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Cognitive Style As An Underlying Mechanism in Association of Internet Overuse and Alexithymia

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ABSTRACT

Background – The prevalence of alexithymia (alx) has been reported as approximately 10% among the general population (Aljaffer et al., 2022). Alexithymia is a personality trait characterized by Difficulties in differentiating emotions and insufficient understanding alongside Difficulty verbalising emotions, limited imagination and fantasy; and Thoughts focused primarily on reality combined with a very limited or complete lack of introspection (Kooiman et al., 2002).

Objective – To investigate the underlying mechanism i.e. cognitive styles namely intuitive (int), and systematic (sys) in the relationship between Internet Overuse (Ino) and Alexithymia (alx).

Methods - A sample of 300 young adults aged 18 -30 were selected for the study from different region of Haryana through random sampling. Obtained data was analyzed under mediation analysis using JASP (Version 19).

Results - Result highlighted that both Intuitive and systematic cognitive styles are significantly mediate the relationship between Ino and Alex.

Conclusions – Cognitive styles regardless of its styles mediate the relationship between Ino and alexithymia among young population. The study suggests that positive constructs such as cognitive style with systematic (sys) approach mitigate the adverse effect of Ino over Alex, whereas no such mitigation was observed by intuitive (int) cognitive style for same.

INTRODUCTION

Technology advancement astonishingly at fast pace, challenging human to adapt machinery or virtual environment where cognitions are limitless and emotions are terminating. In context of emotionless aspect, Alexithymia is a recognized as novel condition in the health field. Limited literature evidence that the prevalence of alexithymia to be approximately 10% among the general population (Aljaffer et al., 2022).

Alexithymia is a multi-facet personality trait. This condition characterised with difficulty in recognizing, describing, and distinguishing between emotions and bodily tensions related to emotional excitement and having difficulty expressing feelings for others. The common signs of this condition are; trouble recognizing emotions and feelings, difficulty recognizing vibes of passionate excitement, and limitation in imagination and dreaming (Khan & Mumtaz, 2017).

Alexithymia is not recognized as an independent disease (Halicka & Herzog-Krzywoszańska, 2016). It is a complex process that involves both metacognitive elements (monitoring, characterization), elements of narration and interpretation, as well as aspects related to somatic and proprioceptive processes. Specific "diagnostic criteria" for this condition described in previous literature include; Difficulties in differentiating emotions and insufficient understanding that selected somatic sensations can be a manifestation of emotional experiences, Difficulty verbalising emotions, Limited imagination and fantasy, and Thoughts focused primarily on reality combined with a very limited or complete lack of introspection (Kooiman et al., 2002). As an additional symptom, psychosomatic symptoms are also indicated, primarily in the field of gastrointestinal disorders or chronic pain syndromes (Larsen et al., 2003).

To summarize, the increasing prevalence of internet overuse has raised concerns about its psychological underpinnings and emotional consequences, with emerging evidence suggesting a potential link with alexithymia—characterized by difficulties in identifying, expressing, and regulating emotions. One possible underlying mechanism explaining this association is cognitive style, which refers to an individual's habitual way of processing

information and approaching problems. Cognitive styles such as analytical versus intuitive thinking, or field dependence versus independence, may influence both susceptibility to excessive internet use and the ability to recognize and articulate emotional experiences. Individuals with certain cognitive styles might rely more heavily on digital platforms for emotional distraction or regulation, thereby reinforcing internet overuse, while simultaneously exhibiting traits aligned with alexithymia. Understanding cognitive style as a mediating or moderating factor offers valuable insights into the psychological processes driving this association and holds implications for developing targeted interventions.

In this aforementioned context, the present study investigating the underlying mechanism i.e. cognitive styles in the relationship between Internet Overuse and Alexithymia.

Materials and methods

Sample

A sample of 300 young adults aged 18 -30 will be chosen for study. Sample will be selected randomly from different region of Haryana.

Inclusion criteria:

- Young adults aged 18 -30 will be used
- Both male and female.
- Young adults having internet or mobile facility.
- Individual must know how to read, write and understand English.

