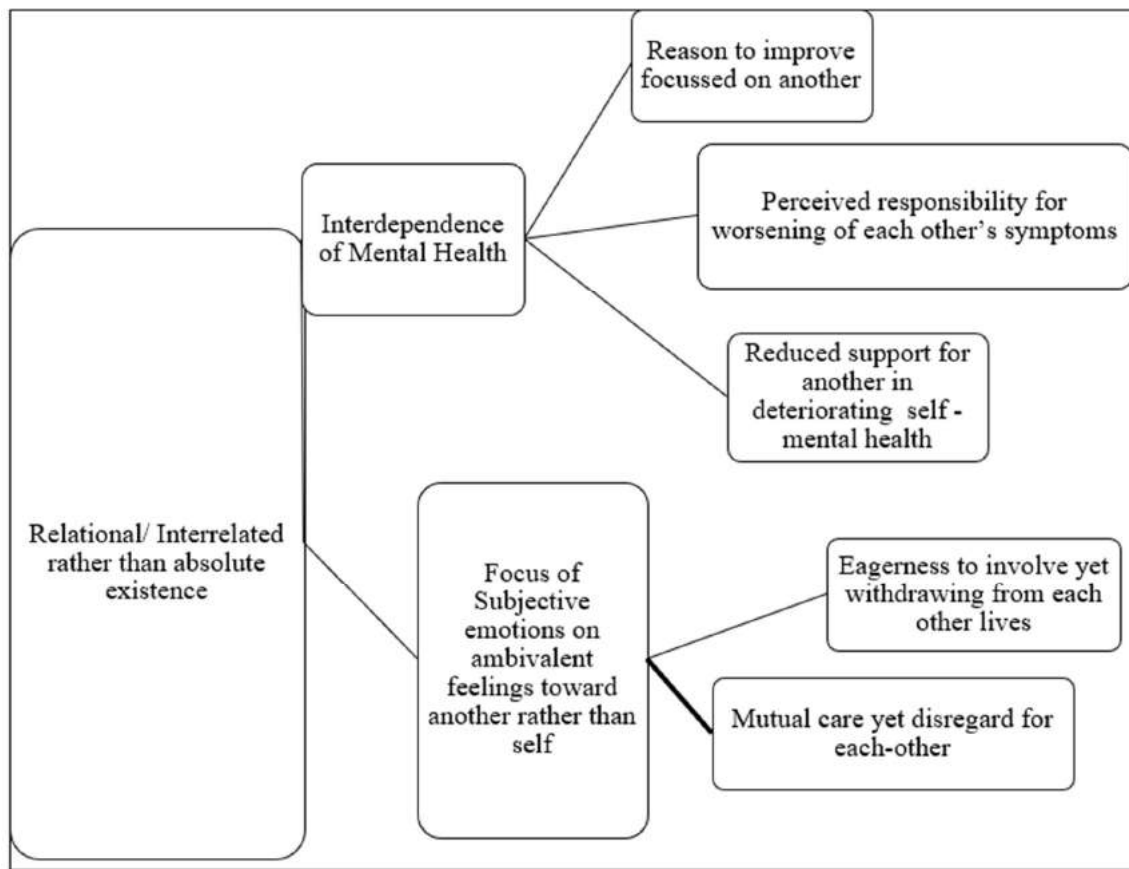
First of all, permission from the psychiatrist at Dua Neuro-psychiatric centre, Lakhimpur Kheri was obtained to collect data from clinic record and clients (girls) who were undergoing individual therapy. During the individual therapy sessions and in their diaries, girls expressed strong feelings and views towards their mothers that impacted their own mental health. The next step was to contact the mothers to join in one therapy session of their respective daughters where daughters and mothers were addressed separately. The mothers were then asked to share their views about their daughters and her illness. The informed consent was obtained from all four members of the DYADs to participate in the current research after briefing them about the nature of research, its implications and giving permission to use the data from personal diaries and therapy notes in the current study. They were also explained that this research would not affect the ongoing therapeutic process. However, the therapeutic process involved interpersonal counselling as well in later stages. The data was analysed using Thematic Network Analysis (Attride-Striling; 2001) which incorporated reduction and exploration of text to identify patterns that give outline and understanding of research findings. Thematic network Analysis uses three stages. The first stage involved reducing and breaking down of text from diaries in transcribed interviews by devising coding framework and dissecting text into segments using the coding framework. In the existing study, the coding framework was devised based on repeated reference to the connection shared between daughters and their mothers mentioned in their diaries along with verbatim during therapy session and specific topic such as if and how they impacted each other's lives. After doing so, codes were applied to textual data to break down into text segments which were meaningful passages or words. The second step involved identifying themes by reframing the text to enable underlying patterns, structures and themes. In the third and final step, themes were assembled into similar coherent group. Themes were grouped into what daughters felt about their mothers and mothers' roles and vice-versa, for example, how each member of dyad felt the other affected their lives i.e., the communication patterns between DYADs, and to what extent daughters and mothers mentioned each other in relation to their lives. After that, basic themes were selected and rearranged into larger clusters which shared similar issues to bring forward organising themes. Lastly, in accordance with basic themes the main argument and

assumption was summarised as the main theme. Thematic networks were then represented graphically in a web-like structure giving fluidity to connection of various levels of themes.

RESULTS

The research aimed to gain an in-depth understanding of the inherent features of the relationship shared by mothers and daughters, how it impacts individual's mental health within the context of psychopathology. Data analysis of narratives using the Thematic Network Analysis (Attitude-String; 2001) revealed that relationship between mothers and daughters where both have some form of psychopathology can be understood under one global and principal tenet that the relationship shared between mother and daughter is intertwined and entangled. Two organising themes support the major premise by elaborating how the relationship is interrelated. Firstly, that their mental health is dependent on each other and focus of subjective emotions on ambivalent feelings toward another rather than self (see Fig 1.)

Figure 1: Thematic Network for research question



Global theme- Relational/ Interrelated rather than absolute existence

The global theme highlighted that mother and daughters' lives were entwined with each other wherein they could rarely identify themselves as singular entity. There was presence of considerable preoccupation with the symptoms, health and wellbeing of another which impacted them personally. Furthermore, when describing their feelings and emotions they would often describe them in context with the other. If they were

unhappy, it was because the other did something or if they were angry, it was because they felt the other was not serving their family roles as were expected. Also, their behaviours were ‘other-focussed’ implying that daughters and mothers would act in a manner that was in sync with the other. They were worried for each other and would do things only because the other member would want it or feel better about it. This indicates that both the mothers and daughters valued their relationship at the cost of their mental health. Although such finding would indicate a sense of healthy bonding as such a relationship may become helpful in facilitating change using the overall relationship as motivation for improvement of their mental health and overall functioning. However, high interdependence of relationship may also become dysfunctional and hindrance in therapy as both mothers and daughters fail to identify themselves individually thus impeding the process of looking inwards to improve their mental health. The relationship somewhat seems over-involved and enmeshed wherein focus shifts on the other and individuality seems to have been lost. The basic premise that the relationship between mothers and daughters define their existence with a constant reference to one another and making each other a strong part of their defining relationship was reached by two organising themes namely inter-dependence of mental health and focus of subjective emotions on ambivalent feelings toward another.

Inter-dependence of Mental Health - Across the span of psychological morbidity of participants it was noticed that psychopathological symptoms of mothers and daughters were varying simultaneously. If the mothers’ symptoms reduced so did the daughter’s and vice versa. One of the reasons for such phenomenon to occur was that mothers were content to see their daughters improve and daughters were happy when their mothers’ health and overall involvement in household chores and daughters lives improved. Similarly, if one’s health deteriorated it impacted the others by assuming perceived responsibility for worsening of symptoms in another. Furthermore, another idea that came forward was that both mothers and daughters wanted to improve their mental health and overall well-being for each other as they felt the other had been suffering due to them. This highlights the fact that the relationship between mother and daughters may be of care, concern and their satisfaction was more when the other’s health improved suggesting that the contentment in mother-daughter relationship was also inter-reliant.

Mother – *“I am happy that she is improving, she won’t suffer like me”. “Sometimes if feel I did this to her. I was not well and you know never liked doing much for her ...maybe she knew...that’s what might have hurt her, may be and she became sad”.*

Daughter – *“My mom isn’t there much for me, papa tell me she is unwell. I know she suffers and I get upset when I see her disturbed but then maybe she also feels bad about not doing much work” “Yes, I get happy when I see she is cooking or talking to my sister.... maybe papa tells her to do it, but she does it for us only”. “Sometimes I feel if I will get better if she will get better too”, “seeing me happy may make her happy”.*

(1) Reason to improve focussed on another: –It was evident from the above narratives that both mothers and daughters that they wished to improve their mental health as they wanted to help the other by being available and helpful as much as they could. More importantly what was noticed that the daughters felt they

‘needed to get better so that they could take care of their mother’ Daughters also reported that they would want to become “doctor” so that they can help their parents feel better. Similarly, in order to take care of their daughters, the mothers, showed their willingness to improve their mental state which was also indicated behaviourally by taking medicines regularly, not missing doctor visit and also accompanying their daughter for therapy. The mothers also felt that if they were in better state, they would be able to take care of their daughters effectively.

Mother (Dyad- 1) *“At times she comes in to check and tells me she will eat her medicine if I do. And she (her daughter) doesn’t like that I miss my medicine ...I may not like medicines but what I can do I have to eat them because she gets angry”*.

Mother (Dyad 2) *‘Ma’am if there is anything I need to improve you can suggest, because I can come for counselling if it’s affecting her’*.

Daughter (Dyad 1) *“Mummy gets disturbed when I faint..... her health becomes bad.... I can’t see her like this.....I get more disturbed that she is worried for me”*.

Daughter (Dyad 2) *“I am here to talk to you because I want to get better.....then I will be able to take care of mummy”*.

(2) Perceived responsibility for worsening each other’s symptoms: Daughters and mothers both described feeling somewhere accountable and liable for the active symptoms in the other. The mothers attributed their failure as a role of mother along with suggesting heredity as a linking factor between them and their daughter’s health resulting in blaming themselves. Similarly, daughters also showed curiosity over the reasons for their mother’s health and suggested that they themselves could be one of the factors contributing towards their mothers’ problems. Mothers and daughters both felt that they may have played a part in increasing distress in another which could be responsible for their deteriorated condition.

Mother (Dyad 1) *“I get irritated, angry and shout I really don’t mean to” “I don’t know if she gets scared of me” “maybe she cries because of this” “now I am sick and I can’t do much for her, she may get angry with me for this” “I was not well in the last month she also fell more sick during that time”*.

Daughter (Dyad 2) *“Mummy shouted badly at lunch..... I left the plate came to room then locked it and cried” “All that happens in house....mummy stays alone mostly then I get upset thinking about it”*

Mother (DYAD 2) *“I do get very worried, she (daughter) tremors badly I have to hold her.... rub her feet... I cry seeing her also.....maybe she knows that I cry because of her. That must be disturbing her more.....sometimes I feel my tension or anxiety has gone to her”*.

Daughter (Dyad 2) *“Mummy gets very tensed when I get sick. She becomes upset and cries” She would get upset before also, but now it is more... May be my illness has increased her problems....that why she goes to doctor with papa”*.

(3) Reduced support for another in deteriorating self-mental health: It was observed in narratives that both mothers and daughters felt that they weren’t able to provide for one another. Although they wished to improve for another however when symptoms would be slightly severe both daughters and mothers would become unavailable for one another. Such a situation would lead them to be felt alone in midst of crisis. This would create a distance between the two of them resulting in further symptom severity, implying the concept

of mutual dependence. Daughters complained that when they felt their mothers went around for them it bothered them more than usual resulting in negative feelings towards mothers though they were transitory and such feelings would be forgotten when mothers were in fact helpful around their daughters. Similarly, mothers felt that they were not backed up they went well.

Daughter (Dyad 1) *"She isn't there for at times... everyone wants it....you know like I get ready for school myself, sometimes I go without tiffin also." "We don't sit around and talk....she watches TV and doesn't respond if I try talking to her" "Sometimes I understand she is not well but then I get upset and go to my room I too don't feel like being with her already I am feeling sad she makes me more sad, that's why I got to papa"*.

Mother (Dyad 2) *"I have only heard her cry from room, never seen her" I didn't like talking to anyone and wanted to be alone more last month" "I wasn't able to household work...not for her (daughter) also" "She didn't do much work also....she would be in her room"*.

Daughter (Dyad 2) *"When mummy's BP goes high, she rests.... we don't disturb her then" "I come from school and change my dress then I eat. If mummy isn't well, I have to give food to my younger sister also" "I get worried if mummy is unwell.... that who will handle me if I start to feel uneasy"*.

Mother (Dyad 2) *"When I get anxiety I can't do work....then they have to manage" "my elder daughter handles it, she (daughter in dyad) doesn't help much. I still get up and do for her even when I am not well but she feels that I don't"*.

A- Focus of Subjective emotions on ambivalent feelings toward another rather than self

When suffering from any form of psychopathology it is expected that one is preoccupied with emotional turmoil of own. The analysis of narrative revealed that both mothers and daughters attributed their emotionality to other rather than their own diagnosis and a large chunk of personal feelings and emotions were concentrated on what one person felt for other rather than paying attention to their own health. What made the emotional climate of mothers and daughters even more complex was that mothers and daughters harboured negative and positive emotions towards each-other often putting them in conflicting minds resulting in emotional dilemma for both. Such ambivalent feelings would make it difficult for them to connect with each-other which would also impact the relationship they shared with each-other. The mothers on one side wanted to care of their daughters and showed love and on the other did mention the daughters being one of the causes for their worsening of symptoms. The daughters spoke positively about their mothers but also presented anger towards them in subtle ways. Such findings imply that in presence of psychopathology feelings harboured for significant others become important as they may be contributory or maintain factor for psychopathology.

The phrases mentioned by daughter in Dyad 1 at different times such as *"felt neglected."* *"She (mother) isn't always around"*, *"when she is well, she comes and sits but then also doesn't talk"* *"I try to talk to her but I end up getting angry"* *"I understand mummy isn't well but I also try"* *"She is worried about my health I know it"* *"I wish my mother was like everyone else"* conveyed confused emotionality towards her mother. Similarly, mother in Dyad 1 conveyed ambivalent emotionality with narratives such as *"sometimes I didn't*

want to be with her (daughter)” “She forces me to talk and I don’t like it” “She can do her work but she doesn’t”. “Yes, I do feel she has been a nice daughter, but currently she isn’t” It is understandable that mother had remnant negative symptoms of schizophrenia and daughter had significant depressive symptoms and the psychopathology may have had some role in bringing about such ambivalent feelings but they still were an important part of the relationship they shared as these feelings disturbed their interpersonal communication consequently impacting their individual mental health.

In DYAD 2, the mother’s over-concern with her daughter’s health was unwelcomed by her daughter as indicated by narratives such as “I don’t like it that she is always around ...seems like she is always keeping an eye on me” “maybe she fears I will start trembling again” and her concern and approval of mother was reflected in phrases like “I know she (mother) cares but it gets me angry sometimes” “I want that she stops worrying for me as she gets disturbed and I don’t like it”. Mothers and daughters felt positive emotions for each other and reporting negative views about each-other led to internal conflict within their value system which would often result in declining of individual mental health. The two basic themes that explained the reason for presence of negative emotions were:

(1) Eagerness to involve yet withdrawing from each other lives- Mothers and daughters’ interest in each other’s lives was indicated in willingness of daughters to assist their mothers in daily chores of the house and mothers’ willingness to come into therapy session for their daughters indicated by narratives such as “We (parents) am here because we want to do what’s best for her” “I don’t go out of my house but had to come here for her” Although both mothers and daughters wanted to be a part of each other’s lives there were situations wherein both would withdraw from each other in a way to “protect” the other from any further harm. For example, in DYAD 1, the mother reported that “She tells me sometimes about her life ... maybe she wants to share with me...I don’t know how can I help her”: sometimes I feel she should let me be alone as I get angry which maybe she doesn’t like”. Similarly, daughter wanted to help her mother in household work but due to her own depressive symptoms she felt lack of interest and energy to actually do so and blamed herself for being the reason to trouble her parents. and felt ‘her mother didn’t understand her at times’.

