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Impact of Machiavellianism and Problematic Internet Use in Cyberbullying Perpetration: Role of Demographic Variables

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Abstract

Objectives. The present study aimed to assess the impacts of Machiavellianism and problematic Internet use on cyberbullying among university students. Study also examined moderating influences of the family system and the demographic variables such as gender and parental education.

Method. By using random sampling, 433 university students aged 18–25 years (M = 21. 17, SD = 1. 89) were selected. The Machiavellianism Subscale of the Short Dark Triad (Jones & Paulhus, 2014), the Problematic Internet Use Questionnaire (Thatcher & Goolman, 2005), and the Cyberbullying Perpetration Scale (Lee et al., 2017) were used to assess study variables.

Results. Results showed that Machiavellianism and problematic internet usage significantly predicted the perpetration of cyberbullying. The family system also significantly moderated the effect of Machiavellianism on cyberbullying. Furthermore, demographic factors including gender and parental education also found to influence study variables. Males had a higher mean level of Machiavellianism, problematic internet use and cyberbullying perpetration. Low parental education was also associated with higher cyberbullying perpetration.

Conclusion & Implications. This study facilitates understanding the complex relationship between personality traits, internet use, and cyberbullying perpetration. It states that those higher in Machiavellianism and higher in problematic internet use are more likely to perpetrate cyberbullying. Also, it states that family system and other socio-demographic variables have a strong impact on online behaviors. Thus, these findings suggest the need to create interventions that address both personality-related factors and contextual elements strongly to reduce cyberbullying effectively.

Keywords. Machiavellianism, cyberbullying perpetration, problematic internet use, gender differences, university students, family system, parental education.

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Introduction

Cyberbullying is a serious social problem that affects millions of people globally (Giumetti & Kowalski, 2022). Whereas the traditional bullying occurs in physical spaces, cyberbullying happens in cyberspace — through electronic devices that make attacks a constant possibility with repeated acts of online aggression, including insults, threats, rumour spreading, or social exclusion. These actions are facilitated by the anonymity and access provided by the digital world, which makes cyberbullying an ongoing and hard-to-regulate issue.

Some other factors linked to cyberbullying are personality traits, online activities, and family relationships. A couple of variables that have been newly associated with cyberbullying are Machiavellianism and problem Internet use (Sánchez-Fernández et al., 2023). Machiavellianism refers to behavioral tendencies such as manipulation, a lack of concern, morality, and a need for control and dominance (Ramsay et al., 2023). High Machiavellians are Masters-and might persuade, con, and charm their way through anything that serves their goals. They tend to manipulate interpersonal relationships for their own benefit, and cyberbullying can be a means to manipulate others while avoiding social sanctions (Jablonska & Zajdel, 2020).

This personality trait has also been associated with other forms of deviant online behavior, such as cyberstalking (Blais et al., 2024) and trolling (Leite et al., 2023). In the current study, we further explored the moderating role of PIU on the relationship between Machiavellianism and cyberbullying perpetration. PIU refers to excessive and compulsive involvement with Internet activities to the point of impairment in daily functioning (Yudes et al., 2022). It is not only the duration of time spent online that matters, but rather the inability to regulate Internet use, which frequently results in neglected responsibilities, withdrawal symptoms when offline, and increased likelihood of engaging in online aggression (Sakakihara et al., 2019).

Problematic internet use has been linked to impaired cognitive functioning, interpersonal difficulties, mental health problems, and risk taking (Arrivillaga et al., 2020; Teng et al., 2020). In addition, PIU has been associated with academic burnout, family conflict, sleep problems, depression, suicidal thoughts, and substance use (Arrivillaga et al., 2020; TóthKirály et al., 2021). Internet overusers tend to show more aggression and hostility (Dhaka & Naris, 2019) and are more likely to engage in aggressive behavior overall (Agbaria, 2021). In addition, PIU increases exposure to cyberbullying, but also reduces empathy and awareness of the consequences of cyberbullying (Cebollero-Salinas et al., 2022; Auriemma et al., 2020).

However, the relationship between Machiavellianism, PIU, and perpetration of cyberbullying takes on a second dimension with respect to the external variable of family structure, which are key variables in this context. Prior studies have highlighted manipulation and lack of empathy as crucial personality traits of those treating others in cyberbullying actions; the question of why these mechanisms behave in such a manner remains relatively unexplored. Studies indicate that family dynamics play an important role in determining online behavior. For example, Tajmirriyahi et al. (2020) found a good linear relationship between nuclear family arrangements and high levels of PIU, adding further complexity to the picture. One possibility is that in nuclear families there are fewer resources for supervision or regulation of internet use, heightening susceptibility to problematic behaviors (Islam et al., 2020). On the other hand, joint families tend to have a household system that, while allowing greater observability of technology use, has also its disadvantages (McMurphy, 2020). The absence of such regulatory mechanisms in nuclear families might be aiding in the development of PIU and cyberbullying, especially in terms of neglectful parenting (Shafiq & Batool, 2023).

The individual freedoms that university students enjoy amplify the effects these risks could have. With almost total absence of parental supervision on moral aspects and the consequences of internet use, students could have an increased susceptibility to these negative online behaviors. Parental education is another major factor concerning PIU and cyberbullying behaviors (López-Castro & Priegue, 2019). Following are the three terms: socioeconomic status, cultural capital, and cognitive abilities, all of which are implied by parental education (Seum et al., 2022; O'Reilly & Mohan, 2023). According to Chandrima et al. (2020), High parental education would have provided higher levels of guidance and support on appropriate online behavior and monitoring and regulation of internet use. These factors would protect against excessive internet use and online aggression.

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These insights have been discussed widely in the respective literature but in isolation by divorce from considering the interaction of personality traits and environmental factors in determining behaviors related to cyberbullying. In opposing directions, Machiavellian traits have been related to manipulative online behaviors, PIU and cyberbullying with cyberbullying forward in recent studies (Yudes et al., 2022), therefore a theoretical framework as a combination of both individual attributes and environmental influences is thus needed. An intelligible way of comprehending this issue would greatly arise from an established integration of the mentioned.

The Problem Behavior Theory tries to explain how such relationships come into being. It has been defined by Jessor in 1987. As per this theory, the behavioral problems come into existence in a person's life due to the interaction of personal traits and the environment. It also focuses on the personal traits, social influences, and contextual factors which may be the determinants of a person's behavioral outcome. One important strength of the PBT concept is how it combines personality with e-environmental and internet-related factors to improve the understanding of impersonation in cyberbullying perpetration. This theory's application to cyberbullying research expands its prevention efforts with implications, for it indicates the need for prevention interventions that are targeted at both personality traits and contextual variables.

This study is significant for three reasons: First, although earlier studies focused on Machiavellianism, PIU, and cyberbullying as isolated concepts, their interaction has received scant research attention to date. Thus, this study aims to fill this gap by specifically looking at how these contribute to perpetrating cyberbullying. Second, as family environments are determinant for adolescent behavior, research into the moderating effects of family on these relationships is few and not intensive in Pakistan. This research therefore attempts to give an understanding of the several family structures and parental education levels from which insights worth noting could be gleaned to socioenvironmental causes under which cyberbullying becomes more obvious or obscure. Findings are expected to assist in developing family-centered prevention measures and in equipping parents and other caregivers with tools necessary for creating supportive and regulated environments dissuading cyberbullying behaviors.

Finally, cyberbullying is not uniform across all individuals; different setups of gender norms and expectations dictate how men and women participate in and are affected by cyberbullying. Thus, this study pursues a gender-sensitive analysis to assess how these factors come into play with cyberbullying behaviors and help formulate gender-responsive prevention and intervention programs. In summary, this study seeks to explore Machiavellianism and PIU in relation to cyberbullying perpetration, examining the moderating effects of family structures. By combining personality psychological understandings with environmental influences, targeted intervention programs can be created that deal with individual and contextual factors that cause cyberbullying. This information will be helpful for educators, policymakers, and mental health professionals in creating more effective programs to curb cyberbullying and promote healthier online behavior.

Hypotheses

1. Machiavellianism and problematic internet use positively predict cyberbullying perpetration.
2. Family System moderates the relationship between Machiavellianism, problematic internet use and cyberbullying perpetration.
3. Boys are more likely to express Machiavellianism, problematic internet use, and cyberbullying perpetration as compared to girls.
4. Respondents with lower maternal education are more likely to exhibit higher inclinations toward Machiavellianism, problematic internet use, and cyberbullying perpetration.
5. Respondents with lower paternal education are more likely to exhibit higher inclinations toward Machiavellianism, problematic internet use, and cyberbullying perpetration.

Sample

The data for present study was collected through random sampling, involving a total of 433 university students from different public and private universities in Rawalpindi and Islamabad. The present study's sample inclusion criteria involved university students who have regular internet access and utilize screen devices for a minimum of 2 hours (Nagata et al., 2022). Additionally, participants were required to possess accounts on at least two social networking sites. The sample comprised of 51.3% boys (n = 222) and 48.7% girls (n = 211). The age distribution of the participants revealed that 58.7% (n = 254) fell within the 18-21 years category, while 40.2% (n = 174) were in the 21-25 years range. Family structures varied, with 60.0% (n = 260) belonging to nuclear families and 40.0% (n = 173) residing in joint family setups.

Instruments

Machiavellianism Subscale from Short Dark Triad. The Machiavellianism subscale from the Short Dark Triad Scale (Jones & Paulhus, 2014) was used in the present study to assess participants' Machiavellian tendencies. It has 9 items, with each item on a four-point Likert scale. To compute the total score for the Machiavellianism subscale, responses across all items were summed, yielding a potential range of scores from 9 to 36. However, in the present study, the observed range of scores fell between 12 and 34. A high score on the scale reflects that respondents have a higher inclination toward Machiavellianism, and a low score indicates that they have a lower level of Machiavellianism. In the previous studies, the Machiavellianism subscale represented adequate reliability, with a Cronbach's alpha coefficient of .74 (Rogoza & Cieciuch, 2019). Likewise, in the current study reliability of this scale was found to be .76.

Problematic Internet Use Questionnaire. In the present study, the Problematic Internet Use Questionnaire (PIUQ) (Thatcher & Goolam, 2005) was used to assess the level of problematic internet use that participants experienced in their daily lives. The PIUQ questionnaire consists of a total of 20 items, which measure an individual's online preoccupation, negative effects, and social interaction. The total score can range from 20 to 80, with higher scores being indicative of a higher degree of problematic internet use, whereas lower scores would indicate a lower degree of problematic internet use. The Questionnaire showed good reliability of .92 (Ranjbar et al., 2014). Alpha reliability of the scale was found to be .86 for the Pakistani sample in this research.

Cyberbullying Perpetration Scale. The Cyberbullying Perpetration Scale utilized in this survey was originally an initiative of Lee et al. (2017) and then obtained modified form by Iqbal and Jamiee (2021). The scale consists of 29 items divided into 4 subscales: Verbal/Written, Visual/Sexual, Social Exclusion, and Cyber Mobbing. The potential range varies from 27 to 108, with higher scores represent greater level of cyberbullying perpetration and lower scores indicate lower level of perpetration. The scale demonstrated good internal consistency, with a reliability coefficient of α = .93 (Lee et al., 2017). In this study reliability of this scale was found to be .86 for the Pakistani sample.

Procedure

To collect data, students from different public and private universities in Rawalpindi and Islamabad were approached. Participants were informed about the objectives of research, to ensure full understanding and voluntary participation. Initially, consent was taken and scales were filled by participants. All information about participants was kept confidential by anonymizing the data of the participants and storing securely. Participants were then thanked for their collaboration in fulfilling the objectives of study after completion of the questionnaire booklet. All the ethical consideration was followed in a very strict way throughout the research process. Before data collection, approval was obtained from the relevant institutional review board (IRB) and ethics committee to follow ethical guidelines.

Results

Statistical Package for the Social Sciences version 25 was used for the analysis in the present study. Regression analysis was used to assess the influence of Machiavellianism and problematic internet use on perpetration of cyberbullying. The present study also considered demographic variables such as gender, family system, and parental education.

Table 1

Hierarchical Regression Results for Cyberbullying Perpetration (N = 433)

Variables	B	95 % CI for B		SE B	B	R^2	ΔR^2
		LL	*UL*				
Step 1						.10	.10
Constant	22.78**	15.55	30.01	3.67			
Machiavellianism	1.07**	.77	1.37	.15	.32**		
Step 2						.24	.14
Constant	7.14**	-.37	14.66	3.82			
Machiavellianism	.74**	.45	1.02	.14	.22**		
Problematic Internet Use	.55**	.42	.67	.06	.38**		

Note. **$p < .001$.

Hierarchical regression analysis was performed to test the hypothesis that Machiavellianism and problematic internet use have a significant impact on cyberbullying perpetration. In step 1, Machiavellianism accounts for a 10% variance of explaining cyberbullying perpetration. In step 2, the R^2 value indicates that Machiavellianism and problematic internet use as predictors account for 24% variance in predicting cyberbullying perpetration. The increase in R^2 (ΔR^2) from step 1 to step 2 is .14, indicating that the additional variance in the dependent variable explained in step 2 of the model, with the addition of problematic internet use, stands at 14%. Overall, both of these predictors significantly predicted cyberbullying perpetration, which indicates that Machiavellianism and problematic internet use have a significant impact on cyberbullying perpetration. Furthermore, the confidence intervals for both predictors did not include zero, confirming their significance.

Table 2 represents the moderating role of the family system between Machiavellianism and cyberbullying perpetration. Machiavellianism significantly predicted cyberbullying (B = 2.11, t = 4.24, p < .001), with a 95% confidence interval (CI) of 1.13 to 3.08, indicating that higher Machiavellian traits were associated with increased cyberbullying behaviors. The result revealed a negative and significant moderating impact of the family system between Machiavellianism and cyberbullying perpetration, with a CI of -1.30 to -0.08, confirming that the moderation effect was statistically meaningful, supporting H2a.

Table 2

Moderating Role of Family System in Predicting Cyberbullying Perpetration From Machiavellianism and Problematic Internet Use (N = 433)

Variables	B	t	p	95 % CI LL	95 % CI UL
Constant	49.59	22.51	.00	45.26	53.92
Machiavellianism	2.11	4.24	.00	1.13	3.08
Family System	-1.07	-.72	.47	-4.00	1.85
Machiavellianism × Family System	-.69	-2.24	.02	-1.30	-.08
R^2	.11				
Constant	50.88	24.81	.00	46.85	54.91
Problematic Internet Use	.68	3.56	.00	.30	1.06
Family System	-1.73	-1.24	.21	-4.45	.99
Problematic Internet Use × Family System	-.04	-.34	.73	-.29	.20
R^2	.19				

The study also assessed the moderating role of the family system on the relationship between PIU and cyberbullying perpetration. The result revealed a non-significant moderating impact of the family system on the relationship between PIU and cyberbullying perpetration.

Figure 1

Interaction Effect of Machiavellianism with Family System on Cyberbullying Perpetration Among University Students (N = 433)
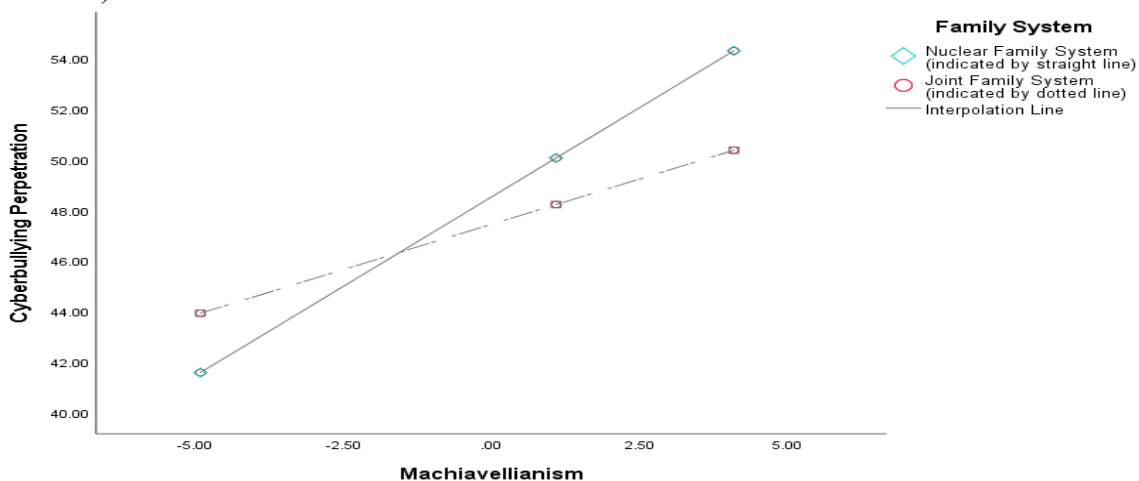
The moderation graph is further developed to understand the nature of the moderating effect. The differential slope across the two family configurations suggest a pronounced effect of Machiavellianism on cyberbullying. As shown in Figure 1, the line is steeper for the nuclear family system, however, in the case of the joint family system line is much flatter. This shows that the impact of Machiavellianism on cyberbullying perpetration is much stronger in nuclear family system as compared to the joint family system. There is a stronger propensity for nuclear families towards cyberbullying perpetration under the influence of Machiavellian traits as compared to their counterparts in the joint family system. This underscores the significance of family structure as a moderating variable that influences the extent to which Machiavellian tendencies manifest into cyberbullying perpetration.

Table 3

Gender Differences on Study Variables (N = 433)

Variables	Girls		Boys				Cohen's
	(n = 211)		(n = 222)				
	M	SD	M	SD	t	p	d
Machiavellianism	22.89		24.86		-4.46	.001	.42
Problematic internet use	41.34		44.33		-2.90	.000	.30
Cyberbullying perpetration	44.36		52.40		-5.55	.000	.53

The results of the t-tests showed significant gender differences thereby showing that boys exhibited higher dispositions of Machiavellianism, coupled with higher tendencies of PIU and cyberbullying perpetration. Cohen's d effect sizes were calculated for each variable, with Machiavellianism, perceived social support and cyberbullying perpetration showing moderate effect sizes.

The Table 4 presented two-way ANOVA that examines the interaction between maternal and paternal education across study variables. For Machiavellianism, the results reveal a significant interaction effect between maternal education and paternal education. Specifically, participants reported higher Machiavellianism scores when both maternal and paternal education levels were till intermediate. On the other hand, when either maternal or paternal education was graduate and above, the inclinations toward Machiavellianism were comparatively lower. This indicates that higher parental education levels are associated with lower Machiavellian tendencies in individuals.

Regarding problematic internet use, the results show a non-significant relationship between maternal education and paternal education. However, in case of cyberbullying perpetration, the analysis depicted a significant relationship between maternal education and paternal education. Participants reported higher cyberbullying perpetration scores when paternal education was lower and maternal education was higher. While cyberbullying perpetration reduced when both parents have high education.

While it may seem unexpected for the proportions to be similar, it's important to remember that the focus of a two-way ANOVA is not solely on the distribution of participants across individual levels of the independent variables. Instead, it aims to analyze the combined effects of these variables on the dependent variable, as well as any potential interaction effects between them.

Table 4

Two-Way ANOVA for the Interaction Effect of Maternal and Paternal Education on Study Variables (N = 433)

Var	Maternal Education	Paternal Education	*N*	*M*	*SD*	*F*	*p*	*η²*	95 % *CI* LL	UL
Mac.	Till Intermediate	Till Intermediate	134	24.99	4.20	5.17	.02	.01	24.21	25.76
		Graduate & above	67	24.55	4.19				23.45	25.64
	Graduate & above	Till Intermediate	61	25.03	3.55				23.88	26.17
		Graduate & above	171	21.40	5.21				21.71	23.08
PIU	Till Intermediate	Till Intermediate	134	44.03	10.07	.78	.37	.00	42.20	45.87
		Graduate & above	67	44.17	10.13				41.58	46.77
	Graduate & above	Till Intermediate	61	43.21	11.48				49.49	45.93
		Graduate & above	171	41.33	11.32				39.71	42.96
CBP	Till Intermediate	Till Intermediate	134	49.38	15.05	16.17	.00	.03	46.85	51.92
		Graduate & above	67	48.04	15.94				44.45	51.63
	Graduate & above	Till Intermediate	61	58.44	13.85				54.68	62.20
		Graduate & above	171	44.40	14.82				42.15	46.65

Note: Mac. = machiavellianism; PIU = problematic internet use; CBP = cyberbullying perpetration.

Discussion

This study determines the impact of Machiavellianism and problematic internet use on cyberbullying perpetration. It also intended to examine the role of various demographics like family system, gender, education of parents, and gender differences.

The results of the study showed that Machiavellianism positively predicted cyberbullying perpetration among university students. In the previous studies, it was determined that Machiavellianism, being a part of dark triad personality led to act of cyberbullying perpetration among students (Giumetti et al., 2021; Yuan et al., 2020). A study conducted by Blötner and Bergold (2023) examined the relationship between personality traits and bullying, proved Machiavellianism as a positive marker of bullying attitudes and behaviors among youth. Machiavellianism showed manipulative personality characteristics and actions that involve personal gains (Wright et al., 2020). Therefore, cyberbullying may be a way for Machiavellian individuals to gain power or control over others. Kircaburun et al. (2019) reported that cyberbullying perpetrators experienced a sense of power allied with Machiavellian by damaging people online. In a similar manner present study also focused on the perspective of people having high Machiavellianism are more prone to cyberbullying perpetration.