Exclusion criteria:

- Below 18 and above 30
- Young adults suffering from any sever mental health issue
- Online job employers
- Individual who will not give their consent to participate in the study

Research Design

Cross Sectional Research design

Tests & Scales

Informed consent form: Socio-demographic detail (name, age, gender, mobile phone user, duration of using mobile phone, education and social relationship status) with consent statement.

- **Internet overuse scale:** Internet overuse scale was developed by Darshna Shah and Urmi Nanda Biswas. This scale consists 38 items divided into Eight Factors- I. Functional Impairment, II. Withdrawal, III. Occupational and Relationship Consequences, IV. Compulsive Behaviour, V. Obsession with Internet, VI. Internet as a Source of Recreation, VII. Enhanced Socialization, and VIII. Perceived Control of Internet Use. It was administered on age group 15 to 50 Years.
- **Cognitive Style Inventory:** This inventory was developed by Jha in 2001.It measure systematic style and intuitive style. The CSI has been previously developed by Martin (1983) and has been standardized on Indian population by Parveen Kumar Jha. It consisting of 20 items each. It is for college going boys and girls / adults. Age Range 18+.
- **The Perth alexithymia Questionnaire:** The PAQ is established by Rodrigo Becerra, Carmen Gloria Baeza and David A. Preece in 2018. It was designed for use with adults and adolescents, with higher scores indicating higher levels of alexithymia.

Procedure

The data obtained on above scales were computed under the correlation and regression (mediation) using the standard method option in jasp (Version-19) for Windows. The relationships between the variables were determined based on the pearson coefficient (r). Results were obtained using mediation analysis under Structural equation modeling (SEM).

Result

The present study focuses on to identify the mediating role of cognitive styles i.e. as an underlying mechanism to mitigate the relationship of internet overuse with alexithymia among adult (Ding, , et al., 2024). The results are described as following-

Correlation

Result Table 1

Summary of Pearson's Correlations Analysis among alexithymia (alx), Internet Overuse (Ino) and cognitive styles i.e. intuitive (int), and systematic (sys).

Pearson's Correlations

Variable		internet overuse	alexithymia	intuitive	systematic
1. internet overuse	Pearson's r	—			
	p-value	—			
2. alexithymia	Pearson's r	0.963	—		
	p-value	< .001	—		
3. intuitive	Pearson's r	0.957	0.947	—	
	p-value	< .001	< .001	—	
4. systematic	Pearson's r	-0.957	-0.948	-0.940	—
	p-value	< .001	< .001	< .001	—

Correlation analysis revealed that alexithymia has significant and positive association with Internet Overuse (Ino) (r= .96, p= <.001). This finding indicates that internet overuse increases the likelihood of ones to be more incline towards alexithymia. Alongside internet overuse is also found to be associated with both cognitive styles i.e. intuitive (r= .95, p= <.001), and systematic (r= -.95, p= <.001). This association reflect that internet overuse positive associated with intuitive cognitive style whereas negatively associated with systematic cognitive style. The same trend has been observed in relationship of alexithymia with both cognitive styles namely intuitive (r= .94, p= <.001), and systematic (r= -.94, p= <.001)

Result Table 2

Mediation Model between Internet overuse Alexithymia

Parameter estimates

Direct effects

					95% Confidence Interval	
	Estimate	Std. error	z-value	p	Lower	Upper

Direct effects

							95% Confidence Interval	
			Estimate	Std. error	z-value	p	Lower	Upper
iou	→	alexithymia	0.319	0.037	8.658	< .001	0.247	0.391

Note. Estimator is ML.

Indirect effects

								95% Confidence Interval	
					Estimate	Std. error	z-value	p	Lower	Upper
ino	→	int	→	alx	0.142	0.030	4.711	< .001	0.083	0.201
ino	→	sys	→	alx	0.156	0.030	5.197	< .001	0.097	0.215

Note. Estimator is ML.

Total effects

						95% Confidence Interval	
			Estimate	Std. error	z-value	p	Lower	Upper
ino	→	alx	0.617	0.010	64.471	< .001	0.598	0.636

Note. Estimator is ML.