Daughter (Dyad 1) – “I want to cook but I don’t feel like” “mummy doesn’t go much in kitchen that’s why I want to go” “She doesn’t answer when ask her what she wants to eat” “She does not know what is happening inside me.....she hasn’t asked me yet” “Today, I tried to speak with mummy but as usual she asked me to leave her alone. It hurts me but I did what she asked”.

Unlike in DYAD1, for example, the mother in DYAD2 would often ask her daughter about school in detail and would often feel that her daughter was “not telling her everything” which annoyed her whereas the daughter reported her mother to be caring yet “too much into her life” which she didn’t like much and harboured happiness and irritation simultaneously. Whether the mother was perceived to be uninvolved or over-involved they.

(2) Mutual care yet disregard for each other: The narratives revealed mother daughter relationship characterised by care for each-other. Interestingly, care was accompanied with subtle disapproval for each-

other. Feeling of annoyance was expressed by both mothers and daughters however, the situations eliciting such emotions were different for both.

Daughter Dyad 1- "Mummy has been taking medications or food and I get to know if she has missed it. Sometimes she says no to eat medicine then I request her to..... she gets angry but I try." "Now I have reduced asking her for anything.... she is always angry" "I also get angry that she isn't like other mothers".

In DYAD 2 mother was worried for her daughters' health and wanted her to improve but since someone had told her that her daughter is responsible for controlling her symptoms, she felt her daughter isn't putting enough efforts to improve herself. The daughter perceived her mother as 'over concerned' and when the daughter conveyed distress regarding her own symptoms, her mother would get so disturbed' that eventually led to increased irritation in her daughter, yet the daughter wanted her mother to be by her side during her episodes of loss of unconsciousness.

Mother dyad 2 – "Her illness is my serious concern at present" "I check if she has eaten meals" "she should make herself strong to deal with this" "If she wants me around all the time, I can't do it I have a younger daughter to look after also"

Daughter dyad 2 – "she can be with me when I am not feeling well. It feels good"... "She is always worried.... even when I am playing with my sister" "I don't like that she asks so many times how I am feeling, If I am not feeling well, I will tell myself"

Mothers also showed restrained negativity while believing that daughters were 'old enough' to handle themselves. Further, stating for example 'being drowsy' or 'father taking care' as a reason for not taking daughter to hospital or by believing that her "anxiety has increased because of her (daughter)" and felt 'overworked' as she had to "see younger daughter also" brought about interpersonal difficulties. Both the daughters would often not share their feeling with their mothers fearing to disturb their mothers rather would prefer to open up to their father For example Daughter in Dyad 1 "Papa takes me doctors... mummy doesn't like going to doctors" "you can ask papa, he knows more about me" This would lead to suppression of unexpressed feelings setting an undertone for in mild conflicting situations, hampering mother-daughter interpersonal communication consequently leading to development of close relations with their fathers.

DISCUSSION

The study set out to explore the nature of mother-daughter relationship among clinically diagnosed with mental disorders. The essence of the relationship shared between mother and daughter was one global idea that mothers and daughters existed in an interrelated relationship which had been suggested in previous literature (Boyd, 1989; Bromberg, 1983; Walker & Thompson, 1983). However, in the findings suggest that the interrelatedness may not always be detrimental due to the unhealthy dependence or inhibiting individuation rather it may provide for reasons to care and improve for one another which can be addressed during treatment to reduce symptoms among mothers and daughters. This is also similar to qualitative finding by Hammer (1975) where mothers and daughters tend to remain in a semi-symbiotic and

emotionally bound relationship and did not see each other as a separate entity. Such a relationship can be beneficial yet detrimental to growth of daughters as it may not permit individuation during healthy adult development phase.

The study provides possible explanation to reciprocal prediction of symptoms between children and their parents (Garber et al., 2011). The deterioration in own mental health often led to reduced support for each-other led to formulation of perceived role-failure and feelings of guilt inducing among mothers and daughters which consequently distress them. The decline in either one's mental health creates a viscous cycle of symptom worsening in the mother-daughter dyadic relationship. Among females, an ethic of care arises from women's primary identification with care giving mothers (Noddings, 1984) and also may represent an overwhelming enmeshment resulting the mother-daughter relationship failing to foster separation and individuation (Chodrow, 1978). Such a relationship is likely to lead to emotionally parentified relationship (Martin, 1996) or mutual mothering (Fischer, 1986) when mother daughter dyads are clinically ill. The nurturing role among adolescent girls with psychopathology may exceed the capacity to comply with demands which may adversely affect their socio-emotional development, thus increasing the risk for severity of symptoms. Although this feature may be seen as beneficial for each-other, it may also become burdensome and a source of negative feelings for each-other.

The personal experience of emotions was focussed on how the person felt for other member of dyad rather than the emotions directed towards self. This often led to confusion of emotional perplexity and inability to engage in introspection. Furthermore, mothers and daughters experienced positive feelings such as love, care and concern for each other while also feeling emotions such as anger and hostility towards each other similar to previous research which was on depression nad PTSD (Milan & Carlone, 2019). It may thus be possible that similar polarities of emotions may be present in different pathologies and may contribute toward the maintain of psychopathology. The conflicting feelings may create dissonance in their emotional environment leading to difficult interpersonal relationship thus giving more reasons for related existence. The 'labelled negative emotion' for each other may be dependent on the kind of clinical psychopathology. Though, the negative feelings were fleeting and were only expressed individually to therapist rather than each other. Thus, implying that adolescent daughters may have learnt to avoid expressing negative emotions and taken a mature role of learning to minimise overt negativity and conflict which in previous literature was a characterise feature of interaction of adult daughters with their aged mothers (Lefkowitz & Fingerman, 2003). In India parenthood is considered as having psychological and emotional advantage, as well as it instils feelings of personal growth (Sachdeva & Misra, 2008) hence, conveying negative feelings towards child directly would likely be against cultural norms and notion of a 'good mother' and further the elders in India are generally obeyed, revered, considered to be fountains of knowledge and wisdom, and treated with respect and dignity by family members (Chaddha, 2012). Thus, such unsaid cultural rules might be contributory factor in not holding on to the negative feelings for long inside their heart and never have been expressed.

It has been known that adolescent girls transitioning from early to middle adolescence, perceive communication with their mother as relatively less friendly (Beaumont, 1966) and report frequent conflicts

with their mothers (Burk & Laursen, 2005) and towards middle adolescence they present a great desire for autonomy and independence, which is characterised by a reduced frequency and quality of communication between mothers and daughters who were not living with any mental illness (Keijsers & Poulin, 2013). The findings of the present study also suggest conflicts in relationship, emphasising conflicting feelings present in relationship as a causal factor in explaining the emotional distance between them. In such circumstances withdrawing from each other may also be a reason for reduced support available to them which would indirectly deteriorate their health conditions as brought forward previously (Jimenez Chafey, Duarte Vele, & Bernal, 2011). Additionally, a sense of perceived failure in mother or daughter roles may thus be assumed to be related to mother daughter relation and not pathology itself (Abraham & Stein, 2013).

The presence of psychopathology has been acknowledged to cause parental stress (Weijers, van Steenel & Bogels, 2018), the findings from current study suggest that daughters taking a parenting role may also experience similar stress which could serve as a mediator in unhealthy communication pattern between mother-daughter dyads. Current findings suggest that on one hand mothers find it hard to communicate with the daughter due to their own psychopathology while on other hand daughters do not know how to help their mothers during the times when their mothers are distressed as found in previous literature (Walters, Chard & Anderson, 2020). At times mothers felt that they did not really know how to help their daughter through their difficulties, in fact what they could do was for example, see if the daughter has taken her meals, which is sync with previous findings that Indian mothers primary concern was food and behaviour of the child (Tuli, 2012). The need to explore relationship with mother and mother's mental health during treatment process of adolescent girls also gets support from relational-cultural theory emphasizing existence of 'self in relation' as a predominant part of mother-daughter relationship during adolescence (Miller, 1976). Mothers often rely on daughters for advice wherein daughters feel that their mothers respect what the daughters have to say (Mosavel, Simon, & Van Stade, 2006) hence utilising daughters as health advocates for mothers can have various important implications for treatment in Indian community since it is a culture with strong norms of activity sharing and interdependency.

Conclusion

A significant finding of this study highlights the idea that mother daughter relationship is a transdiagnostic process which essentially implies that in presence of different psychopathologies they had similar views towards their relationship that interdependence and emotional intensity of mother daughter bond is high (Rastogi & Wampler, 1999). It is known that mothers and daughters share similar thought patterns owing to their similar biology or expected gender roles, the current study brings it to forefront, that mothers and daughters despite their age gap have similar thought patterns and view of their relations with each-other irrespective of the nature of mental illness. Furthermore, the findings of this study draw attention to the need to involve mothers and daughters in treatment plan for better prognosis as the mental health of daughters and mothers is mutually dependent. Also, developing a strong sense of belongingness by focussing on positive feelings towards each other can be a good prognostic factor in therapy process however exploring, addressing and resolving negative emotions between them become imperative as adolescents having more conflicts with their parents would be more likely to have psychological problems, lower levels of adjustment

and lower levels of self-esteem (Tucker, Mchale, & Crouter, 2003). The need to focus on one's own emotions and see oneself as a singular entity is another aspect which when addressed may help break the viscous cycle of symptom worsening. The study opens the doors to explore perceived negative and positive emotions, responsibilities, communication styles and burden among mothers and daughters who are both in distress. At last, since daughters were likely to share what they feel more with their fathers as compared to mothers as they didn't want their mothers to worry, the current study thus suggests examining the role of fathers in the lives of daughters whose mothers suffer from any psychiatric illness.

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Conflict of interests

The authors declare that no competing interests exist.

Author's contributions

The first author collected data and conducted therapy sessions as she is a registered clinical psychologist and the second author provided the framework for the current study. Both the authors have contributed equally to the theoretical development, analysis, interpretation and writing of the manuscript.

REFERENCES

- Abraham, K.M. & Stein, C.H. (2013). When mom has a mental illness: Role reversal and psychological adjustment among emerging adults. *Journal of Clinical Psychology, 69*(6), 600-615.: 10.1002/jclp.21950.
- Aronowitz, T., Rennells, R. E., & Todd, E. (2005). Heterosocial Behaviours in Early Adolescent African American Girls: The Role of Mother-Daughter Relationships. *Journal of Family Nursing, 11*(2), 122–139. <https://doi.org/10.1177/1074840705275466>
- Attride-Stirling, J. (2001). Thematic Networks an Analytic Tool for Qualitative Research. *Qualitative Research, 1*, 385-405.
- Beaumont, S.L. (1996). Adolescent girls' perceptions of conversations with mothers and friends. *Journal of Adolescent Research, 11*, 325-346
- Bevan Jones, R., Thapar, A., Stone, Z., Thapar, A., Jones, I., Smith, D., & Simpson, S. (2018). Psychoeducational interventions in adolescent depression: A systematic review. *Patient education and counseling, 101*(5), 804–816. <https://doi.org/10.1016/j.pec.2017.10.015>
- Beardslee, W. R., Versage, E. M., & Gladstone, T. R. (1998). Children of affectively ill parents: a review of the past 10 years. *Journal of the American Academy of Child and Adolescent Psychiatry, 37*(11), 1134–1141. <https://doi.org/10.1097/00004583-199811000-00012>
- Boutelle, K., Eisenberg, M. E., Gregory, M. L., & Neumark-Sztainer, D. (2009). The reciprocal relationship between parent—child connectedness and adolescent emotional functioning over 5 years. *Journal of Psychosomatic Research, 66*(4), 309–316. <https://doi.org/10.1016/j.jpsychores.2008.10.019>
- Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development*. New York: Basic Books.

- Boyd, C. (1989). Mothers and Daughters: A Discussion of Theory and Research. *Journal of Marriage and Family*, 51(2), 291–301. doi:10.2307/352493
- Bromberg, E. M. (1983). Mother–daughter relationships in later life: The effect of quality of relationship upon mutual aid. *Journal of Gerontological Social Work*, 6(1), 75–92. https://doi.org/10.1300/J083V06N01_07
- Burk, W. J., & Laursen, B. (2005). Adolescent perceptions of friendship and their associations with individual adjustment. *International Journal of Behavioural Development*, 29(2), 156–164. https://doi.org/10.1080/01650250444000342
- Cummings, E.M., Davies, P.T., & Campbell, S.B. (2000). *Developmental psychopathology and family process*. New York: The Guilford Press
- Chadha, N. K. (2012). *Intergenerational relationship: An Indian perspective*. New Delhi: University of Delhi.
- Chodorow, N. (1978) *The Reproduction of Mothering: Psychoanalysis and the Sociology of Gender*. Berkeley, CA: University of California Press.
- Cortes, R. C., Fleming, C. B., Catalano, R. F., & Brown, E. C. (2006). Gender differences in the association between maternal depressed mood and child depressive phenomena from grade 3 through grade 10. *Journal of Youth and Adolescence*, 35(5), 815–826. https://doi.org/10.1007/s10964-006-9083-0
- Engel, G.L. (1980). The clinical application of the bio psychosocial model. *The American Journal of Psychiatry*, 137(5), 535-544.
- Fischer, L.R. (1991). Between mothers and daughters. *Marriage and Family Review*, 16, 237-248.
- Garber, J., Ciesla, J. A., McCauley, E., Diamond, G., & Schloedt, K. A. (2011). Remission of depression in parents: links to healthy functioning in their children. *Child development*, 82(1), 226–243. https://doi.org/10.1111/j.1467-8624.2010.01552.x
- Hammer, Signe. (1976). *Daughters and Mothers: Mothers and Daughters*. New York: New American Library.
- Handley, E. D., Adams, T. R., Manly, J. T., Cicchetti, D., & Toth, S. L. (2019). Mother-Daughter Interpersonal Processes Underlying the Association Between Child Maltreatment and Adolescent Suicide Ideation. *Suicide & life-threatening behaviour*, 49(5), 1232–1240. https://doi.org/10.1111/sltb.12522
- Herbert, H. S., Manjula, M., & Philip, M. (2013). Growing Up with a Parent having Schizophrenia: Experiences and Resilience in the Offspring. *Indian journal of psychological medicine*, 35(2), 148–153. https://doi.org/10.4103/0253-7176.116243
- Hutchinson, M. K., Jemmott, J. B., Jemmott, L. S., Braverman, P., & Fong, G. T. (2003). The role of mother-daughter sexual risk communication in reducing sexual risk behaviors among urban adolescent females: a prospective study. *The Journal of adolescent health: official publication of the Society for Adolescent Medicine*, 33(2), 98–107. https://doi.org/10.1016/s1054-139x(03)00183-6
- Jiménez Chafey, M. I., DuartéVélez, Y. M., & Bernal, G. (2011). Mother-daughter interactions among depressed Puerto Rican adolescents: Two case studies in CBT. *Revista Puertorriqueña de Psicología*, 22, 46–71.
- Katz, L. F., Shortt, J. W., Allen, N. B., Davis, B., Hunter, E., Leve, C., & Sheeber, L. (2014). Parental emotion socialization in clinically depressed adolescents: enhancing and dampening positive affect. *Journal of abnormal child psychology*, 42(2), 205–215. https://doi.org/10.1007/s10802-013-9784-2
- Keren, M., & Tyano, S. (2015). Psychopathology and its Early Impact on Parenting Behaviors in Mothers: The Interface between Adult and Infant Psychiatry. *The Israel journal of psychiatry and related sciences*, 52(2), 92–98.
- Keijsers, L., & Poulin, F. (2013). Developmental changes in parent–child communication throughout adolescence. *Developmental Psychology*, 49(12), 2301–2308. https://doi.org/10.1037/a0032217