The study also highlight that problematic internet use significantly positively predicted cyberbullying perpetration among university students, which is in accordance with literature (Küçük et al., 2023; Yudes et al., 2022). Previous studies highlighted that spending too much time on the internet can have a negative impact on productive internet usage and positively linked to risk-taking behaviors specifically in form of cyberbullying (Arrivillaga et al., 2020; Teng et al., 2020), which

results in academic burnout, poor family and peer relations, sleep issues, depression, suicidal ideation, and substance use (Mandasari, 2020; Tóth-Király et al., 2021). As a result, individuals with excessive internet use exhibit increased cyberbullying and hostility towards other fellow students (Dhaka & Naris, 2019), and behave in a more aggressive manner (Agbaria, 2021). Problematic internet users had poor control over their impulses or in regulating their emotions, which then vent out in form of harming others.

On the basis of demographic analysis family system significantly moderates between Machiavellianism and cyberbullying perpetration. Findings highlight that participants belonged to nuclear family systems showed high Machiavellianism and cyberbullying perpetration. Pakistan being a state of collectivist culture, family values played a crucial role in shaping positive behaviors, though lack of extended families caused youth to indulge in unethical behaviors (Nadeem & Sully de Luque, 2018). This trend has also been reported by Talwar (2022) that students from the nuclear family system have more inclinations toward cyberbullying perpetration because they were exposed to loneliness, or an aloof environment.

On the other hand, the participants from the joint family system with the support of extended family have more moral values and ethical code of conduct, social support, involved less in negative behaviors (Parker et al., 2022; The Editors of Encyclopedia Britannica, 2017), not harm others for personal gains and find less time to connect socially with other people using technology (Talwar, 2022). On the other hand, the family system did not moderate the intricate relationship between problematic internet use and cyberbullying perpetration. After COVID-19 the use of technology became compulsory for children of any age, even parents were also involved in the learning of the latest technologies (Abi-Jaoude et al., 2020; Drouin et al., 2020). Which led to use of internet as source of information, hence family system showed no impact between problematic internet use and cyberbullying perpetration (Boulianne & Theocharis, 2018).

Based on gender differences revealed that boys have higher inclinations toward Machiavellianism, problematic internet use, and cyberbullying perpetration. Similar to this, study found that males reported higher cyberbullying perpetration as compared to female participants (Lee et al., 2023; Xu & Zheng, 2022). Furthermore, Kożybska et al. (2022) showed that boys are involved more in problematic internet use as compared to girls. From a primary age, boys are often socialized to be more assertive, competitive, and focused on achieving power and dominance. Testosterone hormone, which exists at higher levels in boys, played a significant role in aggression, and this is indirectly linked to high risk taking and pleasure seeking behaviors (Jhangiani & Tarry, 2022). Study highlighted that boys have a greater risk of adopting offending behaviors because they have more risk for aggressive tendencies as compared to females (Im et al., 2018).

Lastly, the study determined that lower level of parents' education was linked to high Machiavellianism, while high level of fathers education was related to lower Machiavellianism. Kiadarbandsari et al. (2016) found that a high level of parental education led to positive youth development. It may be due to exposure to ethical values and critical thinking brought by educated parents on their children. Educated parents can engage in meaningful discussions with their children, addressing moral dilemmas, ethical considerations, and values. This open dialogue helps children develop an open understanding of moral concepts. However, problematic internet use seemed less influenced by parental education, due to use of technology even by parents. As they involved in the learning of the latest technologies with their children to promote their positive usage (Drouin et al., 2020). The study suggested that low parental guidance and lesser knowledge about the latest technology may result in the child's involvement in problematic internet use (Trninić et al., 2023). This evidence can be indirectly linked with the present study as low parental education lead to involvement in problematic internet use. Through proper research evidence and logical discussion, it was proved that Machiavellianism lead to problematic internet use and cyberbullying perpetration among university students.

Limitations and Suggestions

Though the study fulfils the major literature gap, still it has following limitations. Design was giving a limited direction, with selection of limited sample. Qualitative and experimental research design will give more dimensions to the future studies. The research was limiting the generalizability of findings to broader age groups by focusing on sample of

university students. Future studies should encompass diverse demographics to better understand cyberbullying across different life stages. The study could further explore the nuanced interactions between various family dynamics and cyberbullying perpetration, considering additional factors like parental involvement and communication patterns.

Conclusion

Machiavellianism and problematic internet use predicted cyberbullying. Machiavellian traits—manipulative inclinations for personal gain—and problematic internet use were found to predict cyberbullying. Moderation results showed that participants from nuclear families show high Machiavellianism and cyberbullying perpetration. Boys showed high Machiavellianism, problematic internet use, and cyberbullying perpetration. Parental education, especially fathers' education, was also linked to cyberbullying perpetration, suggesting that parental knowledge influence children's online behaviors.

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Ethical approval: Ethical approval was gained from National Institute of Psychology, Quaid-i-Azam University, Islamabad, Pakistan.

Data availability: The data that support the findings of this study are available on request from the corresponding author.

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Research Article

Translation and Validation of Drug-related Locus of Control in Urdu for Substance Use Disorder

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Abstract

Background. Substance Use Disorder (SUD) is a significant public health challenge. Understanding factors influencing SUD development, such as Locus of Control (LoC), is crucial for effective intervention strategies. The Drug-related Locus of Control (D-LOC) Scale measures beliefs regarding control over drug-related behaviors but lacks validation in Urdu-speaking populations.

Method. This was a cross-sectional study which translated and validated the D-LOC Scale into Urdu for individuals with SUD. The translation was completed through a rigorous process using MAPI guidelines. The translated version was initially pilot-tested with five participants and refined as necessary. Data was collected from 200 Urdu-speaking adults aged 18 and above with SUD diagnoses, using nonprobability purposive sampling.

Results. CFA results indicated the Urdu version of the D-LOC Scale (15 items) had acceptable fit indices p < 0.01 and good internal consistency (α = 0.878).

Conclusion. The study underscored the scale's linguistic precision and cultural relevance for assessing D-LOC in individuals with SUD, enhancing accessibility and applicability in clinical and research settings. The rigorous translation process ensured linguistic accuracy and cultural sensitivity, bridging gaps in psychometric tools for SUD research. Findings support the scale's reliability and validity in Urdu, facilitating comprehensive assessments of the target population.

Keywords. Validation, locus of control, substance use disorder, validity, reliability, Urdu version

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Introduction

Substance Use Disorder (SUD) continues to be a major public health issue, exerting significant impacts on individuals and communities worldwide (Lo et al., 2020). Globally approximately 296 million people use drugs (UNODC, 2023). In Pakistan, the prevalence of substance use, including illicit drugs and alcohol, has been on the rise, contributing to various health, social, and economic challenges. According to a study conducted by Khan et al. (2019), the prevalence of SUDs among adults in Pakistan was found to be around 5.8%. The most abused substances included tobacco, cannabis, opioids, and sedatives.

The economic costs associated with substance misuse in the country amount to billions of rupees each year, encompassing expenses related to healthcare, law enforcement, lost productivity, and social welfare (Mirza & Jenkins (2018). Moreover, substance use has been linked to adverse health outcomes such as depression, anxiety, and post-traumatic stress disorder (Khan et al., 2020). A report by the United Nations Office on Drugs and Crime (UNODC, 2021) highlighted the challenges posed by drug trafficking and the increasing prevalence of synthetic drugs in Pakistan. Understanding the factors that contribute to the development and perpetuation of SUD is paramount for effective intervention and treatment strategies (NIDA, 2021). Among the diverse psychological constructs influencing SUD, Locus of Control (LoC) has emerged as a salient determinant worth investigating.

Originally defined by Rotter (1966), LoC is a prominent psychological construct that examines the extent of individuals' perception to have personal control over their environment. Over the years, LoC has been frequently measured in various clinical populations including but not limited to alcohol use (Ersche et al, 2012), SUD (Shafie et al., 2017) and suicide (Aviad-Wilchek, 2021). In the context of substance use, the Drug-related Locus of Control (D-LOC) Scale has proven to be a valuable instrument for evaluating an individual's beliefs regarding their ability to control drug-related behaviors and outcomes (Hall, 2001). The D-LOC Scale has been widely utilized in both research and clinical settings to explore the role of locus of control in substance use patterns and treatment outcomes. While the D-LOC Scale has demonstrated utility in various cultural and linguistic settings, its application among Urdu-speaking populations has been limited.

Worldwide, over 70 million and 100 million people use Urdu as a first and second language respectively (Britannica, 2024). Further, in Pakistan where Urdu is the national and most commonly used language, Translating the D-LOC into Urdu facilitates reliable assessment for a large proportion of clinical SUD patients. This will ultimately reduce barriers to screening and assessment in clinical settings as well as in research participation (Nagy et al., 2021).

The present study aimed to translate and validate D-LOC in Urdu language for individuals with SUD. The cultural and linguistic nuances of Urdu, the national language of Pakistan and widely spoken in several regions of South Asia, underscore the significance of validating the Urdu version of proposed assessment measures for individuals with SUD. This study aimed to address the existing gap in psychometric tools available for this population and provide a culturally relevant instrument for researchers and clinicians in the addiction field. To our knowledge, this study represents the first attempt to validate the D-LOC Scale in Urdu, thereby offering crucial insights into the cultural dimensions and implications in the field of SUD.

Method

Study Design

This cross-sectional study a used nonprobability purposive sampling technique to collect the study data.

Inclusion and Exclusion Criteria

Both male and female participants, aged 18 and above with a diagnosis of SUD or currently in recovery were included. Participants who had difficulty engaging in the study and those unable to comprehend the Urdu language were excluded.

Sample size

The study included N = 200 participants based on the sample size recommendation proposed by Myers et al. (2011) for conducting Confirmatory Factor Analysis (CFA). Myers et al. (2011) recommend a minimum sample size of 200 participants to ensure the robustness and reliability of CFA results. Adhering to this guideline enhanced the statistical power of the analysis, provided more robust results for validating the hypothesized factor structure and ensured the accuracy of parameter estimates (Wolf et al., 2013).

Assessment Measures

Demographic Questionnaire: The demographic information was used to collect data on age, education, marital status, no of siblings, monthly income, family system etc.

Drug Related Locus of Control (D-LOC; Hall, 2001): The D-LOC scale is comprised of 15 forced-choice items designed to assess attitudes towards drug use. The scale exhibits good psychometric properties as indicated by Cronbach's α coefficient of .81. The utilization of a forced-choice format ensures that respondents make explicit choices, contributing to the clarity and objectivity of the instrument.

Translation Process: The translation process of the assessment measures followed MAPI guidelines (Acquadro, Conway, Giroudet, & Mear, 2012) of linguistic validation with a focus on maintaining conceptual equivalence with the source instrument. The translation process ensured that it remains comprehensible to the target population. These steps of standard linguistic validation from The MAPI research institute have been represented in Figure 1.1.

Forward Translation: The forward translation of the instruments was carried out by two researchers (MA and AK) independently with strong proficiency in both English and Urdu, as well as previous experience in translation and validation process. The translation process prioritized conceptual equivalence over direct, word-for-word translation, aiming for clarity, relevance, and ease of comprehension. Simple, commonly used Urdu vocabulary was chosen to enhance accessibility while preserving the intended meaning of the original text. The translation underwent proofreading by a bilingual expert Professor of Psychology (RR) for consensus on the readability and equality of meanings. Where there were discrepancies in the translations, preferences were given to precise, more valid, and more readable words. The bilingual expert made every effort to ensure that the translated version used culturally relevant terms, did not include jargon, used simplified language; and included sufficient explanations of concepts and examples. After proofreading by a bilingual expert, the translation was reviewed again for typing or grammatical errors before finalization.
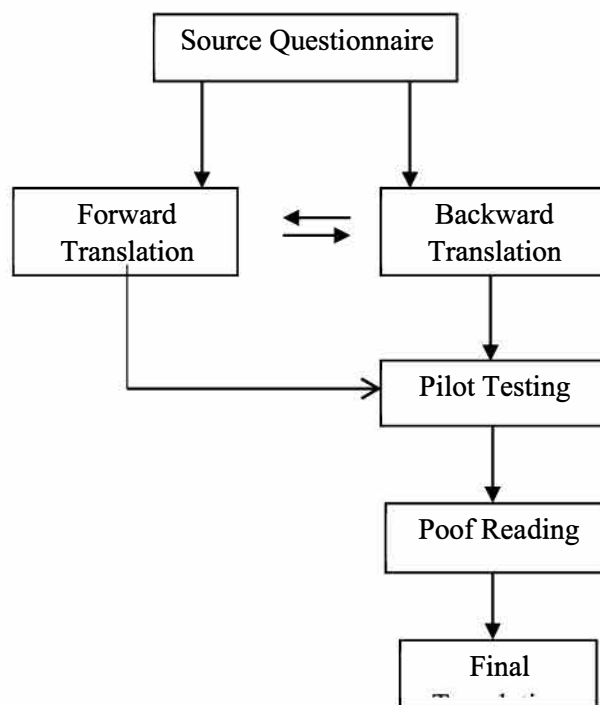
Figure 1.1 *MAPI Process of Linguistic Validation*

Backward Translation: To identify any discrepancies arising from contextual differences, the final forward translation was back translated into English. This process was conducted by an independent bilingual translator (AA), a native Urdu speaking with no previous exposure to the original scale, ensuring an unbiased translation. The focus remained on maintaining simplicity and clarity, ensuring the translated scale was both accessible and faithful to the original intent. A consensus meeting with expert bilingual researchers (including RR) was held to finalize the backward translation, emphasizing precision, validity, and contextual relevance in preserving the original scale's meaning.

Piloting

After translation, piloting was done with participants (n = 5) to evaluate their comprehension and ease of understanding. Participants were provided detailed instructions. They are asked to discuss any difficulties in responding or understanding the items and ask for repetition if anything was not clear. The researcher tried to engage participants throughout the piloting process and asked follow-up questions to assess their level of understanding and explore their interpretation of scale items. All participant feedback, including any questions or concerns, was carefully documented, and suggested revisions were made to finalize the scale. The revisions suggested were incorporated *(Supplementary material of pilot testing along with suggested revisions is available upon request).*

Results

Confirmatory Factor Analysis (CFA) was used to assess the psychometric properties of the D-LOC (Urdu version. The D-LOC model, consisting of one factor and 15 items, was analysed, and the initial model demonstrated a good fit. Model fit was assessed using statistics consistent with the previous studies. The following thresholds were applied to determine acceptable model fit: χ^2/df between 1 and 3, RMSEA < 0.08, and GFI and CFI $\geq$ 0.90 (Yusoff et al., 2021; Meydan, 2011; Hidayat et al., 2018; Gebrimedhin et al., 2022).
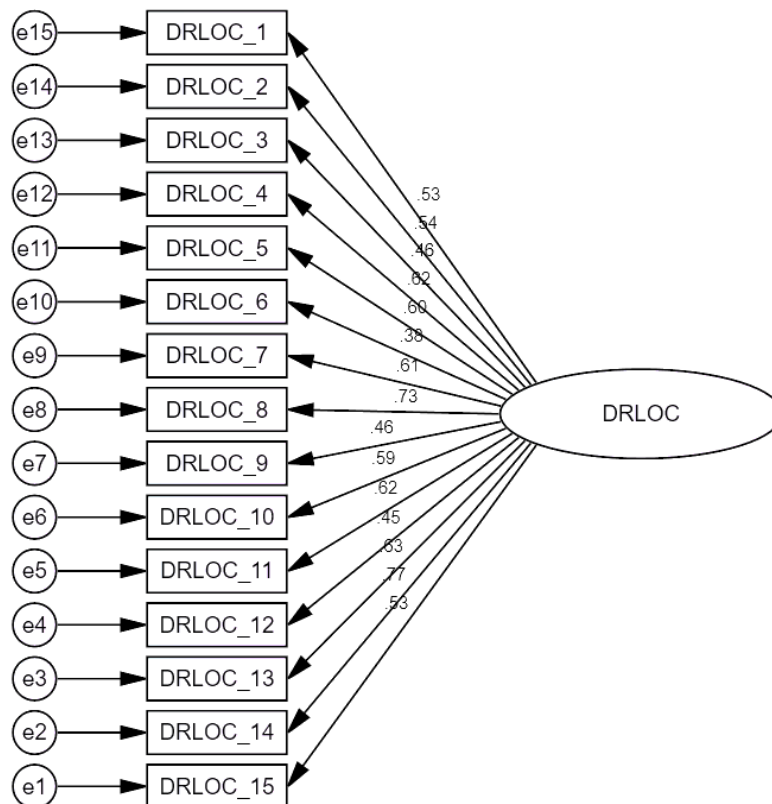
Figure 1.2 *Path Diagram of translated version of D-LOC*

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There were significant correlations (p < 0.001). between items The overall model fit was considered acceptable with fit indices of: $\chi^2(90) = 177.20$, p < 0.01, RMSEA = 0.070, CFI = 0.902, and GFI = 0.90 (see Table 1.1). The factor loadings for D-LOC were between 0.38 and 0.77, as shown in Figure 1.2. Generally, factor loadings greater than 0.5 are considered acceptable (Hidayat et al., 2018). However, in this study, items with factor loadings exceeding 0.30 were also considered a good fit, as suggested in previous research (Ching et al., 2015; Farooqi & Shahid, 2022; Hassim et al., 2020).

Reliability and Validity Analysis: As guided by previous studies (Yusoff, 2021; Shreshta, 2021; Yan et al., 2022), the acceptance criteria for Cronbach's alpha, CR and AVE were greater than 0.7, 0.7, and 0.5 respectively. The analysis indicated an AVE of 0.33 and a CR of 0.87. While the AVE value fell below the recommended threshold of 0.5, it was considered acceptable in accordance with the guideline that convergent validity remains satisfactory if AVE is below 0.5 but CR exceeds 0.6 (Hair et al., 2010). Additionally, the scale showed strong internal consistency, with a Cronbach's alpha (α) of 0.878.

Discussion

The present study conducted a robust translation and validation process to ensure scale is linguistically precise, culturally sensitive, and understandable for individuals even with low literacy levels. The translation of scales plays a critical role in studies particularly cross-cultural research, ensuring that measurements remain equivalent across different linguistic and cultural contexts (Lee & Sohng, 2020). To achieve this, the study adhered to the Mapi guidelines (2012), following a rigorous seven-step process that involved expert bilingual researchers. Their focus was on conceptual equivalence and easy comprehension and avoided word-for-word translation. Back-translation and consensus meetings were held to reach consensus on any language differences while maintaining original essence of the scale.

Moreover, the study add valuable insights on psychometric properties, validity, and reliability of Urdu version of D-LOC. The study used various statistical techniques and indices to assess the psychometric properties of the scale including CFA. This enhanced the robustness of the findings, ensuring the validity and reliability of the scale. One dimension

structure of D-LOC was determined to be a good fit as per established criteria of the study. To ensure a comprehensive assessment of model fit, a set of relative fit indices, including χ^2/df, RMSEA, CFI, and GFI, was utilized. The model met the established criteria for acceptable fit, aligning with previous research findings (Yusoff et al., 2021; Meydan, 2011; Hidayat et al., 2018; Gebrimedhin et al., 2022). These results suggest that the D-LOC effectively captures the intended underlying construct.

Although factor loading on 0.5 was considered acceptable as shown by previous studies (Cheung et al., 2023; Hidayat et al., 2018; Wei & Nguyen, 2020). However, we retained some items with factor loadings above 0.3 for some theoretical and practical reasons. Some studies suggest that factor loadings above 0.30 can be considered acceptable for certain populations (Ching et al., 2015; Farooqi & Shahid, 2022; Hair, Black, & Babin, 2010; Hassim et al., 2020) such as to indicate a meaningful association between items and their intended constructs. Additionally, removing these items did not significantly improve model fit and they contributed meaningfully to the overall scale. Therefore, they were retained.

A standardized approach was taken in the assessment of psychometric properties, integrating both statistical metrics and theoretical significance. However, while expert judgment played a role in item retention, it is important to acknowledge that expert perspectives may not fully capture the viewpoints of the broader population. The reliability of the scale was $\alpha = 878$ which is considered acceptable (McNeish, 2018; Arof et al., 2018). This suggests good reliability in the measurement instrument e.g., indicating scale consistency in measuring the underlying construct. Overall, the scale showed acceptable results in terms of psychometric properties of the scale including CFA, AVE, CR, and Cronbach's alpha.