Total indirect effects

						95% Confidence Interval	
			Estimate	Std. error	z-value	p	Lower	Upper
ino	→	alx	0.298	0.036	8.286	< .001	0.228	0.369

Note. Estimator is ML.

Residual covariances

							95% Confidence Interval	
			Estimate	Std. error	z-value	p	Lower	Upper
int	↔	sys	-5.810	1.151	-5.047	< .001	-8.067	-3.554

Note. Estimator is ML.

Table 3 - Path Coefficient

Path coefficients

							95% Confidence Interval	
			Estimate	Std. error	z-value	p	Lower	Upper
int	→	alx	0.282	0.060	4.725	< .001	0.165	0.399
sys	→	alx	-0.306	0.059	-5.217	< .001	-0.420	-0.191
ino	→	alx	0.319	0.037	8.658	< .001	0.247	0.391
ino	→	int	0.503	0.008	60.082	< .001	0.487	0.519
ino	→	sys	-0.511	0.009	-59.902	< .001	-0.528	-0.495

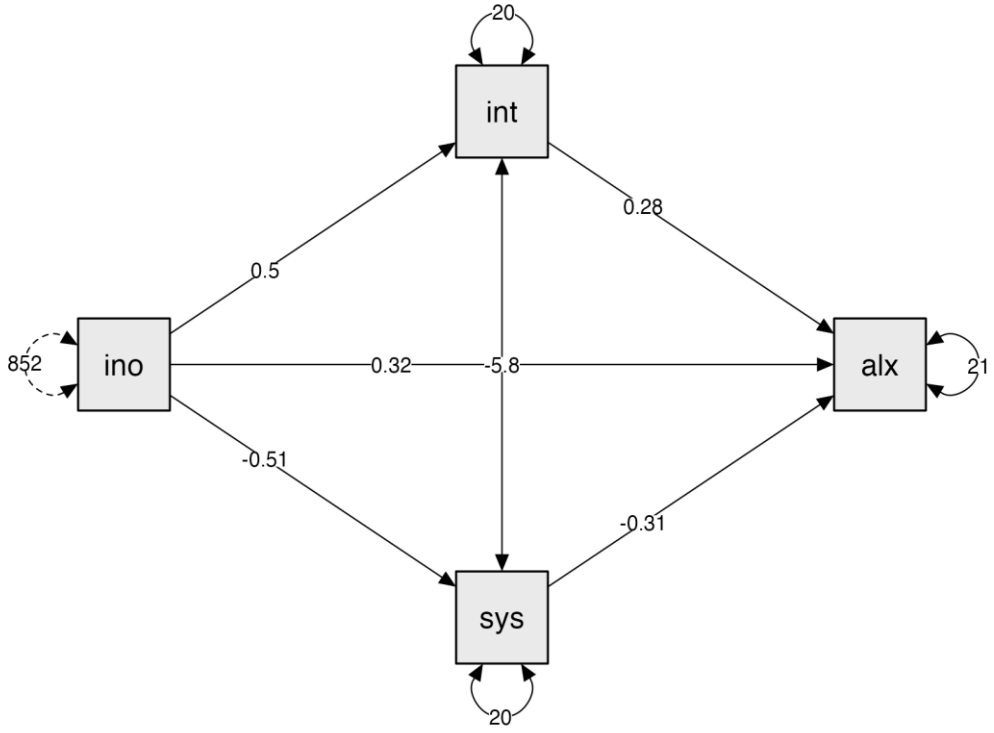
Note. Estimator is ML.

Direct Effect revealed that alexithymia has positive correlation with Internet Overuse (Ino), and this correlation was also

analysed to be significant (Z= 8.65, p= <.001). This finding indicates the existence of direct association of alexithymia with internet overuse (ino).