- Lefkowitz, E. S., & Fingerharter, K. L. (2003). Positive and Negative Emotional Feelings and Behaviors in Mother-Daughter Ties in Late Life. *Journal of Family Psychology, 17*(4), 607–617. <https://doi.org/10.1037/0893-3200.17.4.607>
- Lovejoy, M. C., Graczyk, P. A., O'Hare, E., & Neuman, G. (2000). Maternal depression and parenting behaviour: a meta-analytic review. *Clinical psychology review, 20*(5), 561–592. [https://doi.org/10.1016/s0272-7358\(98\)00100-7](https://doi.org/10.1016/s0272-7358(98)00100-7)
- Macfie, J., Brumariu, L. E., & Lyons-Ruth, K. (2015). Parent–child role-confusion: A critical review of an emerging concept. *Developmental Review, 36*, 34–57. <https://doi.org/10.1016/j.dr.2015.01.002>
- Manczak, E. M., Donenberg, G. R., & Emerson, E. (2018). Can Mother-Daughter Communication Buffer Adolescent Risk for Mental Health Problems Associated With Maternal Depressive Symptoms?. *Journal of clinical child and adolescent psychology: the official journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53, 47*(sup1), S509–S519. <https://doi.org/10.1080/15374416.2018.1443458>
- Martin, M. T. (1996). Mother-daughter relations in divorced families: Parentification and internalizing and relationship problems. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 56*(9-B), 5176.
- McKinney, C., & Milone, M. C. (2012). Parental and late adolescent psychopathology: Mothers may provide support when needed most. *Child Psychiatry and Human Development, 43*(5), 747–760. <https://doi.org/10.1007/s10578-012-0293-2>
- Miller, J. B. (1976). *Toward a new psychology of women*. Boston: Beacon Press.
- Milan, S., & Carlone, C. (2019). A two-way street: Mothers' and adolescent daughters' depression and PTSD symptoms jointly predict dyadic behaviours. *Journal of Family Psychology, 32*(8), 1097–1108. <https://doi.org/10.1037/fam0000467>
- Mosavel, M., Simon, C., & Van Stade, D. (2006). The mother-daughter relationship: What is its potential as a locus for health promotion?. *Health care for women international, 27*(7), 646–664. <https://doi.org/10.1080/07399330600803790>
- Muzik, M., Morelen, D., Hruschak, J., Rosenblum, K. L., Bocknek, E., & Beeghly, M. (2017). Psychopathology and parenting: An examination of perceived and observed parenting in mothers with depression and PTSD. *Journal of affective disorders, 207*, 242–250. <https://doi.org/10.1016/j.jad.2016.08.035>
- Noddings, N. (1984). *Caring: A feminine approach to ethics and moral education*. University of California Press.
- Onyali, S., & ErDur-Baker, O. (2013) Mother-daughter Relationship's link to self- esteem and life satisfaction. *Turkish Psychological Counseling and Guidance Journal, 5*(40), 167-175. <https://doi.org/10.1016/j.sbspro.2013.06.560>
- Papp L, Cummings E, Goeke-Morey M (2005) Parental psychological distress, parent-child relationship qualities, and child adjustment: Direct, mediating, and reciprocal pathways. *Parent Sci Pract 5*:259–283
- Perry, C. L., Luepker, R. V., Murray, D. M., Hearn, M. D., Halper, A., Dudovitz, B., Maile, M. C., & Smyth, M. (1989). Parent Involvement with Children's Health Promotion: A One-Year Follow-up of the Minnesota Home Team. *Health Education Quarterly, 16*(2), 171–180. <https://doi.org/10.1177/109019818901600203>
- Petrowski, C. E., & Stein, C. H. (2016). Young women's accounts of caregiving, family relationships, and personal growth when mother has mental illness. *Journal of Child and Family Studies, 25*(9), 2873–2884. <https://doi.org/10.1007/s10826-016-0441-6>
- Pineda, A. Q., Cole, D. A., & Bruce, A. E. (2007). Mother-adolescent interactions and adolescent depressive symptoms: A sequential analysis. *Journal of Social and Personal Relationships, 24*(1), 5–19. <https://doi.org/10.1177/0265407507072564>

- Rastogi, M., & Wampler, K. S. (1999). Adult daughters' perceptions of the mother–daughter relationship: A cross-cultural comparison. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, 48(3), 327–336. <https://doi.org/10.2307/585643>
- Richman, W. L., Kiesler, S., Weisband, S., & Drasgow, F. (1999). A meta-analytic study of social desirability distortion in computer-administered questionnaires, traditional questionnaires, and interviews. *Journal of Applied Psychology*, 84(5), 754–775. <https://doi.org/10.1037/0021-9010.84.5.754>
- Sachdeva, N. & Mishra, G. (2008). The changing images of parenting in the three subcultures of India. *Journal of the Indian Academy of Applied Psychology*, 34, 16-23.
- Smith, J.E., Erickson, S.J., Austin, J.L., Lash, D., & Winn, J. (2016). The Influence of Mother-Daughter Relationship Quality on Body Image and Disordered Eating in Preadolescent Girls. *Journal of Child and Family Studies*, 25, 2683-2694
- Tucker, C. J., McHale, S. M., & Crouter, A. C. (2003). Dimensions of mothers' and fathers' differential treatment of siblings: Links with adolescents' sex-typed personal qualities. *Family Relations*, 52, 82–89. <https://doi.org/10.1111/j.1741-3729.2003.00082.x>
- Tuli, M. (2012). Beliefs on Parenting and Childhood in India. *Journal of Comparative Family Studies*, 43(1), 81-91.
- Walker, A.B., & Thompson, L. (1983) Intimacy and Intergenerational Aid and Contact among Mothers and Daughters. *Journal of Marriage and the Family*, 45, 841-849. <https://doi.org/10.2307/351796>
- Walters, K., Chard, C., & Anderson, D. (2020). A Qualitative Approach to Understanding the Relationship Between Mothers' and Daughters' Body Image and Physical Activity Levels. *Journal of Adolescent Research*, 35(5), 665–696. <https://doi.org/10.1177/0743558420920550>
- Weijers, D., van Steensel, F., & Bögels, S. M. (2018). Associations between Psychopathology in Mothers, Fathers and Their Children: A Structural Modelling Approach. *Journal of child and family studies*, 27(6), 1992–2003. <https://doi.org/10.1007/s10826-018-1024-5>
- Wells, M., & Jones, R. (2000). Childhood Parentification and Shame-Proneness: A Preliminary Study, *The American Journal of Family Therapy*, 28(1), 19-27. DOI: 10.1080/019261800261789
- Whalen, D. J., Scott, L. N., Jakubowski, K. P., McMakin, D. L., Hipwell, A. E., Silk, J. S., & Stepp, S. D. (2014). Affective behaviour during mother–daughter conflict and borderline personality disorder severity across adolescence. *Personality Disorders: Theory, Research, and Treatment*, 5(1), 88–96. <https://doi.org/10.1037/per0000059>
- Wood, M. D., Read, J. P., Mitchell, R. E., & Brand, N. H. (2004). Do Parents Still Matter? Parent and Peer Influences on Alcohol Involvement Among Recent High School Graduates. *Psychology of Addictive Behaviors*, 18(1), 19–30. <https://doi.org/10.1037/0893-164X.18.1.19>

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Development of stems for a situational judgement test-based measure to assess the propensity of road rage in Indian drivers

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ABSTRACT

India accounts for one of the highest proportions of road traffic fatalities in the world. Apart from vehicular malfunction, road rage has also become a severe concern and cause of road traffic accidents (RTAs). The objective of this study was to understand the causes of road rage among the north-Indian drivers and develop stems (driving situations) for the development of a new road rage assessing tool using the situational judgment test method called Road Awareness and General Evaluation (RAGE). This study involved mixed-method analysis and was completed in three phases. In Phase – I, a preliminary survey was conducted on (N=80) daily commuters from a higher education institution of Haryana, to understand the medium, frequency, and encounters of road rage. The majority of drivers reported a high frequency of RTAs. In Phase - II, Drivers (N=20) who agreed to have participated in any road rage incident were called for FGDs to gain more in-depth insight into their perception of road rage. Multiple themes emerged from the narrations depicting the idea of road rage among drivers themes. In Phase – III, stems of SJT were constructed using a self-made formula and were sent to subject matter experts (N=14) to determine the effectiveness of the stems to be used to assess the propensity of road rage. 22 stems were modified and 8 were retained. In Phase - IV, 240 responses were constructed and sent to SMEs for review. Factors of road rage were categorised into four domains. Descriptive statistics were calculated for the data obtained from SME. After incorporating the suggestions of SMEs, all the stems initially constructed were satisfactorily retained. All components of the assessment tool were completed. Limitations and future scope of the findings of this study are discussed.

Keywords - Road rage; Indian Drivers; Situational Judgement Test; Tool development

INTRODUCTION

Rapid unprecedented growth in the Indian road network and the number of registered vehicles in the past five decades (MORTH, 2019) is one of the reasons for India being the largest road network in the world extending up to 6.4 million kilometres (Invest India, 2019). Due to the increase in Road Traffic Accidents (RTAs), the overall safety in road travel is a matter of great concern. Road Traffic Injuries (RTIs) alone accounted for 1,51,113 accidental deaths in 2019 and have risen to be the major cause of deaths and injuries among Indians (MORTH, 2019), particularly within the age brackets of 5 to 29 years old (WHO, 2020). On the preventive front, technologies to help in vehicular safety are being widely researched and have been proving instrumental in reducing RTAs (Kanthavel et al., 2021).

Driver's fitness and RTAs

RTAs cause traffic congestion and that increases the time spent on the road by the drivers (Zheng et al., 2020). In India, metro cities like Pune, Bangalore, and Mumbai top the list of the number of hours spent by

commuters daily (MoveInSync, 2019). For a driver or a passenger, exposure to long hours in traffic leads to stress, aggression, violence, it also affects the driver's health (Malaya & Samal, 2019) and it has been noted that error from the driver of the vehicle is a major cause of RTAs (Haghi et al., 2014). Traffic crashes are also associated with elevated levels of psychological distress (Craig et al., 2016). A disappointing driving environment is directly connected to the overt expression of stress and anger especially in situations that are frustrating (Hennessy & Wiesenthal, 1999; Novaco, Stokols, & Milanese, 1990).

Defining Aggressive driving or road rage

There is no agreement in one definition of road rage in the present literature (Galovski et al. 2006; Bjorn Borg & Gross, 2021). Based on the literature review, a significant number of studies use terms such as 'aggressive driving' or 'angry driving' to refer to 'road rage' due to the lack of a standardized-definition. Road rage is the term currently used to describe the extreme offensive behavioral reaction of frustrated drivers on the road. Technically, road rage is a pattern of aberrant behavior in which aggression is directed at other drivers through the vehicle. It has been found in various studies that making verbal and non-verbal gestures, such as honking, hostile hand and facial gestures, screaming, chasing vehicles, frequently changing lanes or tailgating is one of the most common types of road rage. (Dula & Geller, 2003; Wells-Parker et al., 2002)

Literature gap in Indian Assessment of Road rage

Psychological well-being has become a major concern for communities since its adverse effects and impact has been surfaced by numerous clinical researchers (Cho et al., 2011). Though the driver's mental health in terms of distress has been a relatively neglected and less researched topic in Indian traffic research. Assessment tools standardized on a western sample are not directly applicable for research in India.

Rationale of the study

The study helps us understand the factors which are responsible for RTAs through the review of existing literature. The study also explains why SJT-based measure is better for the development of an assessment strategy for assessing the propensity of road rage among Indian drivers. The development of this SJT-based measure will assist in the regular assessment of road rage and will help initiate a research dialogue towards the mental health of Indian Drivers.

Psychometric assessment attempts

There has been a classification of behavioral reactions of road rage in previous research on different levels, and also it is defined using different categories. The Driving Anger Scale (Deffenbacher et al. 1994) was notable as the first attempt to develop a psychometric assessment tool for assessing aggressive driving. Aggressive Driving Behavior Scale (Brill et al., 2009), Driving Anger Expression Inventory (Deffenbacher et al., 2002), Prosocial and Aggressive Driving Inventory (Harris et al., 2014), and Driver's Anger Thought Questionnaire (Deffenbacher, Petrilli, et al., 2003) are some other classic examples of measurement attempts for aggressive driving.

Phase - I

Objective

To understand the driver's perspective towards aggressive driving by conducting a preliminary survey with experienced drivers.

Participants

The participants (N=80), Male =55 and Female =35 was selected using a convenience sampling method, only if they had a valid driving license and at least two years of driving experience on Indian roads. The participants were males between the ages of 19 - 27 years (Mean age = 23.7 yrs).

Method

In a survey format, the participants were asked to describe their road rage experience, its frequency, and their attitude towards a better screening system for drivers. The participants were also asked to speculate on the possible causes of the incident. This data was collected in January 2020.

Data analysis

Descriptive analysis was performed on the collected data using IBM SPSS Statistics 20.0.

Findings

The findings of Phase - I revealed significant foundational points, which became very crucial later in the study. The drivers (70%) reported observing a high frequency (more than thrice a week) of RTAs and road rage incidents. Drivers (60.2%) who had relatively higher per day exposure (more than two hours/ per day) agreed that there is a lack of a proper system for the safety of drivers from incidents of road rage. According to the participants, the most quoted possible reasons were poor driving skills, temperament issues, dilapidated roads for their frustration and feelings of aggression on the behavior of other drivers. A majority (87.5%) of the participants agreed that a better screening system for drivers is needed.

Categorising the factors of road rage

The following operational definition of road rage was drawn to maintain consistency:

“Road rage consists of a range of deviant behavioral responses that are generally harmful to other drivers on the road due to its volatile nature but can be potentially dangerous to the driver himself, such as overspeeding. The factors which can cause road rage are categorized into off-road stressors, on-road stressors, personality factors, and other stressors.”

The definition of particular stressors was also proposed:

On-road stressors - Any stressor(s) which influence the propensity of road rage of the driver, which is present on the road. For example, traffic congestion;

Off-road stressors - Any stressor(s) which influences the propensity of road rage of the driver, which is not present on the road. For example, time constraint, frustration, stress, disputes, and worry which induce an aggressive response;

Personality factors - Any factor(s) which influences the propensity of road rage of the driver, which is

related to personality. For example, belief systems. These factors are relatively static;

Other factors - Includes factors that are not covered in the above categories but influences the propensity of road rage of the driver, for instance, perception of aggression. These factors are relatively static.

Table 1 List of factors influencing road rage

Factor	Factor affecting road rage	Major Sources
On-road Stressors	Co-passengers disruption	Chakrabarty & Riku (2013)
	Driver distraction	Chan & Singhal (2013)
	Fatigue	Elliott (1999)
	Honking	Sagar, Mehta, & Chugh (2013)
	Noise	Prakash & Kansal (2007); Elliott (1999)
	Non-compliance to traffic rules	Elliott (1999)
	Overcrowding	Prakash & Kansal (2007)
	Overtaking from the wrong side	Sagar, Mehta, & Chugh (2013)
	Pain	(Berkowitz, 1993)
	Poor light	Elliott (1999)
	Presence of Aggressive Stimuli	Ellison-Potter, Bell, and Deffenbacher (2001)
	Road condition	Hennessy & Wiesenthal (1999); Hill & Boyle (2007); Elliott (1999)
	Temperature, humidity	Kenrick & MacFarlane (1986); (Anderson & Deuser, 1996); Elliott (1999)
	Traffic movement/congestion	Prakash & Kansal (2007) Dukes et al. (2001)
	Vehicular attachment	Marsh & Collet (1987)
Weather	Elliott (1999)	
Factor	Factor affecting road rage	Major Sources
Off-road Stressors	Familial disputes	Taubman-Ben-Ari & Katz-Ben-Ami (2012); Taubman-Ben-Ari & Katz-Ben-Ami (2013)
	Stress/frustration due to outside agency	Prakash & Kansal (2007); Elliott (1999)
	Time constraint	Tasca, L. (2000); Hennessy & Wiesenthal (1999)
Personality factors	Belief System	Ayeer (2006, p. 132); Elliott (1999)
	Competitiveness	Grey, Triggs, & Haworth (1989)
	Impulsivity	Elliott (1999)
	Interpersonal Communication	Prakash & Kansal (2007)
	Locus of control	Brewer (2000)

	Mood	Elliott (1999)
	Perception of aggression	Knapper & Cropley (1981).
Other Factors	Age	Gulian, Glendon, Matthews, Summala (1987)
	Alcohol and drug use	Brewer (2000)
	Education	Prakash & Kansal (2007)
	Gender	Dula & Ballard (2003, p. 266); Lawton, Parker, Manstead, & Stradling (1997); Shinar (1998); Summala (1987); Elliott (1999)
	Genetic Factors	Nyezi (2010)
	High level of general stress	Sharkin (2004); (Gulian, Matthews, Glendon, Davies, & Debney, 1989); Hennessy & Wiesenthal (1999)
	Socioeconomic Status	Doob & Gross (1968); Novaco (1993)
	Years of driving experience	Asbridge, Smart, & Mann (2006)

Phase - II

Objectives

To study the attitude of daily commuters on their driving experiences using focus group discussion & semi-structured interview for inductive thematic analysis.