Strengths and Limitations

The study utilized a robust methodology for translation and validation of the Urdu version of D-LOC scale. Various statistical techniques were used to assess its psychometric properties. The study included demographically diverse samples from Pakistani culture which has the potential to enhance findings generalizability to a broader population. However, the data collected in this study was cross-sectional research so subsequent research should incorporate longitudinal data across different time points to address limitations of the test-retest reliability and

predictive validity of the Urdu version of the scale. Furthermore, even though we had a reasonable sample size to conduct the confirmatory factor analysis (CFA), a more extensive sample size would have enabled us to perform additional analyses. Specifically, a larger sample could have been divided into two, allowing for a second CFA. Additionally, the study primarily translated the scale in Urdu language and made linguistic adaptations to ensure comprehension. However, no specific cultural adaptations were undertaken. It is important to note that the findings presented here should be confirmed by future research. Subsequent studies may use different methodologies and validate in different population to determine how well the scale predicts relevant outcomes.

Implications

This study contributes to measurement validation by highlighting the importance of balancing statistical rigor with theoretical relevance. By translating and validating the D-LOC scale in Urdu, it broadens the scale's applicability beyond its original context. Given that Urdu is the 10th most widely spoken language, with over 100 million speakers worldwide (Muzaffar et al., 2019), this translation opens up opportunities for its use in a wider range of cultural and geographical settings. Future studies should explore its effectiveness across different populations and contexts to enhance its generalizability. Further investigation into its predictive validity and relationships with other key constructs could offer valuable insights, particularly in areas related to decision-making, locus of control, and psychological and behavioral outcomes.

Conclusion

The study findings are useful for both researchers and practitioners. By confirming the psychometric properties of the D-LOC scale within the Pakistani context, this research provides a reliable tool for assessing and addressing SUD. Its application in clinical and research settings could contribute to improved results or health outcomes while using the scale for screening and assessment purposes.

Declaration

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Conflict of interest

Authors have no declarations of interest.

Availability of data

Data would be available upon reasonable request.

Ethical Approval

The ethics was taken from the Doctoral Programme Coordination Committee (DPCC) of the University of Punjab, Pakistan (Ref#1696/9881/ACAD).

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Appendix

Table 1.1. *Goodness-of-Fit Indices for Tested Model*

Model	χ^2	df	p	χ^2/df	GFI	CFI	RMSEA
Model 1 15 items	177.209	90	<.001	1.969	.90	.902	.070

Note: χ^2 /df: relative chi-square. GFI, Goodness of fit index; CFI, Comparative fit index; RMSEA, root mean square error of approximation.

Table 1.2. *Confirmatory factor analysis of D-LOC for individuals with SUD*

	CR	AVE	α	λ
	.87	.33	.878	
Item 1				.53
Item 2				.54
Item 3				.46
Item 4				.62
Item 5				.60
Item 6				.38
Item 7				.61
Item 8				.73
Item 9				.46
Item 10				.59
Item 11				.62
Item 12				.45
Item 13				.63
Item 14				.77
Item 15				.53

Note: λ (lambda) = standardized factor loading $\geq$ .5, *CR* = Composite Reliability, *AVE* = Average Variance Extracted, *MaxR(H)* = Maximum Reliability

Research Article

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Experiences of Pakistani Women Visiting Barī Imām Shrine

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Abstract

Background. Shrines are very important in Pakistan because they provide sacred space for worshipping and communal congregations, especially for women who participate in practices based on religion, culture, and social norms. The research will focus on understanding the belief systems and practices governing experiences related to visiting shrines that embody a true reflection of cultural significance for such sites.

Method. Using a qualitative approach, interviews with 16 women aged 25 to 35 who frequently visit the Imam Bari shrine were conducted in Islamabad, Pakistan. Interviews in Urdu were executed through Braun and Clarke's thematic method of analysis in 2012. Transcripts and field notes detailed numerous types of experiences and varying perspectives associated with shrine visitation.

Results. Participants described deep connection with the divine through rituals and prayers to receive blessings, guidance, and healing at the shrine. Many reported that they experienced peace and tranquility and solace in the shrine's spiritual atmosphere.

Conclusion. The study emphasized empowerment and resilience in women since the shrine community accepts, unites, and offers them the opportunity for mutual support and emotional expression. Moreover, it had a strong link with the cultural traditions and ancestral customs as well as familial obligation. Awareness of these beliefs and practices would provide an understanding to the cultural legacy and social significance of shrine visitation among women in Pakistani society.

Keywords: Spiritual devotion, cultural significance, empowerment, cultural heritage, ancestral customs

Foundation University Islamabad

Introduction

Shrines play a significant role in Pakistan's cultural and religious traditions, acting as centers for spiritual devotion and community gathering (Charan et al., 2018). Women, in particular, are deeply connected to these sacred spaces, engaging in rituals that reflect a harmonious blend of religious, cultural, and social values (Jassal & Akcapar, 2019). Throughout Pakistan, shrines dedicated to saints and spiritual leaders attract countless visitors who seek blessings, solace, and guidance. For many women, visiting a shrine is more than a religious act—it is a deeply personal and meaningful experience. Rooted in Sufi teachings, these visits highlight themes of love, devotion, and a spiritual connection with the divine (Aftab, 2022). This study explores the beliefs and practices of women who frequent the Imam Bari Shrine in Islamabad, delving into the cultural significance of these revered sites.

One of the key motivations for women visiting shrines is their belief in the saints' ability to intercede with Allah on their behalf. Women often pray for health, fertility, protection, and prosperity, reinforcing their faith and hope through these visits (Glik, 1988). The rituals performed at shrines—such as reciting prayers, offering flowers, lighting candles or lamps, burning incense, tying votive threads or padlocks, and circumambulating the shrine—are expressions of devotion and gratitude. These acts symbolize a profound spiritual connection with the saint (Charan et al., 2020). Furthermore, shrines serve as spaces for social interaction, allowing women to build connections, find support, and foster solidarity within the community (Canel-Çınarbaş et al., 2012).

Women may visit in groups, forming networks of mutual assistance and companionship or singly if they seek or wish to re-establish social support. Shrine visitations therefore are not only a religious act but are social and cultural events that strengthen community ties and foster a sense of belongingness (Osterberg, 2018) shaped by regional traditions, cultural norms, and individual interpretations of religious teachings (Richards, 2021). Role of shrines in Pakistani society have evolved over time, intersecting with broader sociopolitical, and economic factors which affect both genders, however little attention is given to women visits to shrines in Pakistan. To investigate this lesser-known area and understand its sociocultural complexities that include gender, religion, and identity (Ahmad, 2022), we carried out a qualitative study on women and their visitation to Barī Imām Shrine.

Barī Imām or Barī Sarkār or Syed Abdul Latif Kazmi Qadri was a 17th Century (1617-1705) ascetic Muslim Sufi saint, who today is revered as the patron saint of Islamabad, Pakistan. Born in Karsal, Chakwal District, Barī Imām followed the Qadiriyya Sufi order of the Islamic spirituality and died in Noorpur Shahan in Islamabad, where the shire exists today. A silver-mirrored shrine of Barī Imām was originally built by the Mughal emperor Aurangzeb, in the 17th century was renovated many times to its present architectural form, maintained today by the Government of Pakistan. Thousands of people visit the shine every day, and the attendance grows to hundreds of thousands of people during his *urs* death anniversary (May 24) celebrations of the saint (till 1960). It has been reported (Azam, 2021), on one such occasion 1.2 million people visited the shrine.

Method

Sample

A qualitative research design was used with a sample of 16 women, aged 25 to 35 years, who regularly visited the shrine of Barī Imām once a month, were included in the study. The recruited participants resided in poor neighborhoods near the shrine and were willing to participate voluntarily in the research. Their socioeconomic background and monthly shrine visits were important factors in understanding their experiences and engagement with the shrine in this study.

Table 1

Demographic Characteristics of the Participants

Alias	Age	Education	Employment
MF	25	Inter	House wife
FZ	23	Inter	Housewife
NA	34	B.A with diploma	Teacher
NY	20	Matric	Housewife
MA	28	Uneducated	House Cleaner
LN	25	BA	Receptionist
MN	29	B.A	Clerk
AK	32	M.Phil.	Admin officer
AI	35	MBA	Banker
WK	34	Master	Teacher
TB	27	Master	Nurse
NI	28	Inter	Housewife
JF	25	B.S	Mid wife
HA	21	Matric	Cook
AR	33	B.S	Nurse

Design and Procedure

A semi-structured interview (see appendix) was developed to explore the beliefs of women who regularly visit the shrine of Barī Imām. The interview guide was based on prior research and discussions with the supervisor, then reviewed by three experts who provided suggestions for refinement.

Consent from the participants were obtained both verbally and in writing and were interviewed at the shrine. The interviews approximately lasted for two hours and covered demographic information, "beliefs" about shrine visits, and additional questions that were part of the interview for deeper insights, some of these questions emerged during the interview (see appendix). Answers were analyzed by using thematic analysis (Braun & Clark, 2006), which involved transcribing the interviews (Urdu), utilizing both handwritten notes and audio recordings, translating the responses, and follow-up questions that needed clarifications. Themes were identified and subsequently grouped into sub-themes. A second author carefully reviewed the transcript to verify the themes and ensure the accuracy of the findings. Common themes were extracted from the interview transcripts and classified as major themes. The analysis was further reviewed by three experts who validated the study's results and provided suggestions, which were incorporated into the final analysis.

Results

Table 2

Codes, subthemes and themes Extracted for Interviews

Code	Subtheme	Theme
"ہر دفعہ مزار پر جانے کے بعد بڑا سکون ملتا ہے (ایم ایف)۔" "مزار مشکل لمحات میں طاقت اور رہنمائی دیتا ہے (ایف زی)۔" "مزار پر غور و فکر کا موقع ملتا ہے۔ جب جب میں دعا کرتی ہوں روحانی طور پر تازہ دم اور مضبوط ہو کر نکلتی ہوں (این اے)۔" "جب مجھے کسی مشکل کا سامنا کرتا ہوں تو میں اکثر دعا سے آغاز کرتی ہوں اور خدا سے رہنمائی اور طاقت کی دعا کرتی ہوں۔ میں کچھ اس طرح کہتی ہوں، 'یا اللہ، مجھے اس صورت حال کا سامنا کرنے کی حکمت اور ہمت عطا فرما اور صحیح راستے کی	Peace at the shrine. Proximity to the saint and his peaceful presence. Asking intercession by saint. Connection with Allah. Prayers and invocations to Allah. Problems presented to God.	Divine Connection.

"There is a great feeling of peace after each visit (MF)." "The shrine provides strength and direction during difficult moments in life (FZ)." "The visits to the are opportunities for reflection and rejuvenation. I engage in prayer and emerge feeling refreshed spiritually and empowered (NA)." "When I face challenges or difficult situations, I often start by praying and asking for God's guidance and strength. I say something like, 'God, please give me the wisdom and courage to navigate this situation and help me find the right path. This helps me feel more centered and supported (HA)."		
"I sit quietly and find comfort in the belief that the shrine's divine presence will provide me guidance and solace (JI)." "when I am here, I feel connected to something greater than myself, which provides a sense of spiritual renewal and strength (AK)." "I feel a comfort as I enter the shrine and find all the confusion has gone away that I feel every moment of life (NY)." "When I come here, I converse with Allah and seek forgiveness; my heart always comes at peace. It feels like my negative emotions are released, and my soul is purified (LN) [interpreted as catharsis]. "I seek forgiveness for my sins and ask for guidance towards the righteous path (AI)." "I feel profoundly peaceful and enlightened when I leave the shrine (AR)."	Peace and calmness. Experiencing catharsis and self-realization. Emotional purification.	Inner Contentment and Tranquility.
"A visit to shrine provide me with strength and direction during difficult moments in my life (FZ)." "When I face challenges or difficult situations, I often start by praying and asking for God's guidance and strength. I might say something like, 'God, please give me the wisdom and	Spiritual intercession and mediation. Financial Struggles and Spiritual Support. Gender-Specific Empowerment.	Empowerment and Resilience Through Spiritual Practices

courage to navigate this situation and help me find the right path.' This helps me feel more centered and supported (MA)."

"When I come to the shrine, it feels like I'm finally being heard. Outside, in my family or community, my voice doesn't matter much, but here, I'm part of something bigger. The other women understand me, and the Sufi saints give me strength. I feel respected and valued, which is rare for a woman in my society (participant TB)."

"At the shrine, I find a sense of belonging that I don't feel anywhere else. It's like a second home where no one judges me or makes me feel small. We all share our stories, support each other, and that gives me the strength to keep going in a world that doesn't always appreciate women's worth (participant FZ)."

"These visits sometimes help find solutions to our problems, and bring a short period of peace through sharing experiences with other visitors (NI)." "When I visit the shrine, I not only come to pray but also talk to other women facing similar challenges. It's comforting to know I'm not alone, and sometimes their advice, or just hearing their stories, helps me gain clarity with my own struggles(NY)."	Social Bond	Social connectedness
"I visit the shrine regularly to honor the customs of my ancestors. This practice has been passed down through my family for generations, and I feel it is my duty to keep this tradition alive, respecting the legacy of those who came before me (JF)." "Visiting the shrine is a tradition in our family that has been upheld for decades. Our elders have always advised us to continue this practice throughout our lives. It is a way of making our ancestors happy and honoring their memory, ensuring that our cultural practices endure (FZ)."	Fulfilling Sacred Obligations. Honoring Ancestral Customs.	Cultural Traditions

Divine Connections

The results of the study reveal that participants visited the Bari Imam shrine primarily to seek spiritual connection, guidance, and solace. The rituals and practices performed by women at these sacred sites serve as physical expressions of their faith, gratitude, and devotion, creating a profound spiritual connection between the worshiper and the divine (Ghadially, 2005)

Inner Contentment and Tranquility

Women visit shrines to find a sense of inner peace and calmness. They believe that the spiritual environment and rituals performed there contribute to their emotional well-being. Women often visit shrines seeking a sense of inner peace and tranquility, believing that the spiritual atmosphere and rituals performed at these sites enhance their emotional well-being. Each visit brings a profound sense of calm and connection to something larger than themselves, leaving them feeling renewed and strengthened (Massam, 2021).

Empowerment and Resilience

The third emergent theme was empowerment and resilience through spiritual connection. support, and manage stress more effectively. Spiritual connections are particularly powerful in fostering resilience by helping individuals feel connected to something greater than themselves, which can reinforce their sense of purpose and inner strength. Engaging in spiritual rituals and connecting with a faith community can also provide social support, which further enhances emotional resilience (Flemming & Ladogar , 2010). Even it was evident in another studies through prayers, offerings, and acts of devotion, women express their hopes and intentions to acquire financial stability, prosperity and feel themselves empowered (Charan et al, 2020).

Social Connectedness

Shown, shrines frequently serve as spaces for the public, where they gather to socialize with people who share in the same values and believe in the same thing. According to research, visiting shrines leads women to often feel socially attached by associating with a social environment through which they connect to others with a similar belief system. This social bonding is secured through shared rituals, collective prayers, and mutual beliefs that strengthen the social bonding by adding emotional support to it. For example, studies on the Hazrat Mian Mir shrine visitors in Pakistan highlight that the shrines act as inclusive platforms where these people from different walks of life are all coming together to not only strengthen community bonding but also spiritual bonding among the worshippers. This feeling of belonging by spiritual congregations enables women to feel part of a larger supportive (Abbas et al., 2013).

Cultural Traditions

Visits to shrines carry deep cultural connotations in most societies, echoing traditions that have been passed down over generations. In most of these practices, women play pivotal roles, where they honor family obligations and sustain cultural heritage. These visits may include paying homage to the ancestors, participating in communal rituals, or any other activity that reaffirms family relationships and cultural identity (Hegland, 2003; Ali, 2006). Through such meaningful engagements, shrines become spaces for women to uphold customs while nurturing a sense of both personal and community connection. no plagiarism

Discussion

The results show that participants visit shrines very often for deepening spiritual relationships, seeking guidance, and finding comfort. This is in line with studies showing that shrines offer a space where people can experience an intimate relationship with the divine, thereby fulfilling their spiritual needs. Women often perform rituals that reflect their belief and conviction, thus drawing closer to the sacred and gaining solace during difficult periods (Ghadially, 2005). The shrines therefore become locations for prayer and meditation, following a similar model as in the South Asian traditions of spirituality (Hegland, 2003; Ali, 2006).

Each time participants visited a shrine, they reported feeling deep within their inner selves and renewed. Such feelings of serenity were thought to improve emotional well-being. Many participants believe that the serene setting of shrines helps in their emotional struggle; indeed, studies have proven this, showing how the peaceful surroundings of shrines promote emotional awareness and reduce stress, leading to better mental well-being (Massam, 2021; Flemming & Ladogar, 2010).

A powerful theme in the study was the empowerment and resilience that women felt through spiritual practices at shrines. Multiple participants said these practices helped them face day-to-day challenges and really manage stress quite well. In fact, research speaks to the resilience that spiritual practices can foster through connecting people to something bigger, giving them a sense of purpose, and reinforcing inner

strength. Charan et al. (2020) find that shrine visits empower women, especially in the provision of economic stability and emotional security as a result of collective rituals and offerings.

Shrines also become social places through which visitors can interact with other people holding the same belief, thus fostering social relationships. This is important for women since other settings may have fewer opportunities in this aspect. For example, studies on the Hazrat Mian Mir shrine in Pakistan revealed that women visiting shrines are likely to experience a sense of community because shared rituals foster emotional support and social cohesion (Abbas et al., 2013).

This further solidifies the cultural significance of shrine visits since they also happen to be generational. Women take central roles in many of these shrine visits, where they tend to merge the same with visits to ancestors and discharge family duties. Such activities have been proved to be rooted within family and community values and, as such, assist in preserving cultural heritage and building up a common sense of identity (Hegland, 2003; Ali, 2006). As a result, shrines are personal spaces for spiritual communion but also community spaces where women celebrate and worship their identity through meaningful rituals.

The visits to the shrines are important as they help preserve cultural and religious heritage in building community identity, according to Hegland (2003) and Ali (2006). This pilgrimage to shrines due to empowerment and solidarity with other women also leads to some strong social support networks that strengthen resilience and improvement in mental wellbeing (Flemming & Ladogar, 2010; Charan et al., 2020). The peaceful emotional healing found within the participants suggests that there are therapeutic advantages from spiritual activities and that such aspects should be part of the mental health programs (Massam, 2021). These findings support the interface of culture traditions and religious beliefs in a broader context of society and health policies. Recognition of the role played by women can further help design gender-sensitive policies that may suit their psychological and social needs.

This study is very insightful concerning the beliefs and practices of Pakistani women shrine visitors. Still, it is not free of limitations either. First, the study was conducted on women aged 25 to 36 who were regular visitors to the Imam Bari shrine, which may limit the generalizability of the findings to other age groups and shrine locations. The study is qualitative in nature; hence, it may not represent all the different experiences and views of female shrine visitors. Future research studies can use more quantative techniques or greater numbers of participants to construct a more inclusive, all-embracing knowledge about shrines in Pakistan. This is also an area where this study has failed to provide perspectives of religious leaders and male shrine visitors who may bring forth valuable information in gender relations and power play of shrine societies.

Conclusion

This study shows how shrine visits are a profound spiritual experience of connection, emotional well-being, and social bonding. As with other international studies, the experiences of participants in seeking divine guidance, inner peace, and strengthening community bonds are consistent with this study. Reiteration of such themes underscores the universal significance of sacred spaces as a source of empowerment, resilience, and cultural continuity. These findings therefore emphasize the importance of spiritual practices in personal and communal life in any culture.

Declaration

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Attachment Styles and Orthorexic Eating Behaviors among Fitness Club Members

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Abstract

Objective. This study explored the influence of attachment styles onorthorexic eating behaviors (OEBs) in fitness club members.

Method. In a cross-sectional design, a purposive sample of 46 men and 60 women ($N = 106$) that were members of fitness club were selected and were asked o complete Attachment Style Questionnaire (Van-Oudenhoven & Hofstra, 2008) and Eating Habit Questionnaire (Gleaves et al., 2013) to assess study variables.

Results. Pearson product moment correlation showed that fearful, preoccupied and dismissing attachment styles ware positively associated with orthorexiceating behaviors. Hierarchical regression analyses revealed that fearful and dismissing attachment styles and duration of exercise positively predicted OEBsin fitness club members, however greater level of education reduced OEBs.

Conclusion & Implications. The study can be used to guide health organizations that take on members to help them control their weight issues should make them aware of possible obsession health predispositions that could work against the health of their members.