However, the indirect effect i.e. ino to alexithymia through cognitive styles namely Intuitive & Systematic were also analysed to be significant which are aa Ino → int→ alx (Z=4.711, p< .001), and ino→ systematic→ alx (Z=5.197, p< .001) respectively. Total effect which is the resultant by the summing of indirect effect (a*b) and direct (c) effects reflects the significant effect of ino on alexithymia, mediate by persons' cognitive styles whether intuitive or systematic. The result expressed that cognitive style is partially mediating a significant role in alleviating the adverse impact of internet overuse for alexithymia among adult. The finding indicates that cognitive styles are significant underlying factor that mediates the relationship of ono with alexithymia among adult. Path Analysis further revealed the estimates or variance to predict the outcome variable respective to given path, as presented in Table 3, & corresponding Figure 1.

Figure 1: Path coefficient model



Note - ino - internet overuse, sys- systematic thinking, int - intuitive thinking, & alx - alexithymia

As the path coefficients were statistically significant at p < .001. According to result Internet overuse significantly predicted both intuitive thinking (β = 0.503, SE = 0.008, z = 60.08, 95% CI [0.487, 0.519]) and systematic thinking (β = –0.511, SE = 0.009, z = –59.90, 95% CI [–0.528, –0.495]). Specifically, greater internet overuse was associated with increased intuitive thinking and decreased systematic thinking. Further, intuitive thinking positively predicted alexithymia (β = 0.282, SE = 0.060, z = 4.73, 95% CI [0.165, 0.399]), while systematic thinking negatively predicted alexithymia (β = –0.306, SE = 0.059, z = –5.22, 95% CI [–0.420, –0.191]). In addition, internet overuse had a direct positive effect on alexithymia (β = 0.319, SE = 0.037, z = 8.66, 95% CI [0.247, 0.391]).These findings suggest that internet overuse influences alexithymia both directly and indirectly through its effects on intuitive and systematic thinking styles among sample population. Since, direct effect was analyzed as significant; the findings highlighted that cognitive styles partial mediates the relationship of ino with alx among adult.

DISCUSSION

The current study focuses on exploring cognitive styles as an underlying mechanism to explain the influence of internet overuse on emotional blindness among young population (N=300). Findings revealed that intuitive cognitive style is positively or exaggerate the level of associated between internet overuse and alexithymia condition whereas, systemic cognitive style is significantly negatively related with internet overuse and alexithymia condition for young population. Both cognitive styles are partially playing the mediating role in relationship between internet overuse and alexithymia condition among young population. To be precise, cognitive styles are partially mediates the association between internet overuse (Ino) and alexithymia (Alx).

The relationship between alexithymia and the Internet addiction has been already substantiated in the studies (Wang, et al. , 2025). However, the role of cognition in relationship between alexithymia and internet addiction or internet overuse is yet to be examined. In line with the present finding In study of Rana et al., (2024) using parallel mediator effect analysis study tested the hypothesis that metacognition mediates the relationship between alexithymia and Internet addiction. Findings highlighted the parallel multiple mediator models in which alexithymia predicted the five dimensions of metacognition and Internet addiction, and that three dimensions—cognitive confidence, positive beliefs about worry, and the need to control thoughts—partially mediated this relationship. The present study bridging the gap by adding the knowledge that cognitive style partially mediate the role between internet overuse and alexithymia.

Despite adding to the current literature in the respective concern, the limitations of the present findings can be expressed under following methodological constraints, such as a limited sample size, response bias, and reliance on self-reported measures. These factors may affect the generalizability and accuracy of the results, indicating a need for future research to overcome these aforesaid limitations to increase the validate and expand upon the findings. The implications of the present findings can be express under understanding and addressing the mediating role of cognitive component in relation to internet overuse and emotional expression difficulties. By recognizing analysing the mediating role of cognitive style in relation to

internet overuse and alexithymia, health and academic professionals can develop more comprehensive and effective approaches to improving psychological well-being in adolescents and adults facing technology addiction or alexithymia. This involves exploring and adopting the strategies that enhance emotional skill and appropriate use of internet among target population.

CONCLUSION

These findings concluded that internet overuse influences alexithymia both directly and indirectly through its effects on intuitive and systematic thinking styles among sample population.

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