Participants

Experienced drivers were encouraged to participate in this study. A total of twenty drivers responded to the poster and wished to be a part of the study. Twelve participants were male, and eight were female. All of them were pursuing either their undergraduate or postgraduate programmes in Arts, Humanities, Commerce, Engineering, or Science streams of a Private University in Haryana, India, during the academic session 2019–2020.

Method

They were initially called for focus group discussions (FGDs), and later on, one-on-one semi-structured interviews were conducted with all the twenty participants.

Data analysis

The interviews were transcribed and analyzed using inductive thematic analysis. The participant's transcripts were manually scanned for keywords that are related to the factors of road rage incidents. The keywords were then grouped to observe themes that emerged.

Findings

Multiple themes emerged from the narrations depicting the idea of road rage among drivers. Various participants focused on the causes of such incidents through their narration. Time-constraint, road conditions, verbal abuse, dispositional factors were found from the analysis. The themes complemented

various previous qualitative studies that focused on the causes of road rage accidents (Aghakhani et al., 2019; Evans & Lewis, 2018).

Cultural perception of stressors and aggression also plays a vital role in an unequal distribution of the number of road rage incidents throughout the nation. Factors responsible for RTAs identified in different cultural contexts are similar but the dominance of these factors differs. The answer to this is found by covering more literature on aggression in the Indian context where factors look similar to other westernized studies but originate from significantly different rooting combinations (the expression is the same but causes are different).

Therefore, the Indian fabric of aggression is uniquely Indian. Various assessment methods have been tried and tested for the road rage construct. The situationist approach for aggressive driving is a stepping stone in future traffic research and is a product of criticism of previous attempts of measurement for the items of the test asking the responding to recall or recognise aggressive driving.

Situation-based Assessment Strategies

Deffenbacher and colleagues (1994) reviewed 100's of anger diaries from high and low trait anger individuals. They found that 5–8% of examples involved driving, which makes it evident that there were individuals whose anger was primarily triggered when driving. As Gierl & Haladyna (2013) explains, heavy reliance on memory-type items in the past underscored a need to create test items that are more cognitively engaging. Situational Judgment Test (SJT) is one such test type that is engaging and requires a significantly lesser cognitive demand for young adults than memory-type items. In India, cases of road rage are highly underreported unless the lethality of the act is high. Previous Indian researchers claim to have assessed frequencies of visible incidents of road rage and state that due to the unavailability of official records, only self-report measures could be used, which raises the question of reliable assessment for road rage with the current infrastructure.

Benefits of using an SJT-based measure

SJT based measures are considered to be better than other assessment methods because this method can be easily adapted with a simulator. SJTs have been traditionally used and quite widely researched in recruitment and training, and it is being used to measure psychological constructs recently, such as emotional intelligence (Sharma et al., 2013).

Phase - III

Objectives

Phase - III included the construction of stems for an SJT based measure to assess the propensity of road rage among Indian drivers.

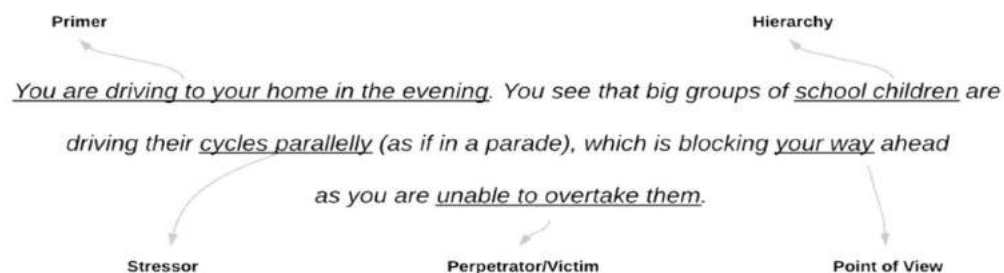
Method

In Phase - II various factors which play a crucial role in road rage incidents were highlighted. Apart from that, one central point was also highlighted in multiple themes that there is a lack of a consistent, effective, and reliable assessment strategy that can assess such tendencies and intervene. Various road rage assessment

tools were studied, and it was found that due to cultural and demographic differences between the West and India, those measures would not be practical and adequate in India.

SJT's have two components, stems and responses (behavioral responses). In this Phase, 30 stems were constructed, which consists of numerous factors identified to increase road rage intensities. This formula (see Figure 1) had four components that have been changed in different situations to have an equal representation of different scenarios on the road. The stems were then sent to 25 Subject Matter Experts (SMEs) to evaluate the effectiveness of the stems in eliciting an aggressive response among participants.

Figure 1 Standard Formula used for making Stems of SJT



Participants

The stems were sent to 25 SMEs, and out of those, 12 SMEs responded to the online survey feedback form. The only reason for non-completion was a lack of time. The SMEs were asked to rate 30 stems based on their effectiveness in measuring the propensity of road rage. The majority of the experts (40%) were Ph.D. while MPhil (7%), Postdoc (7%), and Master's degree (33%) also rated the stems. The SMEs were instructed as "Please note that you are requested to determine the effectiveness of the stems objectively/professionally and **NOT** to determine how you would personally feel or react in that particular situation. If the stem is not giving a clear picture, then you may **write** your **suggestions** in the 'Suggestion box,' which is present after each stem item in the online form. Constructive suggestion(s) for each item is welcome."

Data analysis

After the rating of the stems was received, descriptive statistics were calculated using quantitative analysis software SPSS version 25. The stems were compared with their mean ratings in a scale of 0-4. The stems which were found to have higher mean ratings (>2.57) were labeled as satisfactory, and those who scored average or below average (≤ 2.57) were then modified.

Findings

Out of 30 stems, 22 were modified according to the SMEs suggestions, and the other eight were retained without any changes. It was observed that stems that included transport drivers were more effective (mean rating ≥ 3.2) in eliciting aggressive responses according to the SMEs.

Phase - IV

Objectives

To create responses for corresponding stems and get them reviewed by SMEs.

Method

Response construction: The response of stems was created within the behavioral reaction hierarchy; No reaction, Non-verbal Expression, Verbal with Non-verbal expression and Intention to physical damage. A four-category response model was constructed to have a uniform response system. The stems that were reviewed in the Phase - III were sent to two SMEs along with their responses for review.

Table 2 Sample Item with Responses from RAGE Test

Stem 1:	On a busy road, the backside of your vehicle got slightly hit by another vehicle. It was not your fault, but the person blames you for not driving correctly.
No reaction	You will drive away from the place.
Non-verbal expression	You will gesture to the person indicating you are calling the police.
Verbal with non-verbal expression	You will demand compensation for the damages right there.
Intention to physical damage	You will warn them that if they do not give you the compensation for the damages right now, you will damage their vehicle.

Participants

Both SMEs were highly experienced in psychometrics and have had more than ten years of experience in psychometric tool construction. They reviewed all the statements of the responses (8 for each stem) and gave suggestions and comments on gender neutrality and construct representation.

Findings

Feedback from both the SMEs was positive, and suggestions on improving the response structure of the stems were obtained.

Conclusion

Aggressive driving has been an important research area, and there have been many attempts to build a reliable, inclusive, and effective assessment tool to measure the propensity of aggressive driving. India and its fabric of psychological construct are very complex and need to be addressed differently to incorporate the factors which play a significant role in changing an incident into an accident for a driver. Mental health is a poorly funded area as far as India's health policy is concerned, and due to this, research in these areas lacks technological assistance, which is a must to formulate effective preventive measures. It is evident that road rage incidents are increasing, and as discussed in the paper, as the source of frustration and distress will increase, we are likely to see a rise in these cases. A practical assessment measure can act like a filter to drivers who are vulnerable to reacting aggressively to frequent situations on the road. Proper preventive modules can be supplied, and non-aggressive behavioral practices can be encouraged. The situation-based

method used in this paper for developing stems is a promising method for the development of such psychometric assessment tools. The test is being further developed and refined by SMEs, and attempts are being made to convert the test into an audio-visual assessment for transport drivers. In the future stages of the study, the use of driving simulator is expected for testing the audio-visual transferability of the tool. The interpretation of the results should be treated with caution due to the study's limitations.

Limitations

- The sample size in this study was pretty small in some phases of the study due to the lack of funds and the outbreak of the COVID-19 pandemic. For higher generalizability of the study, more sample sizes can be used in the future.
- Due to a significant number of items in the overall assessment, it was not possible to conduct additional expert rounds.

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Conflict of interests

The authors declare that no competing interests exist.

Author's contributions

Hardik Singh Ahuja, Shailesh Jaiswal & Dr. Lokesh Gupta contributed equally to the theoretical development, analysis, interpretation and writing of the manuscript. Dr. Lokesh Gupta also supervised the project.

REFERENCES

- Aghakhani, N., Baghaei, R., & Sheikhlou, Y. (2019). Drivers perceptions of road accidents: a qualitative study. *Journal of Injury and Violence Research*, 11(4 Suppl 2), Paper No. 96. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7186964/>
- Anderson, C. A., Anderson, K. B., & Deuser, W. E. (1996). Examining an affective aggression framework weapon and temperature effects on aggressive thoughts, affect, and attitudes. *Personality and social psychology bulletin*, 22(4), 366-376.
- Asbridge, M., Smart, R. G., & Mann, R. E. (2006). Can we prevent road rage?. *Trauma, violence, & abuse*, 7(2), 109-121.
- Ayar, A. A. (2006). Road Rage: Recognizing a psychological disorder. *The journal of psychiatry & law*, 34(2), 123-150.
- Berkowitz, L. (1993). Pain and aggression: Some findings and implications. *Motivation and emotion*, 17(3), 277-293.
- Bjureberg, J., & Gross, J. J. (2021). Regulating road rage. *Social and Personality Psychology Compass*, 15(3), e12586.
- Brewer, A. M. (2000). Road rage: what, who, when, where and how?. *Transport reviews*, 20(1), 49-64.
- Brill, J. C., Mouloua, M., Shirkey, E., & Alberti, P. (2009, October). Predictive validity of the aggressive driver behavior questionnaire (adbq) in a simulated environment. In *Proceedings of the Human Factors and*

Ergonomics Society Annual Meeting (Vol. 53, No. 18, pp. 1334-1337). Sage CA: Los Angeles, CA: SAGE Publications.

- Chakrabarty, N., & Riku, R. (2013). Uniform Driver Evaluation in India: A Mandatory Requirement for Road Safety.
- Chan, M., & Singhal, A. (2013). The emotional side of cognitive distraction: Implications for road safety. *Accident Analysis & Prevention, 50*, 147-154.
- Cho, J., Martin, P., Margrett, J., MacDonald, M., & Poon, L. W. (2011). The relationship between physical health and psychological well-being among oldest-old adults. *Journal of aging research, 2011*.
- Choi, J., Coughlin, J. F., & D'Ambrosio, L. (2013). Travel time and subjective well-being. *Transportation research record, 2357*(1), 100-108.
- Deffenbacher, J. L., Lynch, R. S., Oetting, E. R., & Swaim, R. C. (2002). The Driving Anger Expression Inventory: a measure of how people express their anger on the road. *Behaviour Research and Therapy, 40*(6), 717-737. [https://doi.org/10.1016/s0005-7967\(01\)00063-8](https://doi.org/10.1016/s0005-7967(01)00063-8)
- Deffenbacher, J. L., Oetting, E. R., & Lynch, R. S. (1994). Development of a driving anger scale. *Psychological reports, 74*(1), 83-91.
- Deffenbacher, J. L., Petrilli, R. T., Lynch, R. S., Oetting, E. R., & Swaim, R. C. (2003). *Cognitive Therapy and Research, 27*(4), 383-402. <https://doi.org/10.1023/a:1025403712897>
- Doob, A. N., & Gross, A. E. (1968). Status of frustrator as an inhibitor of horn-honking responses. *The Journal of Social Psychology, 76*(2), 213-218.
- Dukes, R. L., Clayton, S. L., Jenkins, L. T., Miller, T. L., & Rodgers, S. E. (2001). Effects of aggressive driving and driver characteristics on road rage. *The Social Science Journal, 38*(2), 323-331.
- Dula, C. S., & Ballard, M. E. (2003). Development and evaluation of a measure of dangerous, aggressive, negative emotional, and risky driving 1. *Journal of Applied Social Psychology, 33*(2), 263-282.
- Dula, C.S., & Geller, E.S. (2003). Risky, aggressive, or emotional driving: Addressing the need for consistent communication in research. *Journal of Safety Research, 34*, 559-566.
- Elliott, B. (1999). Road rage: Media hype or serious road safety issue?. In *Third National Conference on Injury Prevention and Control* (pp. 59-62).
- Ellison-Potter, P., Bell, P., & Deffenbacher, J. (2001). The effects of trait driving anger, anonymity, and aggressive stimuli on aggressive driving behavior. *Journal of Applied Social Psychology, 31*(2), 431-443.
- Evans, C., & Lewis, J. (2018). *Analysing Semi-Structured Interviews Using Thematic Analysis: Exploring Voluntary Civic Participation Among Adults*. SAGE Publications, Ltd. <https://doi.org/10.4135/9781526439284>
- Galovski, T. E., Malta, S., & Blanchard, E. B. (2006). Defining driving aggression and related constructs. *Road Rage: Assessment and Treatment of the Angry, Aggressive Driver. Washington, DC*, 15-26.
- Gierl, M. J., & Haladyna, T. M. (Eds.). (2013). *Automatic item generation: Theory and practice*. Routledge.
- Grey, M. E., Triggs, T. J., & Haworth, N. L. (1989). Driver aggression: the role of personality, social characteristics, risk and motivation. *STAYS SAFE, 58*, 90.
- Gulian, E., Debney, L. M., Glendon, A. I., Davies, D. R., & Matthews, G. (1989). Coping with driver stress. In *Stress and Tension Control 3* (pp. 173-186). Springer, Boston, MA.
- Gulian, E., Glendon, A. I., Matthews, G., Davies, D. R., & Debney, L. M. (1988). Exploration of driver stress using self-reported data. *Road user behaviour: Theory and research, 342-347*.
- Gulian, E., Matthews, G., Glendon, A. I., Davies, D. R., & Debney, L. M. (1989). Dimensions of driver stress.

Ergonomics, 32(6), 585-602.