Keywords: fitness club members, attachment styles, orthorexic eating behaviors, OEBs

Foundation University Islamabad

Introduction

Appropriate eating behaviors and physical activity are important for a healthy lifestyle and psychological wellbeing (Blair et al., 2012; Mutrie, 2001). However, healthy eating can be problematic when it turns into an obsession or a persistent preoccupation. Orthorexic eating behavior (OEB) is characterized as, "pathological obsession or preoccupation with healthy eating" (Bratman& Knight, 2000; Cartwright, 2004; Koven&Abry, 2015). Individuals with orthorexic eating behaviors (OEBs) obsessively focus on healthful food choices, like organic foods with high nutritional value and their cooking and preparation. Bratman (2017) divides such obsession into two phases, choosing to eat healthy, and thenintensifyhealthy food choices into an obsession which ultimately leads to pathology. There are no empirically tested diagnostic criteria for orthorexic eating behaviors, but different studies have tried to calculate the prevalence rates of OEBs in a range of the cross-cultural sample. According to Almeida et al. (2018), OEBs were more prevalent among individuals who exercise more than 3 times a week, with prevalence rates (51.8%) in their overall sample. The OEBs estimated by Segura-Garcia et al. (2012) in athletes and fitness club members, ranged from 28 (women) to 30 (men) percent, while the prevalence was higher (43.4%) in a sample of yoga practitioners(Valera et al., 2014). According to McComb and Mills (2019), obsessive-compulsive traits, a drive for thinness, a history of another psychological disorder, poor body image, and being a vegetarian are considered as the risk factors for ON.

Previous studies have reported attachment styles as an important risk factor in eating disturbances. Disruptive early experiences or attachments as well as negative attachment experiences were associated with eating disturbances (Lehoux & Howe, 2007; Treasure & Schmidt, 2013).Individuals suffering from eating-related disorders reported that their early attachments were less responsive and more rejecting (Chassler, 1997). Similarly, the relationship with current attachment figures was also marked by fears of rejection, uncertainty, frustration, jealousy discomfort with closeness, and overall low satisfaction (Evans et al., 2005).Attachment theory (Bowlby, 1973) explains the development and maintenance of close relationships. During periods of emotional distress, warmth and support shown by a significant caregiver form the basis of these attachment styles. Individuals that receive warmth and support develop secure attachment styles, are open to others and explore their surroundings and relationships, for example they tend to be (a) open, collaborative, committed, and proactive in their relationships (b) trust their abilities, and most importantly, (c) can integrate their relationships (Dozier, 1990).That is why secure attachment style negatively correlate with disordered eating (Elgin & Pritchard, 2008). Insecure attachment styles are generally divided into three, where preoccupied attachment style makes people excessively expressive in their emotions, need attention, and are highly dependent on their relationships (Gillath et al., 2016). Individuals with a fearful attachment style seek approval from others, are fearful of intimacy, and seek relationships as painful (Favez &Tissol, 2019). Fearful attachment style is positively related to ON (Barnes & Caltabiano, 2017). A dismissing attachment style has a sense of worthiness but a negative view of other people, rigidity/inflexibility and difficulties in seeking help (Dozier, 1990; Rennie et al., 2004). This style is positively associated with eating disturbances (Elgin & Pritchard, 2008). The cognitive-interpersonal maintenance model of eating (Treasure & Schmidt, 2013) can be used to theorize attachment styles and eating behaviors. It proposed that socio-emotional, cognitive and interpersonal factors are important in developing eating disturbances. This model proposed that insecure attachments are one of the most important predisposing and maintain factors of eating disturbances. And since excessive exercise is associated with ON symptoms (Almeida et al., 2018; Rudolph, 2017) therefore, fitness club members were selected in the present study.

Hypothesis 1.the present study hypothesized that insecure attachment styles are likely to positively predict OEBs as opposed to secure attachment styles.

Methodology

Sample

A purposive sample of 46 men and 60 women ($N = 106$) that were members of fitness club were used in this study. A total number of four fitness clubs were selected from Lahore, Pakistan. Both men and women aged 19-30 (M=22.91, SD= 1.98) years were included. Individuals who exercised for at least 2 hours a week were members of the club for the last 6 months were included in the study. Individuals that followed a diet plan or were diagnosed with any eating disorders were excluded. In the present study, participants exercised an average of 5.96days (SD=1.21) per week with an

average of 15.13 hours (*SD*=4.67) weekly. Also, the participants exercised for an average of 2.54 hours (*SD*=.59) per day. The average BMI of the participants was 22.65 (*SD*=4.70) with average height of 65.94 cm (*SD* = 4.71) and weight of 63.83 kg (*SD* = 13.96). The average education of the participants was 15.87 years (*SD*=1.44). A total number of 152 participants were approached initially 46 were excluded because they did not respond to the questionnaires (see below) or did not meet exercise criteria. Details of demographic characteristics of the sample are given in Table 1.

Table 1

Demographic Characteristics of the Study Sample

Variable	N	%
Gender		
Men	46	43.40
Women	60	56.60
Birth Order		
First Born	30	28.30
Middle Born	46	43.40
Last Born	28	26.40
Only Child	2	1.90
Occupation		
Non-working	76	71.70
Working	30	28.30
Marital Status		
Single	95	89.60
Married	11	10.30
Use of Supplements		
Protein bars/ shakes	36	34.00
Vitamin supplements	32	30.20
None	38	35.80
Reason of Exercise		
Weight Loss	45	42.50
Weight Gain	11	10.40
Maintaining Health	40	37.70
Stress	3	2.80
Physical Health	2	1.90
Sports	5	4.70
Type of Exercise		
Aerobics	32	30.20
Cardio	34	32.10
Yoga	21	19.80
Walking/ Running/ Jogging	19	17.90

Assessment Measures

Attachment Style Questionnaire (ASQ). Van-Oudenhoven and Hofstra (2008) developed this scale consists of 24 items that is designed to explore the attachment styles of an individual. It consists of four subscales, Secure Attachment Style (SAS, 7 items), Preoccupied Attachment Style (PAS, 7 items), Fearful Attachment Style (FAS, 5 items), and Dismissing Attachment Style (DAS, 5 items). Examples of the scale items include; "*I feel at ease in an emotional relationship*" (SAS); "*I would like to be open to others but I feel I can't trust other people*" (FAS)*;* and "*I often wonder whether people like me*" (PAS); and "*I prefer that others are independent of me and I am independent of others*" (DAS), etc. Each item is rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly

agree). Internal consistency of the subscale ranged from (Cronbach alphas =.62 to .80).

Eating Habit Questionnaire (EHQ). Gleaves et al. (2013) developed a self-report measure that consists of 21 items and measures orthorexic tendencies. It measures knowledge of healthy eating, problems associated with healthy eating, and feelings towards healthily eating. It includes three subscales, including knowledge (K; 9 items), problems with healthy eating (P; 20 items), and positive feelings about to healthy eating (F; 6 items). Examples of items of subscales are "I follow a diet with many rules (P)", ''I feel in control when I eat healthily (F), and "My eating habits are superior to others (K).'' Items are rated on 4-pointLikert scale ranging from 1 "false, not at all" to 4 ''very true.'' The total composite score ranges from 21 to 84and the higher score on the scale indicates more obsessive eating behaviors. This scale has been recommended by multiple research studies for the measurement of OEBs (Gleaves et al., 2018).

Demographic Information Sheet. The demographic information sheet contains the information regarding the gender, age, education, weight, height, marital status, personal income, type of exercise, reason for exercise of participants. Moreover, information regarding the psychological and physical illness was also asked.

Procedure& Ethical Considerations. The present study was firstly approved by Departmental Doctoral Program Committee (DDPC) of the university. Permissions to use the assessment measures ASQ and EHQ were taken from the original authors of the questionnaires. Furthermore, questionnaires were shared with the heads and participants of fitness club members through online Google forms. Each participant was given an information sheet having detailed information regarding the research project and was asked to provide their consent before completing the scales. Participants were assured that all the information will be kept confidential and will only be used for educational and research purpose.

Data Analyses

Data analysis was done with the help of the Statistical Package for Social Sciences (SPSS version-22.0.0). Reliability analysis was done to measure the reliability of measuring instruments and their subscales.

Results

Table 2
Psychometric Properties of the Scales

Measure	M	SD	Range	a
Attachment Styles				
SAS	23.20	4.45	2.8-3.9	.64
FAS	17.20	3.60	3.1-3.6	.60
DAS	18.70	3.31	3.2-4.4	.64
PAS	3.13	.77	2.5-3.4	.78
EHQ	55.00	12.20	2.1-3.2	.90

Note. SAS = Secure Attachment Style, FAS = Fearful Attachment Style, DAS= Dismissing Attachment Style, PAS = Preoccupied Attachment Style, EHQ = Eating Habit Questionnaire

The results of Pearson product moment correlation showed that age was associated negatively and significantly ($r = -.30$, $p< .01$) with PAS, but not other attachment styles or OEBs. Similarly, education showed a negative and a significant ($r = .21$, $p< .05$) relationship with OEBs, indicating that higher level of education was related to a low obsession with healthy eating, however, education was not positively or negatively associated with attachment styles. Duration of exercise associated positively with FAS ($r = .20$, $p< .05$), PAS ($r = .23$, $p< .05$), DAS ($r = .20$, $p< .05$), signifying that longer duration of exercise is associated with fearful, preoccupied, and dismissing attachment styles. Duration of exercise was also associated significantly ($r = .20$, $p< .05$) and positively associated with EHQ indicating longer duration of exercise was associated with greater obsession with eating healthy. As expected, SAS was significantly negatively ($r = -.27$, $p< .01$) associated with FAS, and FAS was positively associated with PAS ($r = .35$, $p< .001$), DAS ($r = .33$, $p< .001$). In other words, secure attachment style was negatively associated with fearful attachment

style; and fearful attachment style was positively associated with preoccupied and dismissing attachment styles. Fearful attachment style was positively and significantly ($r = .37$, $p< .001$) associated with EHQ, and so were PAS ($r = .20$, $p< .05$) and DAS ($r = .36$, $p< .001$) associated with EHQ, suggesting participants having insecure attachment styles engaged more with OEBs (Table 3).

Table 3

Variance in OEBs Explained by Age, Education, and Duration of Exercise

Variables	age	Edu	Exe	SAS	FAS	PAS	DAS	EAT
Age	-							
Edu	.18	-						
Exe	-.01	.06	-					
SAS	.03	.19	-.01	-				
FAS	-.18	.02	.20*	-.27**	-			
PAS	-.30**	-.07	.23*	-.12	.35***	-		
DAS	-.12	-.11	.20*	-.01	.33***	.09	-	
EAT	-.12	-.21*	.20*	-.05	.37***	.20*	.36***	-

Note. Edu = Education, Exe = Duration of Exercise in a week, SAS = Secure Attachment Style, FAS = Fearful Attachment Style, DAS = Dismissing Attachment Style, PAS = Preoccupied Attachment Style, EHQ = Eating Habit Questionnaire
*$p< .05$, **$p< .01$, ***$p< .001$

Hierarchical regression analysis showed that 10 percent of variance in OEBs was explained by age, education and duration of exercise, $F (3, 102) = 3.60$, $p < .05$. Education negatively ($B = -1.72$, $p< .05$), and duration of exercise positively ($B = .56$, $p< .05$) predicted OEBs in fitness club members. In Model 2 attachment styles were added. This model explained 16% variance in OEBs, $F (7, 98) = 4.69$, $p<.001$ and indicated that fearful ($B = 5.31$, $p< .01$) and dismissing ($B = 4.21$, $p< .05$) attachment styles positively predicted OEBs in fitness club members.

Table 4

Hierarchical Regression Analysis showing Predictors of OEBs

Variable	B	95% CI for B		SE B	B	R^2	ΔR^2
		LL	UL				
Step 1						.10	.10*
Constant	86.60	52.44	120.76	17.22			
Age	-.56	-1.72	.61	.59	-.09		
Edu	-1.72*	-3.32	-.11	.81	-.20*		
Exe	.56*	.07	1.05	.25	.21*		
Step 2						.25	.16***
Constant	35.63	-6.01	77.28	20.99			
Age	.01	-1.11	1.16	.58	.00		
Edu	-1.72*	-3.27	-.18	.78	-.20		
Exe	.26	-.22	.74	.24	.10		
SAS	1.67	-2.39	5.72	2.04	.08		
FAS	5.31**	1.52	9.10	1.91	.29**		
PAS	.80	-2.29	3.88	1.56	.05		
DAS	4.21*	.44	7.97	1.90	.21*		

Note. Edu = Education, Exe = Duration of Exercise, SAS = Secure Attachment Style, FAS = Fearful Attachment Style, DAS = Dismissing Attachment Style, PAS = Preoccupied Attachment Style, EHQ = Eating Habit Questionnaire
*$p< .05$, **$p< .01$, ***$p< .001$

Discussion

The present study explored the attachment styles as predictors of OEBs in fitness club members and found insecure attachment styles did indeed lead to OEBs. These results are supported by previous studies that showed insecure attachment styles as significantly related to eating disturbances (Elgin & Pritchard, 2008; Mikulincer& Shaver, 2016). Fearful, dismissing, and preoccupied attachment styles were positively related to the OEBs, showing that individuals with these attachment styles were at high risk of developing orthorexia symptoms. Similarly, Barnes and Caltabiano (2017) reported that dismissing and fearful attachment styles were positively related to

ON in fitness club members. It has been reported that fearful attachment is defined by negative views about self and others while dismissing attachment style is defined by a negative view of others and this negative view could be related to the presence of eating disturbances such as ON (Elgin & Pritchard, 2008). Furthermore, individuals with preoccupied attachment styles strive to seek acceptance from others and excessively express their emotions. Previous studies also point out patterns of disordered eating behaviors is perceived as expressions of the unregulated cognitions and behaviors that are characteristic of the preoccupied attachment style (Ringer & Crittenden, 2007). Hochdorf et al. (2005) similarly reported, individuals with eating disturbances are more likely to be avoidant and anxious in their attachment styles. Our hypotheses about attachment (fearful and dismissing) styles predicted OEBs and were aligned with previous studies (Barnes & Caltabiano, 2017; Elgin & Pritchard, 2008). Other studies (Hayatbini& Oberle, 2018) have reported that OEBsare associated with inflexible thoughts and behaviors.

In demographics, level of education and duration of exercise showed significant associations with orthorexic eating behaviors. Level of education was negatively related to orthorexic eating behaviors, indicating the higher education is related to low levels of orthorexic eating behaviors in fitness club members. Duration of exercise in the members of the fitness center also predicted OEBs, the longer they exercised the greater were their OEBs. These results are supported by previous studies as Almeida et al. (2018)reported that people who exercised more than 3 times a week (or were addicted to exercise, Rudolph, 2017) had OEBs.

Implications, Limitations, and Future Research

The present study provides some preliminary data on a set of Pakistani adults from a fitness center who were engaged in maintaining their physique (shed and maintain weight) and regulate their eating behaviors. In the present study, exercise, education or their attachment styles accounted for developing OEBs. This information should be disseminated to people who manage gyms, fitness centers and health studios, because those who manage these centers can guide their members about potential health risks that can emerge asorthorexic eating behaviors. They can create such awareness by arranging different workshops and seminars related to orthorexia symptoms in members and community in general. This study was limited to a small sample of fitness club members which clearly needs replication with more people from different walks of life who exercise (including professional athletes) and those that do not. Furthermore, studies should look at many nuisances of exercise addiction (not simply hourly duration of exercise per week, as done in this study). Finally, in-depth qualitative studies should be carried out to explore emotional, cognitive, social, and interpersonal aspects related to OEBs and ON.

Conclusion

It is concluded that attachment style can be an important factor that can predispose people to aberrant eating behaviors and initiate orthorexic eating behaviors, make them choosy about what they eat. If they guard their body weight and shape, choosing special foods may become an all-time obsession verging on the threshold of behavioral disorder. Such OEBs can exacerbate if people with insecure attachment styles exercise. Exercise and being less educated can increase obsessions about eating and the possibility of ON.

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Research Article

Predictors of Difficulties in Treatment Adherence in Patients with Mental Health Disorders: Role of Personality and Paranormal Beliefs

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Abstract

Objectives. The decision to use mental health services can be influenced by personality characteristics and casual beliefs that people with different mental health disorders hold about the reasons for their condition. Therefore, the present study aimed to find out the association and predictors of personality traits, paranormal beliefs, and difficulties in treatment adherence in patients with mental health disorders.

Method. The study used a correlational research design. Purposive sampling was used to collect data from 210 patients (Male= 107, Female = 103) from different hospitals in Lahore.

Results. Results showed that neuroticism had a positive association while openness had a negative association with paranormal beliefs and difficulties in treatment adherence. Hierarchical regression showed that age, gender, residential area, neuroticism, and paranormal beliefs are significant positive predictors of difficulties in treatment adherence. Females exhibited more neuroticism, had high paranormal beliefs, and were more vulnerable to having difficulties in treatment adherence as compared to male participants of the research. In terms of mean difference, unemployed patients scored high on difficulties in treatment adherence as compared to patients with occupation. The ANOVA indicated that there was a significant difference in types of disorders in terms of neuroticism and difficulties in treatment adherence.

Conclusion & Implication. The study highlights the need for healthcare professionals to adopt a more patient-centered approach to treatment planning. Mental health practitioners, including psychiatrists, psychologists, and social workers, should assess adherence barriers on an individual basis and implement strategies to enhance compliance.
Keywords: Personality traits, paranormal beliefs, difficulties in treatment adherence, patient, mental health disorder

Foundation University Islamabad

Introduction

There has been an alarming increase in the frequency of mental health problems as a result several biological, psychological and social factors. These factors can vary from family environment, interpersonal difficulties, lack of effective stress coping mehcanisms and substance use. Change in societal norm and political instability throughout the world also serves as a social stressor for individuals (Nisar et al., 2019).

More than 9 million are living with mental health issues (WHO, 2019). Similarly, 10% of Pakistan's population, or more than 20 million people, are affected by mental illness and the prevalence of non-adherence to this psychiatric illness is 39% (Fawad et al., 2008).

As personality directs actions and habits, both have a significant impact on general mental health (Cummings, 2019). The Big Five is probably the most used framework for the study of personality traits (Anusic & Schimmack, 2016). It provides a clear framework for understanding others and fostering better relations by understanding why people perform the way they do. The idea can even be used to help comprehend others and how to get along with people more effectively (Dienstman, 2018). The Five-Factor Model, which identifies Conscientiousness, Openness, Extraversion, Agreeableness, and Neuroticism as the five main personality qualities, is the most known system of traits (Diener & Lucas, 2022). With high Openness to Experience individuals can quickly adjust to shifting circumstances and look for creative solutions to issues (Ma et al., 2021).

Neuroticism is defined as a person's tendency to experience negative emotions. High tendencies lead to experiencing negative thoughts, low mood, anxiety, and low self-esteem whereas low tendency results in stable emotional state and calmness. It undoubtedly increases the likelihood of many extremely bad life situations and makes it more difficult for people to deal with them appropriately (Alarcon et al., 2021).

In Pakistan, as in other impoverished countries, people mistakenly believe that mental illnesses are caused by supernatural forces, such as Jinn possession, black magic (jadoo), or evil eyes (Widiger & Oltmanns, 2017). There is a lack of understanding about mental health illness in Pakistan. Such illnesses are often seen as a curse, a spell, or a test from God. Since patients and their families frequently place a lot of faith in religious healers, those who experience mental illness frequently turn to them before mental health experts (Karim et al., 2004). This has caused underdiagnosis of illnesses and protracted delays in receiving treatment (Gilani et al., 2005). Such beliefs, particularly diverse paranormal beliefs may impact patients' perceptions and treatment choices. Thus, the decision to adhere to treatment and use mental health services can be influenced by the causal beliefs that people with different mental health disorders hold about the reasons for their condition, depending on their tradition of culture and the conventional methods of healing (Gopalakrishnan, 2018). Depending on the choice of treatment, individuals may approach dealing with their mental issues in very different ways which may poorly affect their mental health and even lead them to a more severe condition. As a result of a lack of adherence to the treatment, they can experience an increase in hospitalization (Dixon et al., 2016).

According to research on treatment adherence, personality characteristics perceptions, and beliefs about mental diseases affect a person's ability to adhere to the treatment guidelines (Emilsson et al., 2020). Therefore, the study aimed to examine the association and find out the predictors of personality traits, paranormal beliefs, and difficulties in treatment adherence in patients with mental health disorders. Moreover, it gives detailed information about how demographics play an important role in shaping beliefs about mental illnesses and treatment choices such as education, gender, socioeconomic status, and types of treatment they believe.

Pakistan is a culturally rich and spiritually connected country with 96% of Muslim population (Zaman, 2018). Due to the religious and spiritual dynamics of the country, it is foreseeable that paranormal beliefs are generated due to spiritual correlation. Due to inclination towards spirituality and spiritual healing, there is a great focus towards spiritual healing, which results in declined treatment adherence of psychological issues. The study aims to understand the role of paranormal beliefs in the treatment adherence of the mental health disorders, with personality being a driving force, which predisposes the tendency to develop paranormal beliefs.

Hypothesis

Hypothesis 1. There is likely to be a relationship between personality traits, paranormal beliefs and difficulties in treatment adherence in patients with mental health disorders

Hypothesis 2. Demographics, personality traits and paranormal beliefs will likely to predict

difficulty in treatment adherence in patients with mental health disorders.

Hypothesis 3. There is likely to be significant mean difference between men and women in terms of study variables.