- Haghi, A., Ketabi, D., Ghanbari, M., & Rajabi, H. (2014). Assessment of human errors in driving accidents; analysis of the causes based on aberrant behaviors. *Life Science Journal*, 11(9), 414-420.
- Hennessy, D. A., & Wiesenthal, D. L. (1999). Traffic congestion, driver stress, and driver aggression. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression*, 25(6), 409-423.
- Hill, J. D., & Boyle, L. N. (2007). Driver stress as influenced by driving maneuvers and roadway conditions. *Transportation Research Part F: Traffic Psychology and Behaviour*, 10(3), 177-186.
- Invest India*. (2019). Investindia.gov.in. <https://www.investindia.gov.in/sector/roads-highways>
- Kanthavel, D., Sangeetha, S. K. B., & Keerthana, K. P. (2021). An empirical study of vehicle to infrastructure communications - An intense learning of smart infrastructure for safety and mobility. *International Journal of Intelligent Networks*, 2, 77-82. <https://doi.org/10.1016/j.ijin.2021.06.003>
- Knapper, C. K., & Cropley, A. J. (1978). Social and interpersonal factors in driving. In *Proceedings: American Association for Automotive Medicine Annual Conference* (Vol. 22, No. 1, pp. 83-97). Association for the Advancement of Automotive Medicine.
- Lawton, R., Parker, D., Manstead, A. S., & Stradling, S. G. (1997). The role of affect in predicting social behaviors: The case of road traffic violations. *Journal of applied social psychology*, 27(14), 1258-1276.
- Marsh, P., & Collett, P. (1987). Driving passion. *Psychology Today*, 21(6), 16.
- Ministry of Road Transport & Highways (MORTH), Government of India. (2019). *Road Accidents In India – 2019*. https://morth.nic.in/sites/default/files/RA_Uploading.pdf
- Ministry of Road Transport and Highways. (2017). *Basic Road Statistics of India (2016-2017)*. https://morth.nic.in/sites/default/files/Basic%20Road_Statics_of_India.pdf
- Mohanty, M., & Samal, S. R. (2019). „Role of young drivers in road crashes: A case study in India”. *European Transport/Trasporti Europei*, (74).
- Morris, E. A. (2011). *Access and outcomes: Transportation, location, and subjective well-being* (Vol. 73, No. 06).
- MoveInSync. (2019). *Travel Time Report Q1 2019 vs Q1 2018* [Brochure]. <https://www.moveinsync.com/travel-time-report/>
- Novaco, R. W. (1993). Clinicians ought to view anger contextually. *Behaviour Change*, 10(4), 208-218.
- Nyezi, V. V. (2010). *Self-perceived psychological factors contributing to road rage at Empangeni in KwaZulu-Natal* (Doctoral dissertation).
- Prakash, J., & Kansal, M. S. (2007). Road Rage: Psychosocial Perspectives. *Delhi Psychiatry Journal*, 10(1), 5-9.
- Road Transport Year Book 2016-17*. (2017). Ministry of Road Transport & Highways (MORTH), Government of India. <https://morth.nic.in/sites/default/files/Road%20Transport%20Year%20Book%202016-17.pdf>
- Sagar, R., Mehta, M., & Chugh, G. (2013). Road rage: An exploratory study on aggressive driving experience on Indian roads. *International journal of social psychiatry*, 59(4), 407-412.
- Sharkin, B. S. (2004). Road rage: Risk factors, assessment, and intervention strategies. *Journal of Counseling & Development*, 82(2), 191-198.
- Sharma, S., Gangopadhyay, M., Austin, E., & Mandal, M. K. (2013). Development and Validation of a Situational Judgment Test of Emotional Intelligence. *International Journal of Selection and Assessment*, 21(1), 57-73. <https://doi.org/10.1111/ijsa.12017>

- Shinar, D. (1998). Aggressive driving: the contribution of the drivers and the situation. *Transportation Research Part F: traffic psychology and behaviour*, 1(2), 137-160.
- Stutzer, A., & Frey, B. S. (2008). Stress that doesn't pay: The commuting paradox. *Scandinavian Journal of Economics*, 110(2), 339-366.
- Summala, H. (1987). Young driver accidents: Risk taking or failure of skills?. *Alcohol, Drugs & Driving*.
- Tasca, L. (2000). *A review of the literature on aggressive driving research*. Ontario, Canada: Ontario Advisory Group on Safe Driving Secretariat, Road User Safety Branch, Ontario Ministry of Transportation.
- Taubman-Ben-Ari, O., & Katz-Ben-Ami, L. (2012). The contribution of family climate for road safety and social environment to the reported driving behavior of young drivers. *Accident analysis & prevention*, 47, 1-10.
- Taubman-Ben-Ari, O., & Katz-Ben-Ami, L. (2013). Family climate for road safety: A new concept and measure. *Accident Analysis & Prevention*, 54, 1-14.
- Wells-Parker, E., Ceminsky, J., Hallberg, V., Snow, R.W., Dunaway, G., Guiling, S. ... Anderson, B. (2002). An exploratory study of the relationship between road rage and crash experience in a representative sample of US drivers. *Accident: Analysis & Prevention*, 34, 271-278.
- World Health Organization: WHO. (2020, February 7). *Road traffic injuries*. Who.int; World Health Organization: WHO. <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries>
- Zheng, Z., Wang, Z., Zhu, L., & Jiang, H. (2020). Determinants of the congestion caused by a traffic accident in urban road networks. *Accident Analysis & Prevention*, 136, 105327. <https://doi.org/10.1016/j.aap.2019.105327>

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Development and initial validation of turnover intention scale

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ABSTRACT

This article reports the initial validation of a new instrument, the Turnover Intention Scale, for assessing the employees' future intentions to leave the current organization, especially in the Indian BPO industries among customer care executives. The language of the items in the scale is English. Primarily 26 items were formulated, and 20 items were finalized for the present version of the scale. An expert panel has checked the face validity of the scale and found much satisfactory. Results of factor analysis revealed a two-factor solution. It provides empirical evidence for the factorial structure of the Turnover Intention Scale as Mismanagement related Turnover Intention- MTI (Factor-1) and Work Nature and Opportunities related Turnover Intention- WNOTI (Factor-2). Reliability of the scale (including components) was found satisfactory to a better extent, and the scale validity was also looked satisfactory analyzed by item statistics. The present scale may be helpful to assess the future intentions to leave the current organization especially among the employee of Multi-national Companies (MNCs).

Keywords: Turnover Intention, factor analysis, reliability analysis and validity analysis

INTRODUCTION

Employee turnover intention has received considerable attention in industrial and organizational psychology (Campion, 1991). Turnover intention means the subjective perception of the organizational member to quit the current job for other opportunities (Fiedler, 1978). Following table shows different definitions of turnover intention-

Year	Author	Definition of Turnover Intention
1973	Porter & Steers	Retreating behavior from job dissatisfaction.
1975	Fishbein & Ajzen	The best measurement to presume the worker's turnover behavior
1978	Mobely	The idea of leaving the current organization or post
1982	Bluedorn	It is different from actual turnover behavior which is influenced by more external elements.
1993	Tett & Meyer	Perception of a series of retreating cognitions.
2002	Ruby, Sujdak	The extent to which an employee plans to leave the organization

The above definitions reveal that turnover intention is a tendency for leaving the current organization/job due to job dissatisfaction which is produced by a perceptual series of retreating cognition towards different external/internal elements, and new opportunities in the market. According to Wanous, Stumpf and Bedrosian (1979), the reason for job termination was also solicited from both the worker and employer and is categorized as either voluntary or involuntary, but in the present attempt of developing a scale, only voluntary turnover intentions will be considered.

For decades, voluntary employee turnover has received considerable attention in not only organizational researches but also managerial practices because of its association with many kinds of

financial costs and latent negative outcomes. In recent years, with the new economy and information age booming, human resource with knowledge, technology, and skills has been adding value to the organization and become one key element of core competency. It is more costly to replace professional and technical staff because it will result in loss of considerable practical knowledge. Therefore, it is important to forecast the employees' turnover behavior in the future, especially, professional and technical staff turnover, and then proper retention policies could be applied (Wu, Xu, Wang, 2007).

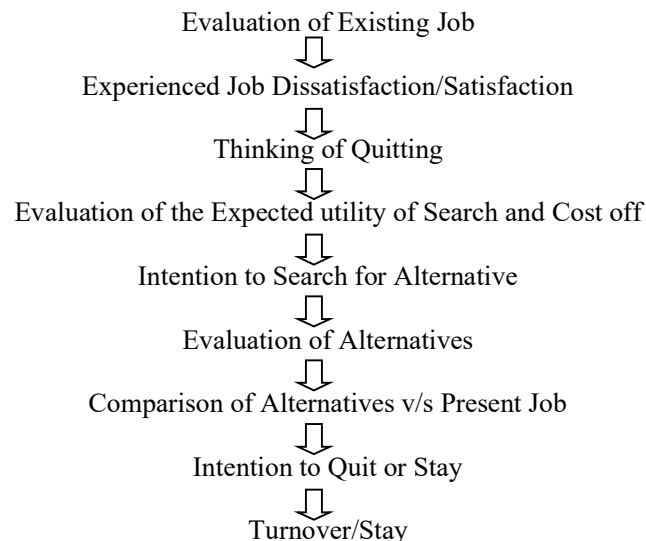
The theoretical framework of Turnover Intention

Within the Organizational Behavior literature, there are various well-tested models of Turnover Intention based on many theories:

The Two Factor Theory (motivation and hygiene factors) suggests that when both the factors are fulfilled, turnover is lower (Herzberg, 1968). Theory of Needs (affiliation, achievement, and power needs) advocates that when an individual's needs are met at an organization, Turnover is lower (McClelland, 1961). Job Characteristics (Skill Variety, Task Significance, Task Identity, Autonomy, and Feedback) Theory suggests that Job Satisfaction is determined by these five characteristics which in turn determine turnover (Hackman & Oldham 1976, 1980). Turnover Theory given by Mobley et al. (1978) posits that job satisfaction, organizational alternatives, and search intention are antecedents to quit intention (Hom et al., 1992). Concept of person-organization fit (Sekiguchi, 2004) postulates that high compatibility between an individual and an organization is negatively related to Turnover (Argyris, 1957; Pervin, 1989; Arthur et al., 2006; Hoffman & Woehr, 2006).

The Job Investment Model suggests that job rewards and job costs determine job satisfaction, and investment in the organization determines organizational commitment, and that both job satisfaction and organizational commitment determine turnover (Farrell & Rusbult, 1981). Mobley, (1982) has given an Intermediate Linkage Model, which shows the expend process of turnover behavior as below-

Figure: 1 Mobley's (1982) Intermediate Linkages Model



We can find thousands of models within the organizational behavior literature. The rich research base from organizational behavior has significantly impacted the business process outsourcing (BPO) turnover research. Within the BPO literature, the basic model of turnover intentions shows that job satisfaction and organizational commitment directly affect turnover intentions. Lacity, Iyer and Rudramuniyaiah (2008) reported that a meta-analysis of information services (IS) turnover research among IS professionals shows that job satisfaction was the most commonly studied determinant of turnover. In the 16 IS studies that used this construct, establish a negative relationship between job satisfaction and turnover. The second most repeatedly studied construct was organizational commitment (Joseph et al., 2007). Eleven IS studies found a negative relationship between organizational commitment and turnover among IS professionals (Baroudi 1985; Igarria & Greenhaus 1992; Ahuja et al. 2007).

IS academics have extended the basic model of turnover intention by testing many antecedents of job satisfaction and organizational commitment for professionals. These constructs have included boundary across activities, burnout, career expectations, career orientation, career satisfaction, gender, internal labor market strategies, IT human resource management configurations, job autonomy, job involvement, job tasks, management policy, role ambiguity, role conflict, salary, stocks, turnover culture, work exhaustion, work experiences, work-family conflict and feeling of happiness in general life (Baroudi 1985; Gupta & Gupta 1990; Igarria and Greenhaus 1992; Igarria et al. 1994; Sethi et al. 1999; Moore 2000; Rouse 2001; McMurtrey et al. 2002; Niederman and Sumner 2004; Ferratt et al. 2005; Ahuja et al. 2007). Therefore, the HR department of organizations needs to measure the intention of their employees' to leave the current organization, which certainly requires a good behavioral tool.

Although, several measures of turnover intention and attrition has been developed in a different context and they are limited to their use. The intention to leave the organization was measured by Mobley et al. (1979) with three items- (1) "I think a lot about leaving the organization." (2) "I am actively searching for an alternative to the organization." (3) "As soon as it is possible, I will leave the organization. Spector et al. (1988) have developed a single item (How often have you seriously considered quitting your current job over the past 6 months) to assess the turnover intention of employees. Likewise, the primary tools recently Labrague, et al. (2018); Ali (2021), and many other researchers have used six-item Turnover Intention Scale of Bothma and Roodt (2013) in their investigations. All these scales are framed based on direct questions to ask the employees' about their intention to leave or continue with the current organization.

Practically it is not an effective way to ask straight questions for the behaviors especially related to commitment towards the organization. These types of tools may create hesitation in employees and their responses may be biased or fabricated. Therefore, indirect questions about highly associated correlates of turnover intention may prove a better way to measure the intention to leave the organization. To fill this important gap of the way of asking about intention towards the current working organization of an employee, the present investigator has made an effort to develop this scale to assess the employees' turnover intention, especially in the Indian BPO industry. Probably, it is first scale with indirect questions to measure the intent to leave the organization by employees.

The turnover intention was conceptualized in this study as employees' intention to leave the current organization due to negative perceptions for many important aspects of their organization. Mismanagement, nature of work, and lucrative opportunities available in the market are considered key factors.

METHODOLOGY

Sample

The sample comprises 460 BPO employees including males and females of the age range of 20 to 34 years and minimum of one year of experience. Sampling was done by purposive sampling technique across Delhi and Kolkata region from different BPOs. The explicit nature of the sample is given below-

Table-1 Sample distribution

	Frequency	Total	Per cent
Organizational region			
Delhi Region	270	460	58.7
Kolkata Region	190		41.3
Gender			
Male	388	460	84.3
Female	72		15.7
Marital Status			
Married	24	460	5.2
Non-married	436		94.8
Age in year			
Minimum= 20	Maximum= 34	Mean= 24.25	
Work Tenure in year			
Minimum= 01	Maximum= 06	Mean= 2.60	

Procedure

The process of scale construction was started by formulating the statements. An items pool was generated based on different highly correlated variables with turnover intention of employees and situations of organizations especially BPOs, which are founds in previous models and available literature. All the statements were negatively formulated, because the main aim of the researcher was to measure the turnover intention of employees which is a negative construct. And, it is a very simple rule that, if employees have turnover intention, then most of their responses towards correlates will be negative.

Primarily 26 items were formulated on the bases of review of related literature and items of the priory scales. But after establish face validity with the common opinion of experts and pilot study on nearly 40 subjects, only 20 items were found appropriate in final form of scale. The subjects were convinced to participate in the study and they were not paid for their participation in this study. The obtained data was analyzed by using factor analysis, reliability analysis and validity analysis.

RESULTS AND DISCUSSION

Primarily factor analysis (principal component with varimax rotation) was performed to identify the factor structure of Turnover Intention Scale and obtained results were presented in Table-1. Cronbach alpha (as whole scale and factor wise), item-total correlation and rotated component matrix tables are given below-

Table-2 Items of Turnover Intention Scale and their rotated component matrix

Statements	Component	
	Factor- 1	Factor- 2
2. The supervision is indifferent.	.853	
5. Higher management positions are unattainable.	.750	
11. Relations with the boss/manager are disagreeable.	.688	
12. Organization has inappropriate rewards structure.	.643	
3. Performance appraisal techniques are ambiguous.	.625	
13. The pay package is insufficient.	.620	
8. Organizational communications are ineffective / insufficient.	.601	
10. Interpersonal relation with coworkers is unsatisfactory.	.593	
19. Personal growth is not encouraged in the organization.	.573	
15. Promotion policy is not based on any specific criteria	.420	
6. The pay structure does not provide for future security.	.394	
14. High accountability creates feeling of insecurity.		.733
1. Nature of work is uninteresting / boring.		.732
9. Organization does not provide sufficient opportunities for development of skills.		.681
17. It is difficult to adjust in the present job.		.673
20. The social and personal life is disrupted because of taxing work schedule / work hours.		.646
16. Different job opportunities will be more attractive than the present job.		.640
18. New openings in other organizations will be more attractive alternatives.		.611
7. There is role ambiguity in the organization.		.600
4. The organization has undefined work structure.		.564
<i>Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.</i>		

Factor analysis of scale shows that two factors may be identified in the current scale. Both the factors could be nominated as Mismanagement related Turnover Intention- MTI (Factor-1), and Work Nature and Opportunities related Turnover Intention- WNOTI (Factor-2).

Component matrix for turnover intention scale shows that 11 items are loaded on component **one** and 9 items on component **two**. However, item no. 15 has a high load on work nature and opportunities related component (factor-2) as .472 and a low load on mismanagement related component (factor-1) as .420, but theoretically promotion policy is the part of management. Therefore, it'll pool with factor – 1.