Hypothesis 4. There is likely to be a significant mean difference between employed and unemployed individuals in terms of study variables

Method

In this study, correlational research design was used to measure the association between personality traits, paranormal beliefs, and difficulties in treatment adherence in patients with different mental health disorders. A sample 210 diagnosed Patients (207 Males, 203 Females) getting treatment from different hospitals in Lahore were made part of the study. A purposive sampling strategy was used to collect the data. The data was collected from both genders. The diagnosed patients who were receiving treatment of medication and therapy for at least 4 months were included in the study. Furthermore, Patients with psychotic disorders and who were in the active phase of the illness were excluded from this study.

Assessment Measures

The following assessment measures were used in the study.

Demographic Form. This form was developed to collect data about the characteristics of the participants. In this form, questions were related to age, gender, education, socioeconomic status, family type, marital status, current treatment duration of the disorder, and types of treatment sought before.

Big Five Inventory Urdu (Khan et al., 2019). In the present study, only openness and neuroticism traits from the five dimensions of Big Five Personality Inventory were used. Literature suggested that openness and neuroticism have a greater impact on paranormal beliefs and difficulties in treatment adherence due to cognitive and emotional processing (Peltzer, 2002). Because of the culture and language barrier the translated Urdu version of this scale was used. This is the self-report measure. Neuroticism consists of 8 items two of them had reverse scoring and openness had 10 items of which 3 items had reverse scoring. This was a 5-point Likert scale ranging from 1= Strongly Disagree to 5= Strongly Agree. The highest scores indicate that a person has those

particular personality characteristics. The reliability of the original scale was =.79.

Paranormal Beliefs (Asif & Yousaf, 2021). A scale of supernatural beliefs was used to assess the paranormal beliefs developed by Asif and Yousaf (2021). This was an Indigenous tool that was in the Urdu language. This was a self-report measure containing 49 items. The scoring of this scale is a 7-point Likert scale which ranges from 0= strongly disagree to 7= strongly agree. The highest scores indicate that individuals have strong paranormal beliefs. The reliability of the scale was .71

Difficulties in Treatment Adherence Scale (Shamshad & Sultan, 2023). To measure the difficulties in treatment adherence in patients with mental health disorders, the tool was indigenously developed for this study through exploratory factor analysis. After factor loading, 24 items were extracted. The scale follows 4-point Likert Scoring from 0=never, 1=seldom, 2=often and 3=all the time. The reliability of the scale in this study was noted to be .91

Ethical Consideration. For this research, the ethical guidelines of the Institutional Review Board (IRB) of the University of Management and Technology were used. Permission was given by the scale's authors to use their measures, and permission was given by hospitals to access the psychiatry wards for data collection. The data was collected only from those patients who were in the residual phase of the mental illness and/or were taking follow-ups. They voluntarily participated in the study. The researcher explained the study's purpose, and Informed consent was taken from them. They were assured the confidentiality of the data provided by them. The data was collected, entered and stored confidentially ensuring the safety and privacy of the participants.

Results

The results include the descriptive and inferential analysis of the study variables. Before running the parametric test, normality analysis was conducted to ensure that the data was normally distributed and met the assumptions of the parametric test. In the descriptive analysis, the mean and standard deviation of continuous variables, frequencies, and percentages of categorical variables were included. On the other hand, the Pearson product-moment correlation and hierarchical regression were used to

test the main hypothesis. For testing the secondary hypothesis, T-test and ANOVA were used to check the differences between the demographics in terms of the study variables.

Section I: Demographic variables

The sample consisted of 107 males and 103 females. The average sample data indicated that the participant's age was falling under the age range of 31.45. 112 participants were employed whereas 98 participants were unemployed. 119 participants were married whereas 95 participants were unmarried.

talking about the area of residence, it was divided into two categories, urban and rural. 110 participants were from urban areas whereas 100 participants were from rural backgrounds. Furthermore, the demographics showed that 82 participants were diagnosed with mood disorders. This included unipolar and bipolar disorders which 40 participants diagnosed with depression and 41 participants with bipolar disorder. 64 participants were diagnosed with anxiety disorder, 30 participants with conversion disorder and 34 with substance use disorder.

Section II: Testing the main hypothesis

Table 1

Pearson Product Moment Correlation of the Personality Traits, Paranormal Beliefs, and Difficulties in Treatment Adherence in patients with mental health issues (N=210)

Variables	N	M	SD	NEU	OPE	PB	DTA
NEU	210	30.41	10.48	-	-.36**	.61**	.62**
OPE	210	23.47	11.64	-	-	-.22**	-.28**
PB	210	186.87	58.13	-	-	-	.75**
DTA	210	32.48	15.18	-	-	-	-

Note: N= Number of Participants, M=Mean, SD=Standard Deviation, NEU=Neuroticism, OPE= openness, PB= Paranormal Beliefs, DTA= Difficulties in Treatment Adherence
*$p<.05$, **$p<.01$, ***$p<.001$

The Correlation analysis showed that there is a significant relationship between Personality traits, Paranormal beliefs, and Difficulties in Treatment Adherence in patients with mental health disorders. In terms of type of personality, Neuroticism had a significant positive relationship with paranormal beliefs and difficulties in treatment adherence. This shows that patients with high neuroticism have more paranormal beliefs and have faced more difficulty in adhering to the treatment. Whereas, openness had a significant negative correlation with paranormal beliefs and Difficulties in Treatment Adherence. Patients with higher scores on openness had low scores on paranormal beliefs and showed more adherence to the treatment.

furthermore, paranormal beliefs had a significant positive relationship with difficulties in treatment adherence. The more paranormal beliefs an individual has, the more chances of facing difficulties in adhering to the treatment.

Table 2

Hierarchical Regression Analysis of Demographic, Personality Traits, Paranormal Beliefs and Difficulties in Treatment Adherence (N=210)

Variable	B	95% CI		SEB	β	R^2	ΔR^2
		LL	UL				
Step 1						.09***	.09
Constant	7.87	-3.18	18.92	5.60			
Age	.37	.12	.62	.12	.20**		
Gender	8.54	4.49	12.59	2.05	-.28***		
Step 2						.21***	.11
Constant	-3.87	-24.82	17.07	10.62			
Education	-2.15	-8.40	4.08	3.16	.04		
Occupation	1.38	-3.79	6.57	2.62	.09		
Marital Status	2.08	-.80	4.97	1.46	.21**		
Residential Area	7.92	3.16	12.67	2.41			
Step 3						.62***	.41
Constant	-6.00	-21.24	9.24	7.72			
Neuroticism	.33	.16	.50	.08	.23***		
Openness	-.07	-.20	.05	.06	-.05		
Paranormal Belief	.14	.11	.17	.01	.55***		

Note: B = Un-standardized Coefficient Beta, *LL*=Lower Limit, *UL*= Upper Limit, *SEB*= Standardized Error Beta, β=Beta, R^2= R Square, ΔR^2= Adjusted R square,
*p<.05, **p<.01, ***p<.001

To check the predictors of difficulties in treatment adherence, hierarchical regression analysis was used. In Step I, Age (b = .20, p < .01) and Gender (b = .28, p < .001) were found to be the significant predictors of difficulties in treatment adherence. Greater the age of the participants showed an increase in difficulties in treatment adherence. Similarly, female participants were found to have more difficulties in treatment adherence as compared to male participants. Model 1 explained 9% of the variance in Difficulties in treatment adherence (R^2 = .09), with F (2, 206) = 10.90, p < .001.

In Step II, Marital Status was found to be a significant predictor (b = .21, p < .01) of difficulties in treatment adherence. The result shows that married participants had significant difficulty in adhering to the treatment (R^2 = .21) with F (5, 201) = 5.99, p < .001.

In Step III, Neuroticism (b = .23, p < .001) and Paranormal Beliefs (b = .55, p < .001) were found to be the significant predictors of difficulties in treatment adherence, the model explained 62% of the variance (R^2 = .62) with F (3, 198) = 72.54, p < .001.

Section III: Testing the secondary hypothesis

Table 3

Independent Sample t-test for Mean Difference in Gender, Personality Traits, Paranormal Beliefs, and Difficulties in Treatment Adherence (N= 210)

Variable	Men (N=107)		Women (N=103)		$t (208)$	*p*	Cohen's d
	M	*SD*	*M*	*SD*			
Neuroticism	28.15	11.32	32.73	9.02	-3.22	.00**	0.44
Openness	22.29	11.04	24.70	12.16	-1.50	.13	0.20
PB	173.18	59.03	201.09	53.88	-3.57	.00***	0.49
DTA	28.94	14.40	36.16	15.17	-3.53	.00**	0.48

Note*: M*=Mean, *SD*=Standard Deviation*, PB*= Paranormal Beliefs, *DTA*= Difficulties in Treatment Adherence
*p<.05, **p<.01, ***p<.001

An Independent sample t-test was used to check the mean difference between male and female participants in terms of the study variables. The results showed that men and women differ significantly in terms of neuroticism, paranormal beliefs, and difficulties in treatment adherence. Furthermore, it was found that females scored more on neuroticism than men. Similarly, females scored more on paranormal beliefs and difficulties in treatment adherence. This shows that female participants having more neuroticism are more likely to have more paranormal beliefs as compared to males which results in difficulty in adhering to the treatment.

Table 4

Independent Sample t-test for Mean Difference in occupation, Personality Traits, Paranormal Beliefs, and Difficulties in Treatment Adherence (N= 210)

Variable	Employed (N=112)		Unemployed (N=98)		t (20)	p	Cohen's d
	M	SD	M	SD			
Neuroticism	29.20	10.70	31.78	10.10	-1.78	.07	0.24
Openness	24.21	11.34	22.62	11.98	.98	.32	0.13
PB	179.31	57.26	195.50	58.21	-2.02	.04*	0.28
DTA	29.68	14.25	35.68	15.65	-2.90	.001**	0.40

Note: M=Mean, SD=Standard Deviation, PB= Paranormal Beliefs, DTA= Difficulties in Treatment Adherence

The above table showed significant mean differences in paranormal beliefs and difficulties in treatment adherence. Furthermore, results depicted that there is no significant mean difference in personality traits in terms of neuroticism and openness. Furthermore, unemployed patients were more vulnerable to difficulties following their treatment rather than those patients who were employed, had a source of earnings, and could bear their treatment expenses. In terms of paranormal beliefs, unemployed participants depicted higher paranormal beliefs as compared to the employed participants.

Table 5

- Way Analysis of Variance (ANOVA) For Personality Traits Paranormal Beliefs and Difficulties in Treatment Adherence among Mental Health Disorders (N=210)

Variables	Mood Disorder (N=81)		Anxiety (N=64)		Conversion (N=30)		substance use disorder (N=34)		F	P	$\acute{\eta}^2$
	M	SD	M	SD	M	SD	M	SD			
NEU	30.47	10.14	33.28	7.64	28.33	12.57	26.68	12.60	3.55	.01**	0.22
OPEN	21.79	10.39	24.13	11.01	23.27	12.74	26.47	14.20	1.39	.24	0.14
PB	177.27	54.72	194.33	59.52	188.80	56.99	194.26	63.55	1.29	.27	0.13
DTA	27.95	13.61	37.25	15.82	34.93	15.34	32.26	14.83	5.07	.00**	0.27

Note. M=Mean, SD=Standard Deviation, p= significant level, PB= Paranormal Beliefs, DTA= Difficulties in Treatment Adherence

One-way ANOVA was used to assess the differences in categories of mental health problems in terms of study variables. The categories of mental health problems were mood disorders, anxiety, conversion, and substance use disorder. The results of the one-way ANOVA showed that there was a significant difference in the categories of mental health disorders in terms of neuroticism and difficulties in treatment adherence. The post-hoc analysis shows that participants with anxiety disorders significantly differ in terms of neuroticism from other mental health disorders. This shows that participants with anxiety have more neuroticism as compared to participants with other mental health disorders. Furthermore, anxiety also turned out to be a significant difference from other mental health disorders in terms of difficulties in treatment adherence. This shows that participants with anxiety disorders have more difficulty in seeking treatment for their issues as compared to participants with other disorders.

Discussion

The findings of the present study indicated that neuroticism, paranormal beliefs, and difficulties in treatment adherence had a significant positive relationship with each other. This proves our hypothesis that patients with high levels of neuroticism will result in developing more paranormal beliefs as high neuroticism makes a person think more negatively and given the socio-cultural dynamics, people in Pakistan are more inclined towards having superstitions about paranormal entities. This increase in paranormal beliefs then makes them less adherent to the psychological treatment available to treat mental health disorders. Having high paranormal beliefs also hinders a person's ability's social functioning which also results in social limitations i.e., lack of funds, lack of support, and encouragement to seek treatment.

On the other hand, Openness to change was found to have a negative correlation with neuroticism, paranormal beliefs, and difficulties in treatment adherence. Consistent with the hypothesis, the researchers found that Difficulties in treatment adherence had a positive relationship with paranormal beliefs in psychiatric disorders (Ram et al., 2016). People who believe that there is a supernatural explanation for mental illness may be more prone to reject treatment, have a negative attitude toward it, and believe that magic or religious rituals can be beneficial (Grover et al., 2012). Difficulties in Treatment adherence were found to be positively influenced by neuroticism, suggesting that people who scored highly on this personality trait were more likely to engage in non-adherent behavior (Axelsson et al., 2011).

Age was found significant predictor of difficulties in treatment adherence which depicts that the more age increases will result in difficulties in adherence treatment (Jerant et al., 2010). Moreover, residential Area is also a strong predictor of patient non-adherence (Ghosh et al., 2022). Adherence was higher among residents of urban areas. Urban people adhere to treatment more frequently than rural ones (Lemstra & Rogers, 2021). Likewise, Neuroticism is also a negative predictor of adherence behavior which means that higher scores in neuroticism explain lower adherence to the treatment (Bagherian-Sararoudi et al., 2020). The current study discovered a statistically significant negative association between paranormal belief and adherence, which was in line with our hypothesis and earlier studies. People who believe that there is a paranormal explanation for mental illness may be more prone to believe that magic or religious

rituals are beneficial, have a negative attitude towards treatment, and make decisions about whether to continue taking treatment based on these beliefs (Grover et al., 2012).

The gender differences showed that Females exhibited more neuroticism than men experienced paranormal beliefs and were more vulnerable to having difficulties in treatment adherence as compared to men (Ruiz et al., 2008). Furthermore, it was also found that unemployed patients were more vulnerable to having difficulties following their treatment rather than those patients who were employed by occupation (Kang, 2022).

There is a significant difference between disorders in neuroticism and difficulties in treatment adherence. While openness and paranormal beliefs didn't show any significant differences among all categories of mental health disorders. The broad personality trait of neuroticism is strongly correlated with widespread mental disorders, such as anxiety (Stein et al., 2006). Openness traits are higher in patients with substance use disorders which was consistent with previous research (Hazrati-Meimaneh et al., 2020). On the other hand, patients with anxiety disorder and substance use disorders have strong paranormal beliefs. The fact that individuals with high levels of anxiety are known to have a substantial craving for a sense of control may also help to explain why these individuals have a higher level of belief in superstitious practices or constructions (Paudel & Subedi, 2019). Patients with anxiety disorders were also vulnerable to difficulties in treatment adherence more than depression, conversion, and substance use disorders. Patients with anxiety disorders alone had worse adherence rates than patients who also had depression (Thalbourne et al., 1995).

Limitations and Suggestions

One of the major limitation of the study is the relatively small sample size, which restricts the generalizability of the findings to the broader population. A larger sample size in future studies would enhance the statistical power and allow for more robust conclusions. Additionally, this study specifically examined difficulties in treatment adherence among patients diagnosed with neurotic disorders. While this provides valuable insights, it is important to recognize that treatment adherence issues are also prevalent, and perhaps even more pronounced, among individuals with psychotic disorders. Therefore, future research should consider including psychotic patients to gain a more comprehensive understanding of the factors influencing treatment

adherence across different psychiatric conditions. Expanding the scope of the study in this manner could contribute to the development of more tailored interventions and support mechanisms for individuals struggling with treatment adherence.

Conclusion and Implication

From a clinical perspective, understanding treatment adherence difficulties is crucial for improving patient outcomes. Findings from future studies could inform the development of targeted interventions, such as psychoeducation programs, cognitive-behavioral strategies, and medication management plans tailored to the needs of different patient groups. For instance, psychotic patients may benefit from structured adherence training, caregiver involvement, and long-acting injectable medications to mitigate non-adherence risks.

Practically, the study highlights the need for healthcare professionals to adopt a more patient-centered approach to treatment planning. Mental health practitioners, including psychiatrists, psychologists, and social workers, should assess adherence barriers on an individual basis and implement strategies to enhance compliance. Furthermore, policymakers and healthcare institutions should consider integrating adherence-enhancing measures, such as regular follow-ups, mobile health interventions, and community-based support systems, to improve long-term treatment retention. By addressing these challenges proactively, healthcare providers can improve patient well-being, reduce relapse rates, and enhance the overall effectiveness of mental health treatment programs.

Conflict of interest statement

The authors declare no conflict of interest

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Demographic Comparisons for Family Functioning, Distress Tolerance and Resilience in Adolescent

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Abstract

Background. Family functioning is related to the tolerance level of the individual and resilience from the growth of mental health and well-being. This research was carried out to explore the demographic differences between family functioning, distress tolerance, and resilience in adolescents.

Method. Cross-sectional research design was used. A sample of N=663 students (both males and females) from different educational backgrounds was selected using convenience sampling. A Family Assessment Device (FAD: Epstein et al., 1992), Distress Tolerance Scale (DTS; Simons & Gaher, 2005), and Resilience Scale (Anwar et al., 2016) were used and data was collected both online and manually.

Results. The findings of the research indicated significant gender differences in family functioning, distress tolerance, and resilience of adolescents. A significant difference was found in the resilience of the firstborn and lastborn. Findings underscore differences across birth order, educational level, family income, and family relationships in family functioning distress tolerance, and resilience, moreover, a significant difference was found in the dimension of family functioning, distress tolerance, and resilience in adolescents.

Conclusion. This Study concluded that family income or socioeconomic status also has a great impact on the family functioning in affective control, behaviour response, problem-solving, family roles, and affective response. Distress tolerance with its dimensions that include tolerance, regulation, and absorption is also influenced by the socioeconomic status or family income background. Resilience in the form of emotional regulation was found to be different in adolescents based on the family income low to high. Family system and its application in the domain of family to provide family counselling, couple therapy, and family therapy for assessment and management purposes. This is also implicated in the adaptability and communication in the family functioning and growth of the individual.

Keywords. Family functioning, distress tolerance, resilience, appraisal, self-reliance

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Introduction

Family is the basic unit of our society and it plays an important role in the life of individuals during the crucial period of adolescence in which individuals need great support from the family so that they can function well in the social environment and develop resilience. Family functioning is related to the tolerance level of the individual and resilience from the growth of mental health and well-being (Urbańska-Grosz et al., 2024). Distress tolerance is influenced by the family functioning and the resilient level of the individual. Therefore the focus of the current research will be to explore the differences concerning gender, age, family income, family system, family relation, family function, distress tolerance, and resilience among adolescents.

In the McMaster family functioning theory, a family's basic duty is to provide an individual with an appropriate environment to advance their physical, mental, and social well-being. Dimension of family function presented by Epstein et al., (1987) includes problem-solving, communication, family role, affective or emotional response of the family, affective involvement, and behavioural control. Family functioning also results in the ability to tolerate distress. Distress tolerance is a physical, cognitive, and emotional process that may be understood in terms of emotional states, hence it can be explained as a person's capacity to control unpleasant emotional outbursts (Simon & Gaher, 2005). Adolescents with lower levels of distress tolerance have conduct issues, substance misuse issues, emotional issues such as trauma issues, and trouble avoiding stressful situations (Miller, 2011). According to Hayes et al., (2004), low distress tolerance is a result of a person's inability to tolerate unpleasant emotional experiences in their study evaluating experiential avoidance. This impairment prevents a person from engaging in constructive behaviour in life. A strong theoretical connection exists between experiencing avoidance and distress tolerance. Experiential avoidance happens when a person deliberately distances themselves from their own life experiences. Experiential avoidance is typically associated with low levels of distress tolerance (Buhr & Dugas 2002; Richardson, 2002; Lynam & Miller, 2004; Hayes et al., 2004; Simon & Gaher, 2005; Leyro, 2010).

Fergus and Zimmerman (2005), Suslovic and Lett (2024) presented the resilience theory. According to this notion, a person's resilience depends on their social ability, problem-solving skills, serious awareness, and independence. The resilience of the teenagers is improved by all of these factors. Resilience, according to Campbell-Sills et al. (2006) and Wang (2024), is a multi-dimensional term with elements like personality and temperament, problem-solving skills, and communication skills. They researched resilience and psychological wellness. The results indicate a considerably positive connection between psychological wellness and resilience. Findings also show a negative correlation between psychological health and anguish, mood disorders, and anxiety disorders.

Masood and Us-Sahar (2014) conducted a descriptive study to comprehend the role of family in the teens of addicts. Questions about their family's communication, routines, and relationships with other families were asked. The results of their study show that emotional expressiveness and family involvement are two crucial elements in family communication. Uzma (2007) studied the accomplishments and academic performance of a sample of pupils. The research's conclusions show there is no connection between postgraduate students' academic success and academic toughness. The study's findings also show that female pupils were tougher than male students.