Table-2 Whole scale reliability analysis of turnover intention scale

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.901	.903	20

Table-3 Item-total correlations of whole turnover intention scale

S.N.	Statements	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.	Nature of work is uninteresting / boring.	.584	.895
2.	The supervision is indifferent.	.580	.895
3.	Performance appraisal techniques are ambiguous.	.559	.896
4.	The organization has undefined work structure.	.486	.898
5.	Higher management positions are unattainable.	.593	.895
6.	The pay structure does not provide for future security.	.367	.901
7.	There is role ambiguity in the organization.	.582	.896
8.	Organizational communications are ineffective / insufficient.	.584	.895
9.	Organization does not provide sufficient opportunities for development of skills.	.586	.895
10.	Interpersonal relation with co-workers is unsatisfactory.	.573	.895
11.	Relations with the boss/manager are disagreeable.	.387	.901
12.	Organization has inappropriate rewards structure.	.608	.895
13.	The pay package is insufficient.	.533	.897
14.	High accountability creates feeling of insecurity.	.519	.897
15.	Promotion policy is not based on any specific criteria	.578	.896
16.	Different job opportunities will be more attractive than the present job.	.479	.898
17.	It is difficult to adjust in the present job.	.568	.896
18.	New openings in other organizations will be more attractive alternatives.	.459	.898
19.	Personal growth is not encouraged in the organization.	.573	.895
20.	The social and personal life is disrupted because of taxing work schedule / work hours.	.494	.898

Table-4 Reliability analysis of factor-1 of turnover intention scale

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.869	.870	11

Table-5 Item-total correlations of mismanagement related domain of turnover intention scale

S. N.	Statements includes in factor-1	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.	2. The supervision is indifferent.	.725	.846
2.	3. Performance appraisal techniques are ambiguous.	.568	.858
3.	5. Higher management positions are unattainable.	.676	.850
4.	6. The pay structure does not provide for future security.	.374	.871
5.	8. Organizational communications are ineffective / insufficient.	.565	.858
6.	10. Interpersonal relation with coworkers is unsatisfactory.	.590	.857
7.	11. Relations with the boss/manager are disagreeable.	.496	.863
8.	12. Organization has inappropriate rewards structure.	.612	.855
9.	13. The pay package is insufficient.	.576	.858
10.	15. Promotion policy is not based on any specific criteria	.507	.862
11.	19. Personal growth is not encouraged in the organization.	.586	.857

Table-6 Reliability analysis of factor-2 of turnover intention scale

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
.855	.857	9

Table-7 Item-total correlations of work nature and opportunities related domain of turnover intention scale

S. N.	Statements includes in factor-2	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1.	1. Nature of work is uninteresting / boring.	.660	.832
2.	4. The organization has undefined work structure.	.533	.844
3.	7. There is role ambiguity in the organization.	.559	.843
4.	9. Organization does not provide sufficient opportunities for development of skills.	.637	.833
5.	14. High accountability creates feeling of insecurity.	.634	.834
6.	16. Different job opportunities will be more attractive than the present job.	.513	.846
7.	17. It is difficult to adjust in the present job.	.634	.834
8.	18. New openings in other organizations will be more attractive alternatives.	.492	.848
9.	20. The social and personal life is disrupted because of taxing work schedule / work hours.	.569	.842

The results in above presented tables shows that the overall scale is highly reliable with .90 Cronbach's Alpha based on standardized items, and both the factors as mismanagement related factor (.87) and work

nature and opportunities related factor (.86) were also found highly reliable. Concurrent validity of the scale was also established by measuring correlation (.80) with the four items of previous scales.

Implications

In the present attempt, the researcher has made an effort to validate a newly developed Turnover Intention Scale. Factor analysis (principal component analysis with varimax rotation) of the scale reveals the two components of the scale. Although the scale was standardized on customer care executives' level employees of BPO industry, it might be useful to assess the intention to leave of managerial staff and employees of other than BPO sector too. It is vital to assess and compare the intention to leave the organization of the employees to predict their job satisfaction and performance because the turnover intention does not only influence the job satisfaction of employees but also significantly affect the productivity of the organization and psychological well-being of employees.

Conclusion

The newly developed Turnover Intention Scale was found valid and reliable and can be used to assess the employees' intention to leave the organization. Furthermore, it may show the direct perception of employees towards the whole HR policy and organizational climate.

REFERENCES

- Ahuja, M., Chudoba, K., Kacmar, C., McKnight, D., & George, J. (2007). IT road warriors: Balancing work-family conflict, job autonomy, and work overload to mitigate turnover intentions. *MIS Quarterly*, *31*(1), 1-7.
- Ali, S. H. (2021). A study on the impact of leader behaviours on employee turnover intentions. *Arabian Journal of Business and Management Review (Kuwait Chapter)*, *10*(3), 99-114.
- Argyris, C. (1957). The individual and organization: Some problems of mutual adjustment. *Administrative Science Quarterly*, *2*, 1-24.
- Arthur, W., Bell, S., Villado, A., & Doverspike, D. (2006). The use of person-organizational fit in employment decision-making: An assessment of its criterion-related validity. *Journal of Applied Psychology*, *91*(4), 786-801.
- Baroudi, J. (1985). The impact of role variables on IS personnel work attitudes and intentions. *MIS Quarterly*, *9*(4), 341-356.
- Bluedorn, A.C. (1982). A unified model of turnover from organizations. *Human Relations*, *35*, 135-153.
- Bothma, C.F.C., & Roodt, G. (2013). The validation of the turnover intention scale: Original research. *SA Journal of Human Resource Management*, *11*(1), 1-12.
- Farrell, D., & Rusbult, C. (1981). Exchange variables as predictors of job satisfaction, job commitment, and turnover: The impact of reward, costs, alternatives, and investments. *Organizational Behavior and Human Performance*, *28*(1), 78- 96.
- Ferratt, T.W., Agarwal, R., Brown, C.V., & Moore, J.E. (2005). IT human resource management configurations and IT turnover: Theoretical synthesis and empirical analysis. *Information Systems Research*, *16*(3), 237-255.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Gupta, Y.P., & Gupta, M.C. (1990). A process model to study the impact of role variables on turnover intentions of information systems personnel. *Computers in Industry*, *15*(3), 211-238.

- Hackman, J., & Oldham, G. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance*, 16, 250-279.
- Hackman, J., & Oldham, G. (1980). *Work redesign*. Reading, Mass.: Addison-Wesley.
- Herzberg, F. (1968). One more time: how do you motivate employees? *Harvard Business Review*, 46(1), 53-62.
- Hoffman, B., & Woehr, D. (2006). A quantitative review of relationship between person-organization fit and behavioural outcomes. *Journal of Vocational Behaviour*, 68, 389 – 399.
- Hom, P.W., Caranikas-Walker, F., Prussia, G.E., & Griffeth, R.W. (1992). A meta-analytical structural equation analysis of a model of employee turnover. *Journal of Applied Psychology*, 77, 890-909.
- Igbaria, M., & Greenhaus, J. (1992). Determinants of MIS employees' turnover intention: A structural equation model. *Communication of the ACM*, 35(2), 34-49.
- Igbaria, M., Parasuraman, S., & Badawy, M.K. (1994). Work experiences, job involvement, and quality of work life among information systems personnel, *MIS Quarterly*, 18(2), 175-201.
- Joseph, D., Ng, K., Koh, C., & Ang, S. (2007). Turnover of IT professionals: A narrative review, meta-analytic structural equation modeling, and model development. *MIS Quarterly*, 31(3), 1-31.
- Labrague, L.J., McEnroe-Petitte, D. M., Tsaras, K., Cruz, J. P., Colet, P. C., & Gloe, D.S. (2018). Organizational commitment and turnover intention among rural nurses in the Philippines: Implications for nursing management. *International Journal of Nursing Sciences*, xxx 1-6.
- Lacity, M., Iyer, V., & Rudramuniyaiah, P. (2008). Turnover intentions of Indian IS professionals. *Information Systems Frontiers, Special Issue on Outsourcing of IT Services*, 10(2), 225-241.
- McClelland, D. (1961). *The achieving society*. Princeton: Van Nostrand.
- McMurtrey, M.E., Grover, V., Teng, J.T.C., & Lightner, N.J. (2002). Job satisfaction of information technology workers: The impact of career orientation and task automation in a CASE environment. *Journal of Management Information Systems*, 19(2), 273-302.
- Mobley, W.H. (1978). An evaluation of precursors of employee turnover. *Journal of Applied Psychology*, 63(4), 405-421.
- Mobley, W.H. (1982). *Employee turnover: Causes, consequences, and control*. Reading, MA: Addison-Wesley.
- Mobley, W.H., Griffeth, R.H., Hand, H.H. & Meglino, B.M. (1979). Review and conceptual analysis of the employee turnover process. *Psychological Bulletin*, 86, 493-522.
- Moore, J.E. (2000). One road to turnover: an examination of work exhaustion in technology professionals, *MIS Quarterly*, 24(1), 141-168.
- Niederman, F., & Sumner, M. (2004). Effects of tasks, salaries, and shocks on job satisfaction among IS professionals. *Information Resources Management Journal*, 17(4), 49-72.
- Pervin, L. (1989). Persons, situations, interactions: The history of a controversy and a discussion of theoretical models. *Academy of Management Review*, 14(3), 350 – 360.
- Porter, L.W., & Steers, R.M. (1973). Organizational, work, and personal factors in employee turnover and absenteeism. *Psychological Bulletin*, 80, 151-176.
- Rouse, P. (2001). Voluntary turnover related to information technology professionals: A review of rational and instinctual models. *International Journal of Organizational Analysis*, 9(3), 281-291.
- Ruby, A. (2002). Internal teacher turnover in urban middle school reform. *Journal of Education for Students Placed at Risk*, 7(4), 379-406.
- Sekiguchi, T. (2004). Person-organization fit and person-job fit in employee selection: A review of the literature. *Osaka Keidai Ronshu*, 54(6), 179-196.
- Sethi, V., Barrier, T., & King, R.C. (1999). An examination of the correlates of burnout in information systems professionals. *Information Resources Management Journal*, 12(3), 5-13.

- Spector, P. E., Dwyer, D.J., & Jex, S.M. (1988). The relationship of job stressors to affective, health, and performance outcomes: A comparison of multiple data sources. *Journal of Applied Psychology*, 73, 11–19.
- Sujdak, E. (2002). *An Investigation of the correlation of job satisfaction, organizational commitment, perceived job opportunity, organizational communications, job search behaviour, and the intent to turnover in IT professionals* (Unpublished Ph.D. Thesis). Wayne Huizenga School of Business and Entrepreneurship, Nova Southeastern University.
- Tett, R.P., & Meyer, J.P. (1993). Job satisfaction, organizational commitment, turnover intention, and turnover: Path analysis based on meta-analytic findings. *Personnel Psychology*, 46(2), 259-293.
- Wanous, J., Stumpf, S., & Bedrosian, H. (1979). Job survival of new employees. *Personnel Psychology*, 32(4), 651-662.
- Y. Wu, C. Xu and X. Wang, (2007). Multilevel model of factors influencing employee turnover intention: Professional and technical staff in china as an exemplar. *International Conference on Wireless Communications, Networking and Mobile Computing*, 21-25 Sept. 2007, pp. 4474-4477, doi: 10.1109/WICOM.2007.11103.

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Impact of proactive coping on psychological wellbeing of distressed Indian youth

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ABSTRACT

India being worlds' second youngest country, calls for attention towards mental health issues of youth. Psychological problems have increased in contemporary times in university students. Increased exam pressure, poor academic achievement and drug abuse etc may be causal factor behind it. To overcome these concerns, coping may be helpful. Proactive coping is relatively new as compared to other type of coping strategies. The objective of this correlational survey research was to investigate the impact of proactive coping on psychological wellbeing (PWB) of distressed Indian youth. 270 Indian youth (153 boys and 117 girls; age range 18-27 years) were screened as distressed using general health questionnaire (score > 3) from 1400 youths drawn from colleges using purposive sampling. Self-report measures were used to assess proactive coping and psychological wellbeing. Findings establish a strong association with and influence of proactive coping on PWB of distressed Indian youth. Avoidance coping was negatively associated with personal growth and self-acceptance. PWB is found to be strongly influenced by proactive coping, emotional support seeking, instrumental support seeking, avoidance coping and strategic planning. The findings have practical implications for early identification and intervention planning to deter the progressive decline in PWB of distressed Indian youth.

Keywords: avoidance coping, distressed Indian youth, emotional support seeking, proactive coping, psychological wellbeing

INTRODUCTION

According to National Youth Policy (2014) “youth” fall between the age group of 15-29 years. This stage is vulnerable to mental health issues (Patton et al., 2012; Reddy, 2019) and approximately 20% of youth are vulnerable to it. (Patel, Flisher, Hetrick & McGorry; 2007). Early-onset of anxiety and depression in late adolescence and young adulthood is quite frequent across nations (Patel et al., 2007; Needham, 2009). From the world perspective, between the period of 2008 and 2017, most significant increase in mental health issues has been seen among younger adults aged 18-25 (71%). Rates of severe psychological distress have increased by 78% among adults aged 20-21 (Chadda, 2018; Latzman et al., 2019).

India is one of the youngest countries in the world. Currently, mental health problems here range from 12 to 20% (Malhotra & Patra, 2014; Reddy, 2019) and its prevalence is increasing each day. Approximately 13.7 percent of the Indian population suffers from a range of mental illnesses and 10.6 percent require immediate intervention (Murthy, 2017).. Since 1990 mental disorders have just doubled in 2017 that was in proportionate to the total disease burden of India (Sagar et al. 2020). Psychological problems (like depression, anxiety, stress etc.) have increased in contemporary times in university students (Deb et al., 2016; Bukhari & Afzal, 2017, Chattopadhyay, 2020). Stress and mental health issues of young age could be associated with major psychosocial concerns like sexuality, family conflicts, violence, suicidal

thoughts, self-harm, harassment or bullying and substance abuse (Patel et al., 2007; Rumberger & Lim, 2008; Patton et al., 2012; Sawhney, Kunen & Gupta, 2020).

Psychological wellbeing (PWB) are feelings that vary from positive (satisfaction, autonomy etc.) to negative (dissatisfaction, anxiety etc.) in daily life (Bradburn, 1969). Literature is replete with finding on PWB with gender (Vinayak & Judge, 2018), social support (Emadpoor, Lavasani & Shahcheraghi, 2016), achievement motivation (Srivastava et al., 2007), socioeconomic status (Ge, 2020), self-esteem (Parray & Kumar, 2017), assertiveness (Parray & Kumar, 2017) aging (Sharma & Subramanyam, 2020), personality trait (Ullah, 2017), weight related status (Islam, Akter Sikder & Griffiths, 2020), self-efficacy (Siddiqui, 2015) coping (Kumar & Kadhiraan, 2014) and academic barrier (Gloria, Castellanos & Orozco, 2005). PWB of university students is decreasing each day (Deb et al., 2016; Chattopadhyay, 2020). Complex coexistence of social, physical and mental problems obstructs the healthy growth and development of young individuals and putting them in greater need of coping strategies/social support. Thus, here the demand for youth health services increases abruptly.

Coping strategies are vital contributory factors to one's health (Kraag, Zeegers, Kok, Hosman & Abu-Saad, 2006), showing strong implications for subjective (Poch, Carrasco, Moreno, Cerrato & Aznar, 2015) as well as psychological wellbeing (Bryden et al., 2015). Kumar and Talwar (2014) found in his study that poor mental health and stress were related to maladaptive coping strategies.

To the best of the authors knowledge, there are many coping strategies to improve psychological wellbeing and mental health of the individual, such as problem-focused and emotion-focused coping (Lazarus & Folkman 1984), *active* and *passive* coping styles (Jex, Bliese, Buzzell, & Primeau, 2001), *approach* and *avoidance-style* measures of coping exist involving assertiveness or withdrawal (Anshel & Weinberg, 1999) and accommodative or secondary-control coping (Morling & Evered 2006).

Proactive coping, a relatively new concept, is future orientated. Social support and comparable proactive coping directly contributed to an increase in wellbeing while wellbeing being directly related to depression (Mohammad & Zahra, 2012). Proactive coping is positively associated with some of the positive psychological traits like self-efficacy (Kumar & Kadhiraan, 2014), feeling of fair treatment (Greenglass, 2000), satisfaction with life (Dwivedi & Rastogi 2017), positive affects (Miao, Zheng, & Gan, 2017) and social support (Rogalla, 2020). While it has also shown a negative association with functional disability (Greenglass et al. 2006), self-blaming, denial, behavioral non-engagement (Greenglass et al. 1999), the state of physical health (Greenglass et al. 2006), anger, emotional exhaustion, cynicism dimensions of burnout (Manić et al., 2017), depression (Manić et al., 2017; Mohammad & Zahra, 2012) and absenteeism (Sundberg, 2005). Kumar and Kadhiraan (2014) found that college students avoid many of the stress-related problems and dysfunctional coping and become more proactive through coping skill training programs at the college level.

Rationale

Research shows increased levels of psychological distress among college students (Bewick, Koutsopoulou, Miles, Slaa & Barkham, 2010; Chadda, 2018) that have increased tremendously over the past decade. Increased exam pressure, poor academic achievement and drug abuse etc., may be causal factor behind it

(Ham & Hope, 2003; Rumberger & Lim, 2008; Sawhney, Kunen & Gupta, 2020). To overcome these kinds of circumstances, coping may be found as very helpful. Literature is replete with research on coping and psychological wellbeing among healthy youth. However, the same is less accurate for stressful/distressed youth. Distressed youth also study in the same universities/institutions and avail same facilities provided by their esteem institution but are distressed. Their distress is generally neglected and treated as any healthy youth but their experiences in life may differ significantly than their healthy counterparts. Thus, mental health issues among distressed youth warrant more attention and research. Moreover, proactive coping, a relatively newer concept, also needs to be explored in this population for its comprehensive understanding in the coping literature. Hence, this study aimed to examine the impact of proactive coping on the psychological wellbeing (PWB) of distressed Indian youth.

Objective: To examine the influence of proactive coping on psychological wellbeing (PWB) among distressed Indian youth

METHODOLOGY

Hypothesis-1: Proactive coping would significantly associate with the PWB of distressed youth.

Hypothesis-2: Dimensions of proactive coping would significantly predict the PWB and its dimensions.

Research Design: Correlational survey research design. It is non-experimental research design.

Sample:

270 Indian youth (153 boys and 117 girls; age range 18-27 years) were screened as “distressed” using a general health questionnaire (score > 3) from 1400 youths drawn from colleges through purposive sampling. The final sample (N=270) comprised of 270 UG/PG students who scored > 3 in GHQ-12. The targeted sample was from renowned institutions/universities (like Banaras Hindu University, Central University of South Bihar, Delhi University, Patna University, Odisha University of Agriculture and Technology, University of Hyderabad, University of Rajasthan, University of Kerala etc.) from India. Participants having any history of organic mental disorder, head injury and other neurological disorders were excluded from the study.

Table 1: Demographic data of distressed Indian youth

Sr. No	Demographic Variable	Category	Frequency	Percentage (%)
1.	Gender	Male	153	56.67
		Female	117	43.33
2.	Residential area	Urban	164	60.74
		Rural	106	39.26
3.	Family type	Joint	108	40.00
		Nuclear	162	60.00
4.	University/Institution	Central	175	64.81
		State	95	35.19
5.	Educational Qualification	Graduation	113	41.85
		Post-graduation	147	54.45

Measures:

1. Socio-demographic and Clinical datasheet:

A semi-structured format to obtain information about the socio-demographic variables like age, gender, residential area, education etc., was developed for the current study. It also included information about any past clinical history.

2. General Health Questionnaire-12 (GHQ-12) (Goldberg, 1988):

GHQ-12 was used as a screening tool to screen out the distressed youth experiencing psychological distress within the past few weeks. It focuses on breaks in normal functioning rather than on life-long traits; therefore, it only covers disorders or patterns of adjustment associated with distress. The cut-off point 3 was used to determine the respondents' level of distress. The internal consistency of GHQ-12 ranges from .72 to .92.

3. Ryff's Psychological Wellbeing Scales (Ryff & Keyes 1995):

This 42-item scale has six dimensions: Autonomy, personal growth, environmental mastery, purpose in life, positive relations with others and Self-acceptance. The range of test-retest reliability coefficients ranged between 0.81 and 0.85. The internal consistency coefficients ranged between 0.86 and 0.93.

4. Proactive Coping Inventory (PCI) (Greenglass, Schwarzer, Jakubiec, Fiksenbaum & Taubert, 1999):

PCI is a 55-item scale with 7 sub-scales of proactive coping, emotional support seeking, reflective coping, instrumental support seeking, strategic planning, avoidance coping and preventive coping. Internal consistency of the subscales ranges from .71 to .85.

Procedure:

Youth from different Universities of India were selected through purposive sampling. Rapport was established with participants before collecting data. The objective, risk and benefits involved were properly explained. Informed consent in written was taken from all the participants. The questionnaires were administered in groups of 3 to 4 participants. The participant who scored more than 3 (> 3) on GHQ-12 was screened out as distressed youth. Data collection on each participant took 30 to 45 minutes. Ethical guidelines prescribed by the American Psychological Association (APA, 2016) were followed.

RESULTS AND DISCUSSION

To explore the association between proactive coping and PWB correlation analysis was done. Causal relationship between the two variables was examined by stepwise linear regression. All statistical analysis was done using the Statistical package in Social Sciences (SPSS) Version-20.

Result table-1 shows statistically strong positive association between overall psychological wellbeing and proactive coping strategies except avoidance coping. Proactive coping, emotional support seeking, reflective coping and strategic planning significantly associated with all six dimensions of psychological wellbeing. Proactive coping associated significantly with psychological wellbeing (0.486, $p < 0.01$) along with its following dimensions, autonomy (0.362, $p < 0.01$), environmental mastery (0.201, $p <$

0.01), personal growth (0.313, $p < 0.01$), positive relation (0.332, $p < 0.01$) purpose in life (0.404, $p < 0.01$) and self-acceptance (0.305, $p < 0.01$).

Result table- 1: Correlation between the various dimensions of psychological wellbeing and proactive coping strategies among distressed youth.

Strategies of proactive coping	Dimension of psychological wellbeing						Psychological wellbeing (Total)
	Autonomy	Environmental mastery	Personal growth	Positive relation	Purpose in life	Self-acceptance	
Proactive Coping	0.362**	0.201**	0.313**	0.332**	0.404**	0.305**	0.486**
Reflective Coping	0.331**	0.144*	0.235**	0.381**	0.387**	0.183**	0.423**
Strategic planning	0.323**	0.251**	0.217**	0.333**	0.376**	0.178**	0.425**
Preventive coping	0.347**	0.113	0.163**	0.334**	0.391**	0.157**	0.380**
Instrumental coping	0.181**	0.146*	0.013	0.274**	0.281**	0.002	0.211**
Emotional support-seeking	0.241**	0.132*	0.187**	0.419**	0.204**	0.136*	0.339**
Avoidance coping	-0.003	-0.036	-0.157**	0.001	-0.105	-0.137*	-0.112

** $p < 0.01$; * $p < 0.05$

Reflective coping was significantly positively associated with overall psychological wellbeing (0.423, $p < 0.01$) along with the following dimensions of psychological wellbeing: - autonomy (0.331, $p < 0.01$), environmental mastery (0.144, $p < 0.05$), personal growth (0.235, $p < 0.01$), positive relation (0.381, $p < 0.01$) purpose in life (0.387, $p < 0.01$) and self-acceptance (0.183, $p < 0.01$).

Strategic planning was significantly positively associated with overall psychological wellbeing (0.425, $p < 0.01$) along with the following dimensions of psychological wellbeing: - autonomy (0.323, $p < 0.01$), environmental mastery (0.251, $p < 0.01$), personal growth (0.217, $p < 0.01$), positive relation (0.333, $p < 0.01$) purpose in life (0.376, $p < 0.01$) and self-acceptance (0.178, $p < 0.01$).

Preventive coping was significantly positively associated with overall psychological wellbeing (0.380, $p < 0.01$) along with the following dimensions of psychological wellbeing: - autonomy (0.347, $p < 0.01$), personal growth (0.163, $p < 0.01$), positive relation (0.334, $p < 0.01$) purpose in life (0.391, $p < 0.01$) and self-acceptance (0.157, $p < 0.01$) except environmental mastery.

Instrumental support seeking was significantly positively associated with overall psychological wellbeing (0.211, $p < 0.01$) along with the following dimensions of psychological wellbeing: - autonomy (0.181, $p < 0.01$), environmental mastery (0.146, $p < 0.05$), positive relation (0.274, $p < 0.01$) and purpose in life (0.268, $p < 0.01$) except personal growth and self-acceptance.

Emotional support seeking was significantly positively associated with overall psychological wellbeing (0.339, $p < 0.01$) along with the following dimensions of psychological wellbeing: - autonomy

(0.241, $p < 0.01$), environmental mastery (0.132, $p < 0.05$), personal growth (0.187, $p < 0.01$), positive relation (0.419, $p < 0.01$) purpose in life (0.204, $p < 0.01$) and self-acceptance (0.136, $p < 0.05$).

Avoidance coping was significantly negatively associated with personal growth (-0.157, $p < 0.01$) and self-acceptance (-0.137, $p < 0.05$). Hence, it can be concluded that hypothesis-1 is accepted.

Result table -2: Stepwise linear regression analysis using proactive coping strategies as predictor variables (IV) and dimensions of psychological wellbeing as criterion variable (DV) among distressed youth-

Predictors	R	R Square	R Square change	Beta	F Change	Sig. of F change
Criterion Variable: Autonomy						
Proactive coping	0.362	0.131	0.131	0.362	40.363	0.001
Preventive coping	0.418	0.175	0.044	0.233	14.181	0.001
Criterion Variable: Environmental Mastery						
Strategic planning	0.251	0.063	0.063	0.251	18.022	0.001
Criterion Variable: Personal Growth						
Proactive coping	0.313	0.098	0.098	0.313	29.147	0.001
Avoidance coping	0.350	0.122	0.024	-0.155	7.333	0.007
Emotional support-seeking	0.380	0.144	0.022	0.165	6.858	0.009
Criterion Variable: Positive relation						
Emotional support-seeking	0.419	0.175	0.175	0.419	56.996	0.001
Proactive coping	0.468	0.219	0.044	0.221	15.041	0.001
Criterion Variable: Purpose in life						
Proactive coping	0.404	0.163	0.163	0.404	52.233	0.001
Preventive coping	0.469	0.220	0.056	0.264	19.299	0.001
Criterion Variable: Self-acceptance						
Proactive coping	0.305	0.093	0.093	0.305	27.500	0.001
Avoidance coping	0.334	0.111	0.018	-0.135	5.503	0.020
Criterion Variable: Psychological Wellbeing						
Proactive coping	0.486	0.236	0.236	0.486	82.662	0.001
Strategic planning	0.531	0.282	0.046	0.246	17.043	0.001
Emotional support-seeking	0.548	0.300	0.018	0.150	6.954	0.009
Instrumental support-seeking	0.558	0.311	0.012	-0.140	4.459	0.036

Result table-2 shows that all strategies of proactive coping except reflective coping significantly predicted various dimensions of PWB. Proactive coping emerged as the best predictor of autonomy and could explain 13.1% of its total variance. Preventive coping (4.4% of total variance) too predicted autonomy. Strategic planning solely predicted environmental mastery explaining 6.3% of its total variance.

Proactive coping emerged out as the best predictor of personal growth (9.8% of total variance) that was also predicted by avoidance coping (2.4% of total variance) and emotional support seeking (2.2% of total variance). Positive relation was best predicted by emotional support seeking (17.5% of total variance) and, proactive coping (4.4% of total variance).

Purpose in life was significantly predicted by proactive coping (16.3% of total variance) and preventive coping (5.6% of total variance).

Self-acceptance is predicted well by proactive coping (9.3% of total variance) and avoidance coping (1.8% of total variance).

Proactive coping (23.6% of total variance), strategic planning (4.6% of total variance), emotional support seeking (1.8% of total variance) and instrumental support seeking (1.2% of total variance) were found to be significant predictors of overall PWB. Proactive coping emerged as a significant and best predictor of overall PWB explaining 23.6% of its total variance.

India is a young country in the 21st century. As India enters the glorious age of the computer, it is opened up to new avenues for growth and advancements multitude in every section of life. With unbound opportunities come the challenges for quality life and psychological wellbeing. Currently, mental health problem in India ranges from 12 to 20% in the total population (Malhotra & Patra, 2014; Reddy, 2019). The main objective of this study was to examine the role of proactive coping on the psychological wellbeing of distressed Indian youth. Findings state that proactive coping and psychological wellbeing are significantly related and important concepts to be understood in this population.

The correlational analysis clearly shows that proactive coping, emotional support seeking, strategic planning and reflective coping are significantly positively associated with overall psychological wellbeing along with its six dimensions (i.e., autonomy, positive relation, self-acceptance, environmental mastery, personal growth and purpose in life). Preventive coping is significantly positively associated with overall psychological wellbeing and its five dimensions except for environmental mastery. It means that if distressed youth adopt proactive coping strategies, they may foresee potential stressor in advance and thus effectively prevent consequent psychological burden. This in long term may enhance their psychological wellbeing. In accordance with the present finding, Gan, Yang, Zhou & Zhang (2007) have also shown proactive and preventive coping to help overcome stress among university students.

Further, instrumental support seeking is positively associated with overall psychological wellbeing along with its all dimensions except for personal growth and self-acceptance. Means, if a person perceive that he/she has enough person to help in stressful situation through money, transportation etc., then he/she may have positive, satisfying and trusting relationship with other. He/she has mastery over their environmental setting where he/she is living and has sense of directedness and purpose in life. Earlier, it is also found that proactive play important moderating role in between perceived stress and psychological wellbeing (Kumar, Mandal & Bharti, 2020). Instrumental support seeking among elderlies has been seen to enhance physical and psychological wellbeing (Eggebeen, 1992; Silverstein & Bengtson, 1994).

Avoidance coping was negatively associated with personal growth and self-acceptance. Some earlier studies (Seguin & Roberts, 2017; Tsaras et al., 2018) have shown that avoidance coping leads to poor mental health. It means if a person is using avoidance coping then he/she is minimizing or denying the actual stressful situation. Mohammad and Zahra (2012) have shown proactive coping skills to be negatively related to depression, except avoidance coping. Proactive coping is known to be the most important predictive factor in depression. Proactive coping is future-oriented perspective that can help individuals to increase planning ability and to set practical goals (Ouweland, de Ridder & Bensing, 2008), keeping depressive thoughts aside.

Few other researchers have reported consistently that coping strategies are the vital determinant factor for good health (Kraag, Zeegers, Kok, Hosman, & Abu-Saad, 2006), with relevant implications for psychological (Loukzadeh & Bafrooi, 2013; Bryden, Field, & Francis, 2015) and subjective wellbeing (Chen, 2016). Aspinwall and Taylor (1997) also state that proactive coping helps one prepare for potential future stressors, possibly avoiding them altogether.

Proactive coping and preventive coping emerged as significant predictors of autonomy. Hence, it can be said that if distressed Indian youth would practice proactive coping and preventive coping then they may further experience higher autonomy in nearby future and resist to social pressures to act and think in destructive ways. Such distressed youth may be satisfied with life and may have functional independence too if they adopt proactive coping (Gan, Yang, Zhou & Zhang, 2007).

Strategic planning emerged as the single best predictor of environmental mastery. Hence, it can be said that by adopting strategic planning, the distressed Indian youth may enhance the sense of mastery and competency to accommodate/adjust to environmental changes and be able to choose the context best suited to him. Earlier, Kumar and Bharti (2018) found that strategic planning pay a vital role in enhancing psychological wellbeing of Indian youth.

Proactive coping, avoidance coping and emotional support seeking were found to be significant predictor of personal growth. Mean, through practicing proactive coping, and emotional support seeking, one can be open to new experiences that may change the way to reflect more self-knowledge and effectiveness and may develop or realize their potential. Whereas, avoidance coping may decrease personal growth. Through adopting proactive coping, one can also enhance QoL (Rai, Rohatgi & Dhaliwal, 2019) and job satisfaction (Ghiyasvandian & Gebra, 2014), positive affect and wellbeing (Greenglass & Fiksenbaum, 2009).

Emotional support seeking and proactive coping emerged as significant predictors of positive relation. These findings suggest that by adopting emotional support seeking and proactive coping strategies, distressed youth can enhance warm, trusting, satisfying relationships with others and they may be able to understand human relationships. In accordance with the present finding, Kumar and Bharti (2018) also found that emotional support seeking can predict positive relation.

Proactive coping and preventive coping were found to be significant predictors of purpose in life. Thus, through practicing proactive coping and preventive coping, stressed up youth can enhance the sense of directedness, purpose and meaning in life. A clear purpose in life may have a good memory, executive functioning and cognition (Lewis, Turiano, Payne & Hill, 2016). Purpose in life may lead to better tomorrow in terms of physical and mental health (Burrow, Hill, Ratner & Sumner, 2018). In accordance with present findings, Dwivedi and Rastogi, (2017) found that proactive coping strategies are helpful in enhancing life satisfaction and meaning in life.

Proactive coping and avoidance coping were found to be significant predictors of self-acceptance. Hence, through practicing proactive coping youths may enhance/accept multiple aspects of self and may possess a positive attitude towards self. Less use of avoidance coping may help in enhancing psychological wellbeing in terms of self-acceptance Earlier, Plexico, Erath, Shores & Burrus (2019) also found the

negative association and predicting capacity of avoidance coping to self-acceptance. Unconditional self-acceptance may help in reducing the emotional problems of these distressed youth that have been hindering their personal and educational growth (Kwok, Gu, Sychaisuksawat & Wong, 2020).