Research by Ghamari and Khoshnam (2011) on how family functioning affects emotional and behavioural responses. The research's findings show a strong link between pupils' academic success and how well their families are functioning. The social, physical, and emotional health and development of an individual are impacted by family function. Family functioning has a significant impact on how an individual's emotional and behavioural response is modified. Jabeen and Dildar (2023) also reported a significant positive relationship between family functioning, distress tolerance and resilience in adolescents. Bashir et al., (2023) also reported that significant difference in the family functioning of males and females.

Research on the association between family functioning, family income, and children with disabilities was done by Khursheed and Inam (2020). The study's findings show that there is no distinction between the variables. Similarly, Annunziate and Hague (2006) conducted a research to determine the relationship between FF and academic success. Additionally, the findings point to a significant connection between protective factors and family functioning. Moreover, a study on student education and other psychosomatic factors that are involved in the development of skills, experiences, and facts proved that the role of family communication and

functioning in fostering resilience shows that adolescents need resilient families to successfully navigate a variety of problems (Yaakob, 2017).

A study on working women was done by Safdar (2019). The sample included N=150 married working women between the ages of 29 and 50. According to the study's conclusions, there is a strong negative correlation between poor family functioning and unfavorable employment conditions. According to Khursheed and Inam (2019) in a study on family functioning and parental stress, family functioning and parental family functioning are positively correlated, according to research, which also shows that paternal anxiety is not related to the study variable. The study's findings also showed no connection between family functioning and family income.

Resilience plays the role of protective factor for individuals who attempt suicide. Research also indicates that the relationship between symptoms and early childhood trauma is moderated by resilience. Adolescents were the subject of a study to evaluate gender differences and distress tolerance. Men are more tolerant of suffering than women (Luther et al., 2000; Ko et al., 2018). According to a study on the relationship between distress tolerance and internalizing symptoms, boys and girls with low distress tolerance have higher internalizing symptoms (Daughters et al., 2009). In the same way, a longitudinal study on stress and how dealing with mild stressors can help people become more resilient to dealing with challenges and stressors in the future was undertaken by Nrugham et al. (2010) reported that resilience of people during times of force. According to research, psychological problems play a controlling function in the relationship between bad situations and adolescents. Research comparing resilience stated that women are more resilient than men. Positive reaction, minimal worry, adverse distress, and improved adaption after suffering are all associated with resilience (Mealer et al., 2012; Ouyang & Wang, 2015; Shi et al., 2015).

Resilience is a component of these controls, and cognitive and emotional states might influence distress tolerance. An investigation was made into the resilience's predictors. Multivariate linear regressions using resilience as the outcome variable and distress tolerance as the predictor. The results of the study show that resilience is predicted by distress tolerance (Leyro et al., 2010). The relationship between resilience and the amount of tolerance can be disturbed, according to Sullivan et al. (2018), by factors such as emotional management, cognitive regulation, and physical regulation.

Literature has shown that family functioning and distress tolerance are the mechanisms through which resilience flows. Family functioning reduces an individual's externalizing problem and provides a solid communication foundation for personal growth. There is a substantial association between distress tolerance and resilience in six dimensions of family functioning. The family system improves family functioning, which leads to an increase in resilience and distress tolerance. Distress tolerance is recognized as a protective characteristic of resilience and is also associated with a functioning family unit because solid family ties help people control their emotions and exhibit greater distress tolerance.

An individual's life goes through various changes during the adolescent years, which is a crucial time. Adolescent's emotional responses are managed in large part by their families. The importance of a healthy family, a person's ability to handle stress, and a person's capacity for resilience have all been studied individually in earlier studies. The goal of the current study is to examine how various aspects of family functioning relate to children's and teenagers' capacity for resilience and distress tolerance. In terms of family functioning, coping with distress, and resilience, this study compared gender and age groups. The study offered evidence regarding the different types of families and their level of resiliency. In terms of family functioning, coping with distress, and resilience, this study compared gender, family income, family relationship, and family system.

Hypotheses

1. There will be a difference in the family functioning, distress tolerance, and resilience across gender (girls and boys).
2. There will be differences in family functioning, distress tolerance, and resilience across family system (joint and nuclear).
3. There will be differences in family functioning, distress tolerance, and resilience across family relationships (extremely satisfied, satisfied, neutral, unsatisfied and extremely unsatisfied)
4. There will be differences in family functioning, distress tolerance, and resilience across family income (Less than 20000, 21000 -40000, 41,000-60,000, 61,000-80,000 and above 80,000).

Method

Research Design

This study used a Cross-sectional research design to investigate the demographic comparison between family functioning, distress tolerance, and resilience in adolescents.

Sample

The sample consisted of students N=663 including boys (n=332) and girls (330) from different education levels Matric (*n*=231), Intermediate (*n*=222), and Undergraduate (*n*=210) were recruited through convince sampling. Participants aged 14 to 22 (Alderman & Breuner 2019) from private and public sector schools and colleges of the Urban area of Lahore were selected. Students or individuals below 13 years of age and above 23 years of age are excluded from the study.

Assessment Measures

Demographic Information Sheet. The demographic sheets consist of gender, age, education, Family Relationship, Family System, Birth Order, No. of Siblings, and Family Income.

McMaster Family Assessment Device (Epstein et al., 1992). Epstein (1982) developed this tool, and Khursheed and Inam (2020) translated it into Urdu. It served as a gauge for how well families were functioning. This scale, which has four points and 60 items ranging from strongly disagree=4 to strongly agree=1, is of the Likert type. There were seven subscales of the scale this scale general family functioning, affective response, roles, communication, problem-solving, affective involvement and behavioural control. The actual Cronbach's alpha reliability of the scale ranges from .72 to .92 however, in the current research reliability of the scale was α=.83. Unhealthy functioning is indicated by high scores on the scales.

Distress Tolerance Scale (DTS; Simons & Gaher, 2005). The Distress Tolerance Scale was used to evaluate the person's perception of their capacity for tolerating, accepting, functional interference, and emotional regulation of emotional distress. There are 15 items and 4 subscales (tolerance, appraisal, absorption and emotional regulation) of the distress tolerance scale. Participants must respond on a 5-point Likert-type scale, where 1 means they strongly agree and 5 means they strongly disagree. The Cronbach's alpha reliability of the distress tolerance scale is .92 and in current research α=.72. A high score on distress tolerance indicates strong and high level of distress of tolerance.

The Resilience Scale (Anwar et al., 2016). Anwar et al., (2016) devised the Resilience Scale to measure resilience core. Resilience was assessed through 19 items that were scored on a five-point Likert-type scale. According to the resilience scale's factor analysis, emotional control, boldness, tenacity, and self-reliance are the four main factors. The resilience measure has demonstrated high construct and concurrent validity across a range of participant ages, with a Cronbach's alpha of α=.84 in current research α=.88. Highest score indicates a higher level of resilience.

Procedure

Initially, the author's consent was obtained to use the instruments (family assessment device, distress tolerance scale, and resilience scale). Google Forms was built to collect data online after receiving approval. Participants of the research were informed about the purpose of the research, consent was taken and approved by the competent authority. It was made clear to participant that they can withdraw from the research at any time. The confidentiality and privacy of the participant's data was guaranteed. A demographics sheet with the appropriate guidelines was linked to the Google form before each question was added. The form link was sent across several platforms using WhatsApp and other social media. Following data entry into SPSS analysis and preparation of the results.

Results

The outcomes of the present research are produced for family functioning, distress tolerance, and resilience in adolescents.

Table 1 indicates results of descriptive analysis of the sample using SPSS, result revealed that most of the participants were of age 16(22.9%), 17(17.9%), and 18 (19.2%). While 12.8%, 6.5%, and 6.9% of the students were the age 15, 19 and 20. Moreover, students of age 14, 21, 22, and 23 were 2.1%, 3.6%, 5.4%, and 2.3%. Boys (50.5%) and girls (49.5%) respectively. Education is divided into three categories Matric, intermediate, and undergraduates. The table showed that most students from matric (34.8%), intermediate (33.5%), and undergraduates (31.7%). Family relationship was divided into five categories (extremely satisfied, satisfied, neutral, unsatisfied and extremely unsatisfied). The table indicates satisfied (58.8%), extremely satisfied (30.3%), neutral (10%), unsatisfied (.2%) and extremely unsatisfied (.6%). Family income was divided into five categories and most participants had less than 20,000 (35.17%),

21,000-40,000 (29.7%), 41,000-60,000 (19.6%), and 61,000-80,000 (10.6%). Participants with family income above 80,000 were (5%). The family system was divided into two categories. Participants from joint families were (36.3%) and nuclear families (63.7%) respectively.

Table 1

Descriptive of Demographics Variables (N=663).

Variables	ƒ (%)	M(SD)
1- Age		17.54(2.11)
2- Gender		
Boys	332(50.5)	
Girls	331(49.5)	
3- Education		
Matriculation	231(34.8)	
Intermediate	222(33.5)	
Undergraduates	210(31.7)	
5- Family relation		
Satisfied	390(58.8)	
Extremely satisfied	201(30.3)	
Neutral	66(10)	
Unsatisfied	1(.2)	
Extremely unsatisfied	4(.6)	
6- Birth order		
First Born	181(27.3)	
Middle	242(26.5)	
Last Born	240(36.2)	
7- Family Income		
Less than 20,000	233(35.17)	
21,000-40,000	197(29.7)	
41,000-60,000	130(19.6)	
61,000-80,000	70(10.6)	
Above 80,000	33(5)	
8- Family System		
Joint	241(36.4)	
Nuclear	422(63.7)	

Note; M = Mean, SD= Standard Deviation, f = frequency, % = percentage.

Table 2 indicated that there were significant gender differences in family functioning and its subscale. Boys showed high scores in family functioning and its subscales such as affective involvement, general functioning, family roles and affective responsiveness, distress tolerance, absorption, and Resilience and sub-dimensions of resilience such as adventurousness, determination, and self-reliance boys showed high mean scores as compared to girls in these variables.

Table 2

Independent Sample t-test Comparing Gender Differences among Study Variables (N=663)
Note: M= mean, SD= Standard Deviation, LL= lower limit, UL= upper limit, p= significance, *p< .05, **p< .01,

Variables	Gender		t	p	Cohen's d
	Boys M(SD)	Girl M(SD)			
1. Family Functioning	123.57(17.46)	119.41(19.61)	2.60	.00	0.22
Affective involvement	15.34(3.79)	14.65(3.90)	2.32	.02	
Behavior control	20.17(3.68)	20.53(4.22)	-1.18	.23	
General functioning	26.47(4.33)	25.40(4.78)	2.9	.00	
Problem-solving	10.38(2.82)	9.32(3.23)	.23	.08	
Communication	15.22(3.97)	14.72(3.55)	1.7	.09	
Roles	22.98(4.85)	21.76(5.89)	3.1	.00	
Affective response	12.50(2.95)	11.95(3.38)	2.3	.02	
2. Distress tolerance	35.20(9.48)	34.63(9.92)	1.38	.16	0.06
Tolerance	7.18(2.7)	7.29(3.08)	-.48	.62	
Regulation	7.04(2.70)	6.86(2.80)	.81	.41	
Appraisal	14.89(4.56)	14.56(4.01)	.88	.37	
Absorption	4.95(1.92)	4.64(2.79)	1.97	.03	
3. Resilience	68.80(8.24)	67.00(9.23)	3.15	.00	0.11
Emotional	21.47(2.97)	21.11(2.89)	1.16	.10	
regulation	18.09(2.44)	17.68(2.50)	2.16	.03	
Adventurousness	14.28(1.97)	13.92(1.99)	2.34	.01	
Determination	14.30(2.08)	13.82(2.15)	2.91	.00	
Self-reliance					

Table 3 shows a between-group ANOVA analysis was used to explore the effect of Birth Order on levels of family functioning, Distress Tolerance, and resilience. Respondents were divided into 3 groups according to their Birth Order (Firstborn, Middle, and Last Born). There was a statistically significant difference at the p < .05 level in family functioning, distress tolerance, and resilience scores for the birth order. The actual difference in the mean score of the groups was very small.

Table 3

Mean, Standard Deviation and One-way ANOVA in Family functioning, Distress Tolerance and Resilience

Measures	Firstborn		Middle		Last Born		F	η_2
	M	D	M	D	M	D		
Family Functioning	122.25	19.41	121.96	18.64	120.70	18.01	.78	.01
Distress Tolerance	35.52	9.49	35.18	8.28	35.59	9.68	.35	.02
Resilience	68.67	7.42	67.28	6.94	69.29	7.46	3.31*	.03

*Note. FF= Family Functioning, DT=Distress Tolerance, RS= Resilience Scale *P<.05*

Table 4 indicates that ANOVA was used to explore the effect of education on family functioning, Distress Tolerance, and resilience. Education variable have 3 subscales A significant difference was found at the p < .001 in Resilience and Distress tolerance scores for the three education groups: F (2, 660) = 7.06, p = .001, and F (2, 660) = 3, 50, p=.03. Regardless of attaining statistical significance, the actual difference in mean scores between the groups was quite small .01. There was a significant difference at the p < .05 level in the subscale of family functioning such as general functioning score, problem-solving scores, and affective response score of group 1 (Matric) and group 3 (Undergraduate). There was a statistically significant difference in distress tolerance subscale at the p < .05 level such as tolerance subscale (Mean=7.57 matric; Mean=6.74 intermediate) and appraisal subscale (Mean=15.11 matric; Mean=14.97 undergraduates).In resilience subscales significant difference at the p < .05 level in the adventurousness as individual in grade level matric (M=18.14) scored higher as compared to intermediate (M=18.12) and undergraduates (M=17.39).

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Table 4

Mean, Standard Deviation and One-Way ANOVA in Family functioning, Distress Tolerance and Resilience

Measures	Matric		Intermediate		Undergraduates		F	η_2
	M	D	M	D	M	D		
Family Functioning	123.05)	18.58	121.90	17.27	120.09	19.94	1.42	.24
Distress Tolerance	35.91	8.363	34.00	7.847	35.90	9.845	3.50*	.03
Resilience	68.63	6.349	68.62	7.245	66.40	7.808	7.06**	.00
AI	15.16	3.90	14.94	3.59	14.87	4.08	.34	.24
BC	20.70	4.19	20.13	3.86	20.21	3.80	1.35	.03
GF	26.52	4.55	26.01	4.39	25.25	4.81	4.33*	.00
PS	10.71	2.96	10.44	2.86	9.89	3.22	4.26*	.01
C	14.78	3.69	15.29	3.71	14.84	3.91	1.21	.01
R	22.74	5.16	22.40	4.69	21.97	5.23	1.31	.02
AR	11.78	3.24	12.41	3.05	12.46	3.22	3.10*	.02
Tolerance	7.57	2.75	6.74	2.79	7.39	3.09	4.99*	.24
Regulation	7.23	3.03	6.83	2.39	6.79	2.77	1.76	.03
Appraisal	15.11	4.57	14.08	4.31	14.97	5.39	2.97*	.00
Absorption	4.72	1.95	4.63	2.00	5.03	2.06	2.39	.02
Emotional Regulation	21.12	2.70	21.57	3.00	21.18	3.09	1.50	.01
Adventurousness	18.14	2.19	18.12	2.39	17.39	2.76	6.55*	.03
Determination	14.11	1.71	14.24	1.88	13.95	2.32	1.23	.02
Self-reliance	14.26	1.99	14.11	2.07	13.82	2.29	2.49	.01

Mean, Standard Deviation and One-Way ANOVA in Family functioning, Distress Tolerance and Resilience

*Note. M= mean, SD= standard deviation, η2= Eta square, AI= Affective Involvement, GF= General Functioning, PS=Problem Solving, C=Communication, R=Roles and AR= Affective Response *P<.05, **p<.01*

    Table 5 indicates the results of one-way between-groups ANOVA to explore the difference of the family relationship in Family functioning, distress tolerance, Resilience and in their subscales. There was a statistically significant difference at the p < .05 level in mean score of satisfied family relationship (M=128) and unsatisfied (M=123.31). This indicates higher the satisfied family relationship, the higher will be the family functioning, distress tolerance e resilience of the individual. The difference was found at the significant level p < .05 level in the mean score of general functioning mean score, problem-solving scores, and affective response. Table 5 also reported results for difference in distress tolerance subscales. Results showed a difference at the significant level p < .05 level in tolerance, regulation, and appraisal subscale Furthermore, In table 5 a significant difference at the p < .05 level in resilience subscales such as determination and self-reliance was found in extremely satisfied family relationship and unsatisfied Family relationships.

Table 5

Mean, Standard Deviation and One-way ANOVA in Family Functioning Subscale, Distress Tolerance Subscales and Resilience Subscales

Measures	Extremely. Satisfied		Satisfied		Neutral		Unsatisfied		Extremely .unsatisfied		F	η_2
	M	SD	M	D	M	D	M	SD	M	SD		
FF	121.90	15.98	128.00	17.72	120.05	18.66	123.31	17.36	120.53	19.54	2.31*	.01
DT	36.75	8.04	38.34	7.57	35.94	8.22	35.27	9.12	34.22	8.98	3.48*	.02
R	68.90	8.63	69.68	5.98	69.32	6.78	67.55	6.46	66.98	7.42	3.64*	.03
AI	16.27	4.62	14.76	3.82	14.66	3.52	15.05	3.89	14.59	3.47	2.02*	.01
BC	21.73	3.86	21.18	4.08	19.96	4.25	19.96	3.81	20.22	3.54	4.11*	.02
GF	27.88	4.28	26.47	4.84	24.90	4.31	25.79	4.54	25.80	4.81	4.49*	.03
PS	10.57	3.05	10.90	3.17	9.90	2.97	10.29	3.00	10.25	2.91	1.72	.01
.C	15.13	4.28	14.71	3.29	14.97	3.89	15.05	3.83	14.88	3.73	.21	.01
R	22.96	5.09	22.11	4.97	22.23	5.09	22.26	5.03	23.22	5.08	.75	.00
AR	12.70	3.19	12.00	3.24	12.51	2.96	11.98	3.31	12.81	2.65	1.66	.02
Tolerance	8.41	2.41	7.20	2.80	7.37	2.96	7.02	2.99	7.12	2.67	2.85*	.01
Regulation	7.88	3.19	7.00	2.73	7.58	2.77	6.54	2.71	6.92	2.12	4.91*	.02
Appraisal	16.38	4.35	14.45	5.06	15.20	4.69	14.15	4.69	15.90	4.83	4.14*	.03
Absorption	5.14	2.00	4.62	2.02	4.75	1.94	4.75	2.04	5.14	1.92	1.11	.01
Emotional Regulation	21.43	2.93	21.28	2.78	21.66	3.03	21.06	2.85	21.69	3.43	1.26	.01
Adventurousness	17.71	2.57	17.89	2.54	18.23	2.24	17.70	2.48	18.34	2.62	1.57	.02
Determination	14.39	2.08	14.19	1.83	14.37	2.13	13.83	1.99	14.56	1.68	3.17*	.03
Self-reliance	14.36	1.98	13.86	2.21	14.55	1.85	13.89	2.14	14.22	2.37	2.69*	.01

*Note. M= mean, SD= standard deviation, η2= Eta square, FF= Family Functioning, DT=Distress Tolerance, R= Resilience , AI= Affective Involvement, GF= General Functioning, PS=Problem Solving, C=Communication, R=Roles and AR= Affective Response *P<.05, **p<.01*

Table 6 indicates that ANOVA between groups was carried out to explore the difference of family income in study variables and their subscales. Significant difference at the p < .05 level in family functioning and distress tolerance and resilience. The result indicated that the higher the family income is the higher the family functioning, distress tolerance and resilience in the individual. There was a statistically significant difference at the p < .05 level in Affective involvement, behaviour control, problem-solving, roles, and affective response subscale of family functioning. Furthermore, Findings indicate a significant difference at the p < .05 level in tolerance, regulation, and absorption subscale of distress tolerance. Moreover, significant difference at the p < .05 level in the emotional regulation subscale of resilience.

Table 6

Mean, Standard Deviation and One-way ANOVA in Family Functioning and its Subscales, Distress Tolerance and its Subscales and Resilience and its Subscales

Variables	Less than 20,000		21,000-40,000		41,000-60,000		61,000-80,000		Above 80,000		F	η_2
	M	SD	M	SD	M	SD	M	SD	M	SD		
FF	119.05	18.29	121.22	17.78	123.31	19.81	126.93	18.08	125.79	20.08	3.26*	.02
DT	34.89	7.70	33.96	9.20	36.07	8.79	38.16	9.75	36.70	9.282	3.66*	.02
Resilience	67.75	7.27	67.44	6.96	68.69	7.27	67.86	7.29	68.45	7.94	.66	.03
AI	14.14	3.45	14.97	3.94	15.75	4.14	16.10	3.82	15.82	3.94	6.07*	.02
BC	19.85	4.07	20.32	3.96	20.55	3.62	21.33	3.70	21.21	4.57	2.49*	.02
GF	25.79	4.58	25.89	4.64	25.85	4.64	26.57	4.28	26.15	5.27	.42	.03
PS	10.51	3.01	10.17	3.06	9.96	2.84	10.57	3.15	11.42	3.28	2.00*	.03
C	14.92	3.56	14.78	3.85	15.13	3.77	14.59	3.69	16.58	4.64	1.87	,02
R	21.69	4.74	22.25	5.22	22.84	5.14	24.26	4.72	22.09	5.32	3.92*	,01
AR	11.75	3.10	12.14	3.23	12.51	3.27	13.30	2.77	12.39	3.42	3.64*	.02
Tolerance	6.91	2.75	7.03	2.87	7.87	3.07	7.73	2.89	7.27	3.07	3.07*	.02
Regulation	6.86	2.67	6.68	2.89	7.27	2.64	7.13	2.67	7.64	2.93	1.59*	.02
Appraisal	14.79	4.52	14.62	4.96	14.22	4.76	15.91	5.39	14.36	4.21	1.52	.03
Absorption	4.60	1.86	4.66	2.15	5.00	1.96	5.27	1.85	5.12	2.44	2.29*	.02
Emotional Regulation	21.11	2.91	20.98	2.88	22.01	3.01	21.33	2.98	21.52	2.76	2.79*	.02
Adventurousness	17.95	2.43	17.95	2.41	17.75	2.63	17.54	2.63	18.30	2.33	.72	.02
Determination	13.96	1.86	13.99	1.94	14.41	1.96	14.23	2.15	14.24	2.68	1.32	.03
Self-Reliance	14.21	2.18	13.97	2.05	14.04	2.25	13.91	2.01	14.00	1.87	.45	.02

Note. M= mean, SD= standard deviation, η2= Eta square, AI= Affective Involvement, GF= General Functioning, PS=Problem Solving, C=Communication, R=Roles and AR= Affective Response

Discussion

The current research aimed to investigate the demographic comparison between family functioning, distress tolerance and resilience in adolescents. The results suggest statistically significant gender differences in affective involvement, general family functioning, family roles, and affective response. The mean score of males was found significantly high as compared to females. Additionally, the results show a significant difference in the resilience's adventurousness and self-reliance subscales as well as the resilience's absorption subscale of distress tolerance. The findings are linked with previous studies on gender disparities in resilience and distress (Masood & Sahar, 2016). Furthermore, males showed greater resilience in adventurousness, determination, and self-reliance, previous studies stated that males have higher distress acceptance than females (Ko etal., 2008; Cornor et al., 2020). A significant difference

was found in the resilience of the firstborn and lastborn. In Pakistani culture, the results reflect the gender role and expectations where males are expected to be more independent and assertive in terms of dealing with distress showing resilience. There was found to be a notable difference in resilience among the various birth order orders. The first-born born scored have a high mean score in family functioning and the last-born have a high mean score in resilience. These results were also aligned with Ergüner-Tekinalp and Terzi (2014) who also reported that the birth order of the youngest and older Children also affects resilience, additionally, birth order predicts resilience of adolescents. These results in Pakistani culture also support the concept of where first born are expected to be more responsible, stand strong, be more adaptive and have leadership qualities.

This study also showed a significant difference in distress tolerance (tolerance and appraisal subscale) and resilience (adventurousness subscale) across grade levels. Moreover, a significant difference was found in the dimensions of family functioning such as general functioning, problem-solving, and affective involvement. Pedrini et al., (2021) in research on the emotional regulation of teenagers, reported that distress tolerance is also different according to the grade level. In reference to the culture perspective, these indicate the competitive nature of the education system that challenges influencing distress tolerance and resilience.

Significant difference in the family relationship of adolescents related to family functioning (affective involvement, behavior control, and general functioning), distress tolerance (tolerance, regulation, and appraisal), and resilience (determination and self-reliance) were identified. These results aligned with the research conducted by Holmes (2006) indicate that resilience of the adolescents is influenced by the relationships of the family, Moreover, it also reports that the affective response of the individual and depressive symptoms are also affected by the family relationship. Lastly, the findings of the study also indicated significant differences in the family functioning (affective involvement, behaviour control, problem-solving,

family roles, and affective response) and distress tolerance (tolerance, regulation, and absorption) of low and high-income families. In the dimension of resilience such as emotional regulation significant difference was found in family income. Burno et al., (2023) reported in their research that family income can also affect the resilience of parents and children. Family income was also related to depression and its association with distress in children and adolescents.

Conclusion

The findings of the study revealed that more family functioning and distress tolerance will help to build resilience. The results of the present study depict that positive family functioning and distress tolerance are central to acquiring constructive resilience. So, those adolescents who encounter issues in the development of resilience can be facilitated by improving distress tolerance and understanding family functioning. This was also indicated in the results that family functioning, affective involvement, general functioning, problem-solving, family roles, and affective response are different in males and females. Family functioning, distress tolerance, and resilience in term also differ in the area of education level. These findings will help teachers, psychologists, and counsellors design interventions and plan according to grade level for the betterment of family functioning of the adolescents that will also help them to use specific strategies to increase the level of resilience in the adolescents. Family functioning in terms of general functioning, problem-solving, and affective response, and distress tolerance in terms of tolerance, regulation, and appraisal additionally resilience in terms of determination and self-reliance varies in adolescents who belong to satisfied family relationships and unsatisfied family relationships. From the results of the study, it can also be concluded that family income or socio-economic status also has a great impact on the family functioning in affective control, behavior response, problem-solving, family roles, and affective response. Distress tolerance with its dimensions that include tolerance, regulation, and absorption is also influenced by the socioeconomic status or family income background. Resilience in the form of emotional regulation was found to be

different in adolescents based on the family income low to high.

Limitation and Suggestion

For further research in Pakistan, the results of study are also beneficial. Research should be conducted free from culture when it comes to the ethnic issues. A total of 14-22 years of age, adolescents were the Respondents of research. Others of school age were not included. The results of the study cannot not be applied to the population in general due to these. Thus, the ability of findings of research is another sample that must be used in order to generalize achievement of the population. Research on adolescents' family functioning, distress tolerance and resilience in Pakistan is very negligible. Therefore, these variables should be further research. We need to see how more about family functioning and distress tolerance and resilience in adolescents.

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Research Article

Impact of Personal Growth Initiatives and Self-Regulation on Depression, Anxiety and Stress among University Students in Pakistan

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Abstract

Background. The present research was aimed to explore the relationship of self-regulation, symptoms of depression, anxiety and stress and socio-demographic characteristics of university students in Pakistan.

Method. A sample of 300 adolescents was collected from the different universities of Islamabad and Rawalpindi. Depression, stress and anxiety was measured by Depression Anxiety Stress Scale (DASS) by Lovibond and Lovibond (1995); Forms of Self-Regulation Formative Questionnaire was used to measure self-directive processes, cognitive behaviors, and emotions to attain goals, learn skills, and manage emotional reactions (Abar & Loken, 2010; Southam-Gerow & Kendall, 2002; Zimmerman, 2008).

Results. The result indicated self-regulation, stress, anxiety, and depression are positively and significantly correlated. Self-regulation and its constituent skills (monitoring, planning, control, and reflection) were a good predictor of symptoms of anxiety, depression, and stress in university students. Furthermore, results revealed that girls reported high levels of stress as compared to boys. Students with working women showed more depression and anxiety. Students with family income between 25,000 Rs to -65,000 Rs showed high depression, anxiety and stress, self-regulation, and its constituent skills. Additionally, adults reported higher scores for anxiety when considering their father's occupation, living conditions and Family systems.

Conclusion. The data for the present research was collected from normal population. Which indicates that these emerging adults experience profound amount of stress and anxiety in lives and may also feel depressed or low moods. The research found that self-regulation was important if university students are to deal with symptoms of anxiety, stress, and depression. The context of their lives makes some contribution to the mental health of these students.

Keywords. Psychological distress, self-regulation, depression, anxiety, stress, university students.

Foundation University Islamabad

Introduction

Adolescence is a sensitive developmental stage in which a person leaves childhood and develops a strong sense of individuality to enter adulthood. At this point, adolescents face certain difficulties, such as forming identity, meaningful relationships, often ending up with strain in seeking private instructions (Wisner et al., 2010). The stage that impacts mental health is extremely susceptible (Population Council, 2003). Psychosocial conditions assemble them in puberty and are vulnerable to other stresses. Such stresses are, of course, the cause of stress, and most of the time they demand beyond the capabilities of people who endanger their well-being (Lazarus & Folkman, 1984; Wisner et al., 2010).

Literature has a thorough account of factors that are major important at this stage. Robitschek and Keyes (2009) Have provided compelling evidence that personal growth initiative and mental health are strongly intertwined, and that personal growth initiative acts as a prosaic mental health predictor (Shorey et al., 2007). Joshanloo and Nosratabadi (2009) found that if mental health is healthy, life thrives, while deteriorating mental health leads to a life of languor. Keyes et al. (2012) found that there was no useful screening of psychologically disordered learners with stable mental wellbeing of any sort.

Chu (2010) researched that detrimental mental wellbeing and perceived stress were found in a positive relationship and adversely linked to elevated levels of emotional intelligence. Results showed that perceived stress predicted depression and a worse general health status. Therefore, perceived mental health, stress has had a greater adverse effect on females than males (Flores et al., 2008). In an inverse connection, joy and perceived stress have also been discovered considerably (Schiffrin & Nelson, 2010).

Mental well-being and religious coping with perceived stress were considerably reversed association with perceived stress among Pakistanis (Khan et al., 2012), worked on demography risk factors and their association related to stress in Nawabshah, Pakistan. Research disclosed that young girls reporting reduced stress levels that were conscious of pubertal modifications and compelled to adapt before starting. Girls, however, revealed higher stress levels compared to boys, mainly due to the socio-cultural setting.

The global concern regarding low mental health among university students has been underscored by a prior longitudinal analysis, which revealed higher rates of depression among this demographic compared to the general population (Duffy et al., 2022).

Additionally, evidence suggests a significant prevalence of depression and anxiety among healthcare workers, both in resource-constrained and resource-rich environments. University students constitute a unique cohort transitioning from adolescence to adulthood, facing myriad challenges such as the pressure to assimilate, maintain academic excellence, prepare for the future, and cope with the distance from home, all of which often exacerbate anxiety (Eberstadt, 2011; Wisner et al., 2010). Previous research indicates a global uptick in depression among college students, highlighting the escalating incidence of this issue. Consequently, an aim of conducting this research was to examine the extent of depression among university pupils in Pakistan and its relationship with socio-demographic, cultural and health considerations.

Self-regulated learners are motivated towards their own learning (Zimmerman, 2008). The self-regulation process can be described as drawing up a plan, monitoring that plan, making changes to keep track of what worked and what could be further improved next time (Gaumer et al., 2016). Self-regulation is necessary for the successful fulfillment of adaptive developmental duties at all phases of life. Self-regulation is necessary for the successful fulfillment of adaptive developmental duties at all phases of life. This view is captured by the seven principles of LCHD, as explained by Halfon and Forrest (2017) which also correlates to the growth of the ties. Self-regulation can be characterized as an ability to flexibly trigger, monitor, inhibit, persevere and/or adjust one's mood, focus, emotions, and cognitive strategies in line with other people's mental signals, environmental stimuli, and feedback to achieve one's own objective (Moilanen, 2007). It includes controlling one's behaviour, feelings, and ideas in the pursuit of long-term objectives in the most fundamental sense. More specifically, the capacity to handle disruptive feelings and impulses corresponds to emotional self-regulation.

Self-regulated learning differs from mental or academic effectiveness. It relates instead to a self-directed process whereby learners drag mental abilities into task-related academic abilities (Zimmerman & Schunk, 2001). Woolfolk (2004) describes the relative impact of learning self-regulation among learners as self-understanding, subject area, mission, learning strategies and context in which instruction is to be implemented; motivates students to learn where learning is important, not just performance; is intrinsically motivated and learning is self-determined

and not regulated or dependent on others; has volition or willpower, where learners can avoid distractions and comprehend how to deal with and overcome them.

Zimmerman (2002) suggests three phases of self-regulated learning and all phases require the ability to govern their development (Spruce & Bol, 2015). First phase is the *analysis of tasks;* it requires setting of objectives and strategic planning. The second phase is *self-motivation.* This process requires self-efficacy and the confidence that they can monitor the effects of their actions. The thirsts are the power to regulate the reactions. The phase of self-reaction is where the bhavioural aspect of the initiative for personal growth sets in. This is in line with a social cognitive perspective (Bandura, 1986), self-regulated learning happens as a consequence of reciprocal causation between three structures of impact: Private processes such as perceptions of ability (e.g. academic self-efficacy) and self-motivation (e.g. goals); teaching climate, including job requirements and teacher motivation and individual conduct such as performance results e.g. Prior marks or grades (Singer & Bashir, 1999; Spruce & Bol, 2015). Zimmerman et al. (2015) stated that self-motivated learning incorporates metacognitive, motivational, and behavioral direction; and self-motivated learners incorporate this learning in their own learning.

The current research examined the relationship between self-regulation, symptoms of depression, anxiety, stress; the study also explored the relationship between socio-demographic variables and self-regulation and its constituent skills (monitoring, planning, control, and reflection) of university students. The main hypotheses were as follows:

1. There will be a significant relation between high self-regulation and low scores on psychological distress of university students in Pakistan.
2. There will be a significant relation between high self-regulation and low scores on depression of university students in Pakistan.
3. There will be a significant relation between high self-regulation and low scores on stress of university students in Pakistan.
4. There will be a significant relation between high self-regulation and low scores on anxiety of university students in Pakistan.
5. Depression, anxiety, and stress and will significantly predict self-regulation and its constituent skills (monitoring, planning, control, and reflection) of university students in Pakistan.

Method

Sample

A convenient sample of 300 students from the various universities of Islamabad and Rawalpindi (the sample size was not ascertained by any formula). The research involved both male and female students. Data was collected voluntarily; no sort of compensation was offered to the participants. The following tables shows the demographic characteristics of the participants.

Table 1

Frequencies and Percentages for Demographic of the Study (N=300)

Demographics	*f*	%
Gender		
Male	166	55.3
Female	134	44.7
Birth Order		
First born.	71	23.7
Middle born.	140	46.7
Last born	89	29.7
Father's Occupation		
Working	242	80.7
Non-working	38	12.7
Other	20	6.7
Mother's Occupation		
Working	143	47.7
Non-working	141	47.0
Other	16	5.3
Family income		
Less than 25,000	10	3.3
25,000-65,000	55	18.3

Table 1 (Continue)

65,000-250,000	183	61.0
Above 250,000	53	17.3
Current living situation		
Hostel	231	77.0
Home	69	23.0
Family system		
Joint	138	46.0
Nuclear	162	54.0

Note. The age range of the participants was 19 to 31 years; Mean age was = 23.42 years; Standard deviation was 2.22.

Instruments

Following Instruments were used in the collection of data. Descriptions of scales used in research are given below.

Depression Anxiety Stress Scale (DASS). The DASS is a set of three self-report scales designed to measure the negative emotional states of psychological distress, depression, anxiety, and stress (Lovibond & Lovibond, 1995). The DASS was constructed not merely as another set of scales to measure conventionally defined emotional states, but to further the process of defining, understanding, and measuring the ubiquitous and clinically significant emotional conditions usually described as depression, anxiety, and stress. The DASS would thus meet the criteria of both researchers and clinicians with scientific and technical qualifications.

The depression sub-scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest/involvement, anhedonia, and inertia. The anxiety sub-scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress sub-scale is sensitive to levels of chronic non-specific arousal. It assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient. Subjects are asked to use 4-point severity/frequency scales to rate the extent to which they have experienced each state over the past week. Scores for depression, anxiety and stress are calculated by summing the scores for the relevant items; the present research employs the 21-item DASS. The overall Cronbach's alpha for the DASS-21 has been reported as .74. The DASS-21 subscales had Cronbach's alpha values of .66, .29 and .52 for depression (DASS-D), anxiety (DASS-A) and stress (DASS-S), respectively (Moya et al., 2022). Higher scores on each subscale indicated higher experiences of symptoms and vice versa.

Self-Regulation Formative Questionnaire. Self-regulation refers to the constructive application of self-directional mechanisms, cognitive habits, and emotions to accomplish targets, develop skills and control emotional reactions (Abar & Loken, 2010; Southam-Gerow & Kendall, 2002; Zimmerman, 2008). Self-regulated students are metacognitively, motivationally, and behaviorally active participants in their own learning process (Zimmerman, 2008, p. 167). The process of self-regulation can be described as drawing up a plan, tracking that plan, adjusting keep track and reflecting on what worked and what could be improved next time (Gaumer et al., 2016). The Self-regulation formative questionnaire measures a student's perceived level of proficiency in the four essential components of self-regulation: plan (1,2,3,4,5N), monitor (6,7,8,9,10,11N), control (12,13,14,15,16N,17N), and reflect (18,19,20,21, 22N). For a sample of Iranian students, the Cronbach's alpha coefficient for each of the plan, monitor, control, reflect and total factors was reported to be .90, .63, .70, .74, and .68, respectively. High scores indicated higher ability to manage one's own emotions, thought and feelings and vice versa.

Procedure

The sample for the research study was taken from the universities of Islamabad. The consent for administration of the questionnaires was taken from the administration of the concerned universities. After explaining the nature and objectives of the study consent was taken from the participants. They were given instructions on how to respond to the questionnaires. They were assured of confidentiality of their responses and were informed that they could leave the research at any time during the research if they felt uncomfortable at any point during administration. Data was collected on the spot. Participants' queries were satisfied in an appropriate manner.

Results

The current work aimed to investigate negative experiences among university learners. Data was analyzed using SPSS. Data was initially cleaned and

checked for any inconsistencies. Cronbach's alpha coefficient was used to determine the precision of the scale and the subscale. The normality of data was scanned with the descriptive statistics. The correlations were calculated to determine the relation between the scales and the subscales. To verify the mean variability, independent sample t-test was calculated, and linear regression was calculated to see the effect of age on all variables.

Table 2
Descriptive Statistics and Internal Consistency of Study Variables (N = 300)

Variables	α	M	SD	Range Actual	Range Potential	Skewness	Kurtosis
Psych. Distress	.79	31.09	9.07	3-5	0-63	-.48	-.33
Anxiety	.54	10.14	3.62	0-21	0-21	-.16	-.30
Stress	.53	10.41	3.60	2-19	0-21	-.11	-.60
Depression	.52	10.54	3.70	0-19	0-21	-.34	-.42
Self-Regulation	.84	77.82	11.91	43-97	43-97	-.56	-.72
Monitor	.66	22.26	4.15	9-29	6-30	-.59	-.50
Plan-fullness	.53	18.77	3.43	6-25	4-21	-.78	.25
Reflect	.53	18.72	3.55	7-24	7-24	-.58	-.41
Control	.60	21.76	3.94	11-29	4-21	-.50	-.32

Table 2 shows the alpha reliability, standard deviation, means, actual and potential range, skewness, and kurtosis. The alpha reliabilities ranged from moderate to high (.52 to .84). The values of skewness and kurtosis indicate that there are no extreme scores or outliers in the data and that we can conclude that the data is normally distributed.

Table 3
Inter-Scale Correlation Among Variables of Study (N=300)

	1	2	3	4	5	6	7	8	9
1. Psych. Distress	-	.81**	.83**	.84**	.46**	.29**	.41**	.40**	.36**
2. Depression		-	.49**	.53**	.36**	.19**	.34**	.31**	.30**
3. Anxiety			-	.58**	.37**	.27**	.32**	.32**	.29**
4. Stress				-	.41**	.27**	.35**	.37**	.32**
5. Self-Regulation					-	.76**	.87**	.83**	.81**
6. Plan						-	.61**	.53**	.48**
7. Monitor							-	.60**	.60**
8. Control								-	.55**
9. Reflect									-

Note. Underlined values indicate hypothesized relationships; bold values show significant values.
**$p < .01$; *$p < .05$.

Table 3 shows the correlation between the variables of study and their subscales. The scales and subscales are correlated at the significance level ($p < .01$, $p < .05$). self-regulation and its constituent skills were highly correlated. The three subscales of depression, stress and anxiety were also strongly correlated. There was, however, a low correlation between self-regulation and psychological stress, symptoms of stress, anxiety, and depression.