This study found that various dimensions of psychological wellbeing were significantly associated and predicted by various proactive coping strategies of distressed Indian youth. An earlier study done by Greenglass and Fiksenbaum (2009) also found that proactive coping was helpful in promoting health and wellbeing. Kumar and Kadiravan (2014) also showed that through coping skill training program, college students become more proactive, which in turn help them avoid a variety of stress-related problems and dysfunctional coping at the college level.

Conclusion

Proactive coping, a new and significant future-oriented concept, has strong influence on the PWB of distressed Indian youth. Distressed youths from India could also enjoy better PWB by practicing proactive coping strategies in their daily life. With proactive coping strategies, they may enhance their PWB in terms of autonomy, personal growth, healthy positive relation with other, clear purpose in life and self-acceptance. While most of the existing literature on coping and PWB is based on general population the present findings expand this horizon to include proactive coping and PWB among the much ignored distressed India youth. By unravelling the dynamic causal relationship between proactive coping and PWB the findings calls for government policies and intervention programs to focus and improve the PWB of distress Indian youth..

Conflict of interests

The authors declare that no competing interests exist.

Author's contributions

Both the authors contributed equally to the theoretical development, analysis, interpretation and writing of the manuscript.

REFERENCES

- American Psychological Association. (2016). Revision of Ethical Standard 3.04 of the " Ethical Principles of Psychologists and Code of Conduct"(2002, as amended 2010). *The American Psychologist*, 71(9), 900. <https://doi.org/10.1037/amp0000102>
- M. H., & Weinberg, R. S. (1999). Re-examining coping among basketball referees following stressful events: Implications for coping interventions. *Journal of Sport Behavior*, 22(2), 141-161.
- Aspinwall, L. G., & Taylor, S. E. (1997). A stitch in time: Self-regulation and proactive coping. *Psychological bulletin*, 121(3), 417-436. <https://doi.org/10.1037/0033-2909.121.3.417>
- Bewick, B., Koutsopoulou, G., Miles, J., Slaa, E., & Barkham, M. (2010). Changes in undergraduate students' psychological well-being as they progress through university. *Studies in Higher Education*, 35(6), 633-645. <https://doi.org/10.1080/03075070903216643>
- Bode, C., de Ridder, D. T., & Bensing, J. M. (2006). Preparing for aging: Development, feasibility and preliminary results of an educational program for midlife and older based on proactive coping theory. *Patient education and counseling*, 61(2), 272-278. <https://doi.org/10.1016/j.pec.2005.04.006>
- Bradburn, N. M. (1969). The structure of psychological well-being.

- Bryden, C. I., Field, A. M., & Francis, A. J. (2015). Coping as a mediator between negative life events and eudaimonic well-being in female adolescents. *Journal of Child and Family Studies, 24*(12), 3723-3733. <https://doi.org/10.1007/s10826-015-0180-0>
- Bukhari, S. R., & Afzal, F. (2017). Perceived social support predicts psychological problems among university students. *The International Journal of Indian Psychology, 4*(2), 18-27.
- Burrow, A. L., Hill, P. L., Ratner, K., & Sumner, R. (2018). A better tomorrow: Toward a stronger science of youth purpose. *Research in Human Development, 15*(2), 167-180. <https://doi.org/10.1080/15427609.2018.1445926>
- Chadda, R. K. (2018). Youth & mental health: Challenges ahead. *The Indian journal of medical research, 148*(4), 359-261. https://doi.org/10.4103/ijmr.ijmr_1585_18
- Chattopadhyay, S. (2020). Enhancing mental health among depression “at risk” adolescents: effectiveness of early intervention plan. *Humanities and Social Science Studies, 9*(2), 76-84.
- Chen, C. (2016). The role of resilience and coping styles in subjective well-being among Chinese university students. *The Asia-Pacific Education Researcher, 25*(3), 377-387. <https://doi.org/10.1007/s40299-016-0274-5>
- Deb, S., Banu, P. R., Thomas, S., Vardhan, R. V., Rao, P. T., & Khawaja, N. (2016). Depression among Indian university students and its association with perceived university academic environment, living arrangements and personal issues. *Asian journal of psychiatry, 23*, 108-117.
- Dwivedi, A., & Rastogi, R. (2017). Proactive coping, time perspective and life satisfaction: A study on emerging adulthood. *Journal of Health Management, 19*(2), 264-274. <https://doi.org/10.1177/0972063417699689>
- Eggebeen, D. J. (1992). Family structure and intergenerational exchanges. *Research on aging, 14*(4), 427-447. <https://doi.org/10.1177/0164027592144001>
- Emadpoor, L., Lavasani, M. G., & Shahcheraghi, S. M. (2016). Relationship between perceived social support and psychological well-being among students based on mediating role of academic motivation. *International Journal of Mental Health and Addiction, 14*(3), 284-290.
- Gan, Y., Yang, M., Zhou, Y., & Zhang, Y. (2007). The two-factor structure of future-oriented coping and its mediating role in student engagement. *Personality and Individual Differences, 43*(4), 851-863. <https://doi.org/10.1016/j.paid.2007.02.009>
- Ge, T. (2020). Effect of socioeconomic status on children’s psychological well-being in China: The mediating role of family social capital. *Journal of health psychology, 25*(8), 1118-1127.
- Ghiyasvandian, S., & Gebra, A. A. (2014). Coping work strategies and job satisfaction among Iranian nurses. *Iranian Red Crescent Medical Journal, 16*(6), e17779. <https://doi.org/10.5812/ircmj.17779>
- Gloria, A. M., Castellanos, J., & Orozco, V. (2005). Perceived educational barriers, cultural fit, coping responses, and psychological well-being of Latina undergraduates. *Hispanic Journal of Behavioral Sciences, 27*(2), 161-183.
- Goldberg, D. (1988). User’s Guide to the General Health Questionnaire/David Goldberg, Paul Williams. Windsor, Berkshire: NFER-Nelson. 連結. <https://doi.org/10.1037/t00297-000>
- Government of India. (2014). National Youth Policy 2014. Available at: https://www.youthpolicy.org/national/India_2014_National_Youth_Policy.pdf (accessed March 07, 2021)
- Greenglass, E. R., & Fiksenbaum, L. (2009). Proactive coping, positive affect, and well-being: Testing for mediation using path analysis. *European psychologist, 14*(1), 29-39. <https://doi.org/10.1027/1016-9040.14.1.29>
- Greenglass, E., Fiksenbaum, L., & Eaton, J. (2006). The relationship between coping, social support, functional disability and depression in the elderly. *Anxiety, Stress, and Coping, 19*(1), 15-31. <https://doi.org/10.1080/14659890500436430>

- Greenglass, E., Schwarzer, R., Jakubiec, D., Fiksenbaum, L., & Taubert, S. (1999). The proactive coping inventory (PCI): A multidimensional research instrument. In *20th International Conference of the Stress and Anxiety Research Society (STAR), Cracow, Poland* (Vol. 12, p. 14).
- Islam, M. S., Akter, R., Sikder, M. T., & Griffiths, M. D. (2020). Weight-related status and associated predictors with psychological well-being among first-year university students in Bangladesh: a pilot study. *International Journal of Mental Health and Addiction*, 1-16.
- Jex, S. M., Bliese, P. D., Buzzell, S., & Primeau, J. (2001). The impact of self-efficacy on stressor-strain relations: Coping style as an explanatory mechanism. *Journal of applied psychology*, 86(3), 401-409. <https://doi.org/10.1037/0021-9010.86.3.401>
- Kraag, G., Zeegers, M. P., Kok, G., Hosman, C., & Abu-Saad, H. H. (2006). School programs targeting stress management in children and adolescents: A meta-analysis. *Journal of school psychology*, 44(6), 449-472. <https://doi.org/10.1016/j.jsp.2006.07.001>
- Kumar, K., & Kadiravan, S. (2014). Developing and validating stress and performance measure: A new approach. *International Journal of Education and Management Studies*, 4(2), 117.
- Kumar, S. K., & Bharti, D. A. (2018). Role of Proactive Coping in Psychological wellbeing of Healthy Indian Youth. *Journal of Indian Health Psychology*, 12(2), 77-90.
- Kumar, S. K., Mandal, S. P., & Bharti, D. A. (2020). Perceived Stress and Psychological Wellbeing: The Moderating Role of Proactive Coping. *Journal of the Indian Academy of Applied Psychology*, 46(2), 200-209.
- Kumar, V., & Talwar, R. (2014). Determinants of psychological stress and suicidal behavior in Indian adolescents: a literature review. *Journal of Indian Association for Child & Adolescent Mental Health*, 10(1), 47-68.
- Kwok, S. Y., Gu, M., Sychaisuksawat, P., & Wong, W. W. (2020). The relationship between parent-child triangulation and early adolescent depression in Hong Kong: The mediating roles of self-acceptance, positive relations and personal growth. *Children and youth services review*, 109, 104676. <https://doi.org/10.1016/j.chilyouth.2019.104676>
- Latzman, N. E., Ringeisen, H., Forman-Hoffman, V. L., Munoz, B., Miller, S., & Hedden, S. L. (2019). Trends in mental health service use by age among adults with serious mental illness. *Annals of epidemiology*, 30, 71-73. <https://doi.org/10.1016/j.annepidem.2018.11.011>
- Lazarus, R. S., & Folkman, S. (1984). Coping and adaptation. *The handbook of behavioral medicine*, 282-325.
- Lewis, N. A., Turiano, N. A., Payne, B. R., & Hill, P. L. (2017). Purpose in life and cognitive functioning in adulthood. *Aging, Neuropsychology, and Cognition*, 24(6), 662-671. <https://doi.org/10.1080/13825585.2016.1251549>
- Malhotra, S., & Patra, B. N. (2014). Prevalence of child and adolescent psychiatric disorders in India: a systematic review and meta-analysis. *Child and adolescent psychiatry and mental health*, 8(1), 1-9. <https://doi.org/10.1186/1753-2000-8-22>
- Manić, S., Janjic, V., Dejanovic, S. D., Aleksic, A., Aleksic, Z., Jaredic, B., & Krkic, M. (2017). Burnout, depression and proactive coping in underground coal miners in Serbia-pilot Project. *Serbian Journal of Experimental and Clinical Research*, 18(1), 45-52. <https://doi.org/10.1515/sjecr-2016-0061>
- Miao, M., Zheng, L., & Gan, Y. (2017). Meaning in life promotes proactive coping via positive affect: A daily diary study. *Journal of Happiness Studies*, 18(6), 1683-1696. <https://doi.org/10.1007/s10902-016-9791-4>
- Mohammad, S. & Zahra, F. (2012). Proactive coping skills and depression of women teacher students. *Asian Journal of Development Matters*, 5, 82-88.
- Morling, B., & Evered, S. (2006). Secondary control reviewed and defined. *Psychological bulletin*, 132(2), 269-296. <https://doi.org/10.1037/0033-2909.132.2.269>

- Murthy, R. S. (2017). National mental health survey of India 2015–2016. *Indian journal of psychiatry*, 59(1), 21-26. https://doi.org/10.4103/psychiatry.indianjpsychiatry_102_17
- Needham, B. L. (2009). Adolescent depressive symptomatology and young adult educational attainment: An examination of gender differences. *Journal of Adolescent Health*, 45(2), 179-186. <https://doi.org/10.1016/j.jadohealth.2008.12.015>
- Ouwehand, C., de Ridder, D. T. D., & Bensing, J. M. (2008). Individual differences in the use of proactive coping strategies by middle-aged and older adults. *Personality & Individual Differences*, 45, 28-33. <https://doi.org/10.1016/j.paid.2008.02.013>
- Parray, W. M., & Kumar, S. (2017). Impact of assertiveness training on the level of assertiveness, self-esteem, stress, psychological well-being and academic achievement of adolescents. *Indian Journal of Health and Wellbeing*, 8(12), 1476-1480.
- Patel, V., Flisher, A. J., Hetrick, S., & McGorry, P. (2007). Mental health of young people: a global public-health challenge. *The Lancet*, 369(9569), 1302-1313. [https://doi.org/10.1016/s0140-6736\(07\)60368-7](https://doi.org/10.1016/s0140-6736(07)60368-7)
- Patton, G. C., Coffey, C., Cappa, C., Currie, D., Riley, L., Gore, F. & Mokdad, A. (2012). Health of the world's adolescents: a synthesis of internationally comparable data. *The Lancet*, 379(9826), 1665-1675. [https://doi.org/10.1016/s0140-6736\(12\)60203-7](https://doi.org/10.1016/s0140-6736(12)60203-7)
- Plexico, L. W., Erath, S., Shores, H., & Burrus, E. (2019). Self-acceptance, resilience, coping and satisfaction of life in people who stutter. *Journal of fluency disorders*, 59, 52-63.
- Poch, F. V., Carrasco, M. G., Moreno, Y. G., Cerrato, S. M., & Aznar, F. C. (2015). Los estilos y estrategias de afrontamiento y su relación con el bienestar personal en una muestra de adolescentes. *Anales de psicología*, 31(1), 226-233. <https://doi.org/10.6018/analesps.31.1.163681>
- Rai, P., Rohatgi, J., & Dhaliwal, U. (2019). Coping strategy in persons with low vision or blindness—an exploratory study. *Indian journal of ophthalmology*, 67(5), 669-675. https://doi.org/10.4103/ijo.ijo_1655_18
- Reddy, V. E. N. K. A. T. A. S. H. I. V. A. (2019). Mental health issues and challenges in India: A review. *International Journal of Social Sciences Management and Entrepreneurship (IJSSME)*, 3(2), 72-77.
- Rogalla, K. B. (2020). Anticipatory grief, proactive coping, social support, and growth: exploring positive experiences of preparing for loss. *OMEGA-Journal of Death and Dying*, 81(1), 107-129. <https://doi.org/10.1177/0030222818761461>
- Rumberger, R. W., & Lim, S. A. (2008). Why students drop out of school: A review of 25 years of research.
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology*, 69(4), 719-729. <https://doi.org/10.1037/0022-3514.69.4.719>
- Sagar, R., Dandona, R., Gururaj, G., Dhaliwal, R. S., Singh, A., Ferrari, A., ... & Dandona, L. (2020). The burden of mental disorders across the states of India: the Global Burden of Disease Study 1990–2017. *The Lancet Psychiatry*, 7(2), 148-161. [https://doi.org/10.1016/S2215-0366\(19\)30475-4](https://doi.org/10.1016/S2215-0366(19)30475-4)
- Sawhney, M., Kunen, S., & Gupta, A. (2020). Depressive symptoms and coping strategies among Indian university students. *Psychological reports*, 123(2), 266-280.
- Seguin, M., & Roberts, B. (2017). Coping strategies among conflict-affected adults in low-and middle-income countries: A systematic literature review. *Global Public Health*, 12(7), 811-829. <https://doi.org/10.1080/17441692.2015.1107117>
- Sharma, A. J., & Subramanyam, M. A. (2020). Psychological wellbeing of middle-aged and older queer men in India: A mixed-methods approach. *PloS one*, 15(3), e0229893.

- Siddiqui, S. (2015). Impact of self-efficacy on psychological well-being among undergraduate students. *The International Journal of Indian Psychology, 2*(3), 5-16.
- Silverstein, M., & Bengtson, V. L. (1997). Intergenerational solidarity and the structure of adult child-parent relationships in American families. *American journal of Sociology, 103*(2), 429-60. <https://doi.org/10.1086/231213>
- Srivastava, K., Raju, M. S. V. K., Saldanha, D., Chaudhury, S., Basannar, D., Pawar, A. A., ... & Kundeyawala, S. M. (2007). Psychological well-being of medical students. *Medical Journal Armed Forces India, 63*(2), 137-140.
- Sundberg, L., & Sandberg, C. (2005). The relationship between proactive coping skills and job satisfaction, absenteeism, tardiness, and performance. In *Midwest Academy of Management Conference Proceedings, Carl Sandburg College*.
- Tsaras, K., Daglas, A., Mitsi, D., Papathanasiou, I. V., Tzavella, F., Zyga, S., & Fradelos, E. C. (2018). A cross-sectional study for the impact of coping strategies on mental health disorders among psychiatric nurses. *Health psychology research, 6*(1). <https://doi.org/10.4081/hpr.2018.7466>
- Ullah, F. (2017). Personality factors as determinants of psychological well-being among university students. *International Journal of Indian Psychology, 4*, 5-16.
- Vinayak, S., & Judge, J. (2018). Resilience and empathy as predictors of psychological wellbeing among adolescents. *International Journal of Health Sciences and Research, 8*(4), 192-200.

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