Table 4

	Male (n = 166)		Female (n = 134)				95 % CI		Cohen's
	M	SD	M	SD	t	p	LL	UL	d
Psych.Distress	32.2	8.3	29.6	9.9	2.44	.02	-6.21	-1.29	0.28
Depression	10.95	3.70	10.02	3.66	2.18	.03	-2.26	-0.24	0.25
Anxiety	10.45	3.26	9.72	4.00	1.74	.08	-1.94	0.04	-
Stress	10.77	3.50	9.90	3.64	2.11	.04	-2.53	-0.59	0.24
Self-Regulation	78.63	11.19	76.78	12.7	1.34	.18	-7.46	-0.98	-
Plan	19.27	2.96	18.12	3.86	2.91	.00	.35	1.95	0.33
Monitor	22.57	3.98	21.87	4.32	1.44	.15	-2.44	-0.18	-
Control	22.02	3.91	21.42	4.00	1.29	.20	-2.34	-0.18	-
Reflect	18.63	3.48	18.87	3.64	-0.60	.55	-1.86	0.08	-

Independent t-Test Between Study Variable and Gender (N=300)

Table 4 shows the comparison between male and female students on psychological distress, depression, and stress. The results show that there is a significant difference between male and female on anxiety and plan-fullness. Boys scored higher means scores than girls.

Table 5

One- Way ANOVA for Family Income Among Study Variables (N=300).

| | Family Income (in PKR) | | | | | | | | | | | | | |
| | Less than 25,000 (n = 10) | | Between 25,000-65,000 (n = 55) | | Between 65,000-250,000 (n = 183) | | More than 250,000 (n = 52) | | | | | | 95% CI | |
	M	SD	M	SD	M	SD	M	SD	F	p	i-j	M(i-j)	UL	LL
Psych. Distress	23.60	9.90	25.05	8.77	32.38	8.43	34.47	7.89	16.10	.00	1 < 3	-8.78	-15.87	-1.69
											2 < 3	-7.32	-10.68	-3.90
											1 < 4	-10.87	-18.63	-3.32
											2 < 4	-9.42	-13.66	-5.17
Depression	9.00	3.23	7.85	3.33	11.16	3.43	11.50	3.75	14.93	.00	2 < 3	-3.31	-4.69	-1.93
											2 < 4	-3.66	-5.40	-1.91
Anxiety	6.60	3.09	8.45	3.62	10.38	3.45	11.71	3.24	11.86	.00	1 < 3	-3.79	-6.67	-0.90
											2 < 3	-1.93	-3.30	-0.57
											1 < 4	-5.11	-8.18	-2.04
											2 < 4	-3.26	-4.98	-1.54
Stress	8.00	4.34	8.74	3.77	10.82	3.37	11.15	3.39	7.43	.00	1 < 4	-3.15	-6.26	-0.04
											2 < 3	-2.08	-3.46	-0.70
											2 < 4	-2.41	-4.15	-0.67
Self-Regulation	76.80	12.09	70.47	11.58	79.32	11.44	80.26	11.20	9.44	.00	2 < 3	-8.86	-13.40	-4.31
											2 < 4	-9.80	-15.51	-4.08
Plan	18.70	5.52	17.25	3.38	19.09	3.26	19.23	3.34	4.58	.01	2 < 3	-1.84	-3.18	-0.50
											2 < 4	-1.98	-3.66	-0.29
Monitor	22.90	5.04	20.03	3.18	22.66	4.01	23.00	4.13	6.86	.00	2 < 3	-2.63	-4.23	-1.03
											2 < 4	-2.96	-4.98	-0.95
Control	22.40	4.32	19.29	3.97	22.27	3.72	22.34	3.70	9.37	.00	2 < 3	-2.99	-4.50	-1.48
											2 < 4	-3.06	-4.96	-1.15
Reflect	16.60	3.43	17.37	3.49	19.07	3.47	19.44	3.43	5.57	.00	2 < 3	-1.74	-3.12	-0.36
											2 < 4	-2.12	-3.85	-0.38

Table 5 shows differences in sample when compared on income which show significant relationship on all study variables. The welch test for post-hoc was used to cater to unequal sizes of the categories. The results

show that in almost all cases, the third group (having family income between 65,000-250,000 Pak Rupees) and fourth group (having a family income of above 250,000 Pak Rupees) impact the group differences. These participants also showed greater mean score on the variables.

Table 6

Mean Comparisons for Mother's Occupation Among Study Variables (N = 284).

	Working (n = 143)		Non-working (n = 141)				95% CI		Cohen's
	M	SD	M	SD	t	p	LL	UL	d
Psych. Distress	33.53	7.99	28.82	9.37	4.55	.00	2.67	6.74	0.54
Depression	11.28	3.37	9.87	3.89	3.25	.00	0.56	2.26	0.39
Anxiety	10.84	3.35	9.44	3.77	3.30	.00	0.57	2.23	0.40
Stress	11.37	3.33	9.50	3.53	4.58	.00	1.06	2.67	0.54
Self-Regulation	79.45	11.14	76.14	12.54	2.35	.02	0.53	6.08	0.28
Plan	19.33	3.04	18.19	3.73	2.83	.01	0.35	1.94	0.34
Monitor	22.75	3.85	21.65	4.36	2.24	.03	0.13	2.06	0.27
Control	22.09	4.00	21.31	3.94	1.64	.10	-0.16	1.70	-
Reflect	19.13	3.44	18.50	3.62	1.50	.13	-0.20	1.45	-

Note. Respondents who report their mothers working status as other (n=16) were excluded from analysis.

Table 6 shows the results when we consider mothers occupation status. Almost all the variables are significant; barring control and reflect elements of self-regulation. The results indicate that children working mothers has significant mean scores. This is to be noted that respondents who report their mothers working status as other (*n* = 16) were excluded from analysis. This was because the group size was low.

Table 7

Mean Differences Across Family System Along Study Variables (N=280).

	Joint System (n = 138)		Nuclear System (n = 162)				95% CI		Cohen's
	M	SD	M	SD	t	p	LL	UL	d
Psych. Distress	32.75	8.71	29.67	9.16	2.97	.00	1.04	5.13	0.34
Depression	11.01	3.75	10.13	3.62	2.05	.04	0.04	1.72	0.24
Anxiety	10.78	3.47	9.58	3.66	2.89	.00	0.38	2.01	0.34
Stress	10.95	3.35	9.93	3.73	2.46	.01	0.38	2.01	0.29
Self-Regulation	80.21	11.18	75.70	12.15	3.32	.00	0.21	1.82	0.39
Plan	19.03	3.13	18.30	3.61	2.53	.01	1.85	7.16	0.22
Monitor	22.97	3.94	21.62	4.23	2.84	.01	0.23	1.76	0.33
Control	22.57	3.63	21.04	4.09	3.39	.00	0.42	2.28	0.40
Reflect	19.21	3.50	18.32	3.54	2.19	.03	0.65	2.41	0.25

Table 7 (below)shows the comparison between individuals living in joint and nuclear family systems. The results showed highly significant results for all variables. Those living in the joint family system scored higher mean scores as compared to those living in nuclear family system.

Table 8

Mean difference across Father's Occupation Among Study Variables (N=300).

	Working (n = 242)		Non-working (n = 38)						Cohen's
	M	SD	M	SD	t	p	LL	UL	d
Psych.Distress	31.29	9.03	31.38	7.92	-.054	.96	-3.18	3.01	-
Depression	10.69	3.61	10.70	3.61	-.020	.98	-1.27	1.24	-
Anxiety	10.12	3.59	10.15	3.43	-.054	.96	-1.26	1.19	-
Stress	10.47	3.61	10.44	3.20	.051	.96	-1.19	1.26	-
Self-Regulation	77.64	12.09	77.34	11.18	.143	.89	-3.82	4.41	-
Plan	18.75	3.47	18.23	3.46	.849	.40	-0.68	1.71	-
Monitor	22.15	4.26	22.44	3.86	-.395	.69	-1.74	1.16	-
Control	21.71	4.04	21.39	3.63	.454	.65	-1.05	1.69	-
Reflect	18.70	3.54	19.07	3.34	-.606	.55	-1.58	0.84	-

Note. People who report their fathers working status as other (n=20) were excluded from analysis.

Table 8 shows the comparison related to father's occupation. It is not showing any significant results on any scale and their subscale. The result shows that presence or absence of the father around the house or their income doesn't have any impact on the psychological distress or self-regulation of university students.

Table 9

One- Way ANOVA for Birth Order Among Study Variables (N=300).

	First order (n = 71)		Second order (n = 140)		Last order (n = 89)					M(i-j)		
	M	SD	M	SD	M	SD	F	p	i-j	j)	UL	LL
Psych.Distress	28.54	9.467	31.98	9.10	31.75	8.40	3.80	.02	1 < 2	-3.44	-6.60	-.29
Depression	9.73	3.80	11.02	3.81	10.43	3.35	2.93	.06	-	-	-	-
Anxiety	9.15	3.73	10.35	3.52	10.58	3.58	3.59	.03	1 < 3	-1.40	-2.81	-.05
Stress	9.64	3.87	10.58	3.52	10.73	3.43	2.13	.12	-	-	-	-
Self-Regulation	76.69	11.93	78.78	12.38	77.07	11.12	.95	.40	-	-	-	-
Plan	18.25	3.37	19.10	3.54	18.65	3.27	1.51	.22	-	-	-	-
Monitor	21.64	4.23	22.65	4.39	22.08	3.62	1.50	.23	-	-	-	-
Control	21.63	3.08	21.89	4.16	21.60	3.77	.18	.84	-	-	-	-
Reflect	18.73	3.48	18.95	3.15	18.39	3.66	.67	.51	-	-	-	-

Table 9 shows the comparison between the birth order of the individuals. It is showing significant results on overall psychological distress and its dimension of anxiety; second and last birth order group appeared to have exerted impact.

Table 10

Mean Comparisons for Current Living Status Among Study Variables (N=300).

	Living in home (n = 66)		Living at hostel (n = 234)				95% CI		Cohen's
	M	SD	M	SD	t	p	LL	UL	d
Psych.Distress	30.30	9.28	34.02	7.68	-2.98	.00	-6.18	-1.26	0.44
Depression	10.28	3.75	11.52	3.41	-2.41	.02	-2.25	-0.23	0.35
Anxiety	9.94	3.61	10.88	3.62	-1.87	.06	-1.93	0.05	-
Stress	10.08	3.61	11.62	3.29	-3.12	.00	-2.52	-0.57	0.45
Self-Regulation	76.89	11.74	81.08	12.11	-2.54	.01	-7.43	-0.94	0.35
Plan	18.60	3.52	19.41	3.07	-1.70	.09	-1.75	0.13	-
Monitor	21.99	4.16	23.27	3.92	-2.24	.03	-2.41	-0.15	0.32
Control	21.47	3.87	22.73	4.19	-2.29	.02	-2.34	-0.17	0.31
Reflect	18.53	3.52	19.42	3.61	-1.81	.07	-1.86	0.08	-

Table 10 shows that the living situation of students also appears to affect their ability to self-regulate. More specifically, it affects their ability to monitor and control their actions. Results also indicate that living situations may also affect the amount of stress, psychological distress, or depression that they encounter. Higher mean scores were achieved by those living at hostels.

Table 11

Multiple Regression Analysis of Self-regulation and its subscales and psychological distress and its symptoms (N=300)

	Model	B	SE	β	t	p	F	p	R^2	ΔR^2
				Self-Regulation						
1	(Constant)	67.82	6.09	-	11.14	.00	2.80	.06	0.02	0.22
	Age	0.53	0.25	0.12	2.12	**.04**				
	No. of Siblings	-0.59	0.53	-0.06	-1.11	.27				
2	(Constant)	49.07	5.84	-	8.40	.00	**27.88**	**.00**	**0.02**	**0.22**
	Age	0.49	0.22	0.11	2.20	**.03**				
	No. of Siblings	-0.26	0.48	-0.03	-0.54	.59				
	Psych. Distress	0.59	0.07	0.45	8.75	**.00**				
				Plan						
1	(Constant)	16.67	1.75	-	9.52	.00	3.92	.02	0.03	0.03
	Age	0.14	0.07	0.11	1.98	**.05**				
	No. of Siblings	-0.31	0.15	-0.12	-2.04	**.04**				
2	(Constant)	13.32	1.81	-	7.37	.00	**11.33**	**.00**	**0.10**	**0.71**
	Age	0.13	0.07	0.11	1.96	.05				
	No. of Siblings	-0.25	0.15	-0.10	-1.71	.09				
	Psych. Distress	0.11	0.02	0.28	5.05	**.00**				
				Monitor						
1	(Constant)	18.65	2.13	-	8.76	.00	1.96	.14	0.01	0.01
	Age	0.17	0.09	0.11	1.94	**.05**				
	No. of Siblings	-0.08	0.19	-0.03	-0.45	.66				
2	(Constant)	12.81	2.10	-	6.11	.00	**20.88**	**.00**	**0.18**	**0.16**
	Age	0.16	0.08	0.10	1.96	**.05**				
	No. of Siblings	0.02	0.17	0.01	0.12	.91				
	Psych. Distress	0.19	0.02	0.40	7.61	**.00**				
				Control						
1	(Constant)	19.31	2.02	-	9.58	.00	3.01	.05	0.01	0.02
	Age	0.15	0.08	0.11	1.87	.06				
	No. of Siblings	-0.29	0.18	-0.10	-1.65	.10				
2	(Constant)	13.89	1.99	-	6.97	.00	**20.68**	**.00**	**0.17**	**0.15**
	Age	0.14	0.08	0.10	1.87	.06				
	No. of Siblings	-0.20	0.16	-0.06	-1.20	.23				
	Psych. Distress	0.17	0.02	0.39	7.41	**.00**				
				Reflect						
1	(Constant)	15.89	1.83	-	8.71	.00	1.32	.27	0.01	0.01
	Age	0.12	0.07	0.09	1.62	.11				
	No. of Siblings	0.01	0.16	0.00	0.06	.95				
	(Constant)	11.37	1.83	-	6.21	.00	**16.17**	**.00**	**0.14**	**0.13**
2	Age	0.11	0.07	0.09	1.59	.11				
	No. of Siblings	0.09	0.15	0.03	0.60	.55				
	Psych. Distress	0.14	0.02	0.37	6.75	**.00**				

Note. Bold figures indicate significant predictions.

Table 11 shows the regression analysis, which generates a statistical model to estimate the relation between variables. Multiple linear regression was used to see how much variance in self-regulation can be predicted by psychological distress and its constituent symptoms. For each prediction two models were

generated. Model one was concerned with predicting the effects of age and no. of siblings in current sample. The rest of the demographics were excluded by the regression analysis generated through SPSS. The second model added only psychological distress as a valid predictor, even though its subscales were also entered in the equation. Psychological distress was a salient predictor of self-regulation, plan, monitor, control and reflect. Age was found to be a significant predictor of planning and self-regulation. Number of siblings was a salient predictor of planning.

Discussion

The current research explored the relationship between self-regulation, psychological distress and socio-demographic characteristics of students getting education in universities in Pakistan. Psychological stress was measured through three components: depression, anxiety and stress. The sample responded well to the questionnaires and the study obtained good to excellent range of alpha reliabilities. The data was found to be normally distributed.

The first objective of the study was to explore the ability to self-regulate. It is an ability to enhance one's ability to respond to different situations in an adaptive manner. It involves developing alternate meanings of experiences and regulating one's own emotions in face of psychological distresses in our daily lives. Psychological distress can cause a person to feel sad, anxious and eventually depressed if they do not find a way out of their distressing situations. Despite all efforts to maintain optimum mental health, adolescents may sometimes get stuck in a schism of negative experiences and this may impede their ability to work in a stable and prosperous manner. The process of self-regulation is necessary for healthy physical, mental, and social health (Chu, 2010; Pastey & Aminbhavi, 2006). Thus, it is important to study the relationship between psychological distress and self-regulation.

The social and other demographics status of adolescents relates to the ability of a person to determine the number of psychological resources that a person may have to deal with adverse life situations. These factors are important in determining not only the possibility of stress, but they may also serve as protective factors that may help with dealing with adverse psychological effects. At present very little is known what specific contextual factors play a role, if any, in the personal habits of adolescents that may protect them from falling prey to unwanted experiences. The present study aims to study just that.

The present research hypothesized an inverse relationship between psychological distress and its subcomponents (including depression anxiety and stress) and self-regulation. although the relationship was found to be statistically significant, the relationship was direct ranging from .19 to .46 (see Table 3). These results were unexpected. Both self-regulation and depression have a self-evident negative relation in most cases. However, for the present sample it was surprising to find that the correlations were positive. One explanation could be that the data was collected from emerging adults. This age is said to be the age of raging emotions and hormones. The older ones are more likely o be dealing with relations relating to identity development and identity needs. This age group may also be considered as a transient population. Thus, their feeling of distress may be a natural phenomenon that may be perceived as inner turmoil rather than a reaction to adverse events. Also, considering the fact that Pakistani society isa collectivistic society, each child is raised by a family; where each family comprises of very close relations and those who are loosely associated like distant family, neighbors and role models in the adolescent's life. Thus, giving rise to vicarious or modulated self-regulation. However, more research is needed to understand these factors further (Ooi et al., 2022). As evident from the regression analysis, the R^2 values and ΔR^2 values of the predicted models are also low. There to develop a predictive model, maybe future research needs to collect data about the socio-cultural and demographic characteristics on a Nationally representative sample.

The present research also researched into the differences between boys and girls on the study variable. The research found statistically significant results on psychological distress, depression and stress among boys and girls. Only

the planning aspect of self-regulation was found to be significantly different between boys and girls.

Another objective of the research was to explore the gender-based differences on the study variables. The study discovered that, despite having a comparable sample, there was a difference in mean scores for psychological distress, anxiety, and stress. There was a significant difference for plan aspect of self-regulation. Boys/men scored higher mean scores than girls/women. This was also a surprise finding. Generally, girls are bound to express more stress in Pakistani culture (Graves et al., 2021; Rizvi et al., 2014). An explanation for this could be that developmental challenge for boy and younger men is to undertake the role of a care giver, a husband and a father. Sometimes the societal pressure to settle down may cause them to feel distressed. Thus, this may also be the reason that they cope by planning (Hamilton & Fagot, 1988; Rosario et al., 1988; Ptacek et al., 1992).

Table 5 shows the variation in the sample's income, and it shows that there was a significant difference with study variables. To overcome the unequal sizes of income groups, post-hoc analysis using the Welch test was utilized. The findings show that the third group, whose family incomes range from 65,000 to 250,000 Pak Rupees, and the fourth group, whose family incomes exceed 250,000 Pak Rupees, almost always have an impact on the inequalities between the categories. This is an expected result; prior studies have indicated that mental health issues could be made worse by income (Fergusson et al., 2007; Zimmerman et al., 2015).. When we talk about socialization, future success is an essential feature. Individuals who belong to higher income groups are more likely to feel pressured by their parents to maintain the status quo. Thus, emerging adults are, as indicated by the sample, more likely to experience anxiety psychological distress and consequently develop more adaptive coping skills like planning, reflecting, monitoring and control.

The present research explored if parents' professional status affected the ability of emerging adults in regulating their feelings and emotions and the experience of psychological distress. The results for the mother's occupation status are shown in Table 6. Except for control, almost all variables show significance, suggesting elements of self-regulation. The findings showed that children of working mothers had higher psychological discomfort and self-regulation scores. Thus, when mothers have a full-fledged career, they might not be able to be at the beck and call of their children all the time. Considering the age of the sample, this bracket itself is very volatile and not having a fallback plan may cause adolescents to feel psychologically distressed. However, the mothers who are working may compensate their absence by teaching their children coping skills to deal with their developmental and emerging needs. This is a complex relationship that needs further exploration. Working mothers are more likely to be sensitized and aware pf practical skills needed by their children. Such skills may not be important or of concern for non-working women. The impact of fathers' work status did not have any impact on the study variables (see Table 8). This is a surprise finding. Fathers are said to be important for the intellectual development of young adults. However, present research did not find any significant difference between the comparison groups. This suggests that the father-child relationship is a complex phenomenon and should be studied in further detail. Perhaps the fathers in today's time have a weak role in the upbringing of their children, or maybe the specific age bracket is not looking for support or role models in their fathers. As stated earlier maybe same age peers or people in professional line-ups maybe playing a significant role in the daily lives.

Another objective of the research was to explore how the living status of the university students affected their experiences. The research assessed if their family was living in nuclear or joint family system (see Table 7). The study indicates that there are distinct differences in psychological distress and self-regulation experiences between individuals in joint and nuclear family setups. It shows that individuals from joint family systems experienced more psychological distress. This may be due to the experience of constant interference in daily routines and the need to share personal ad physical resources with others. Incidentally, coping with distress in terms of self-regulation was also found to be high in those living in joint family system.

Thus, being in a stressful condition may be a cause for these individuals to develop effective coping. A joint family is generally marked with greater expectations, increased interpersonal dynamics, a need to adjust within a larger family. So emerging adults are taught the art of coping by primary and secondary parenting figures. Living in nuclear families is generally equated to a protective environment, where secondary parenting maybe controlled (Bilal et al., 2013; Khatoon, 2008). Such parenting is more permissive and may not put emerging adults through testing situations. Interestingly this factor of protection was also indicated by studying the birth order among respondents. It was found that the last born were more likely to experience psychological distress and anxiety (see Table 9).

In addition to varying family types, the present research also focused on studying how to hostelites (student living in hostels) fare against students living at homes. The study found that those living at home reported experiencing less distress than those living in a hostel (see Table 10). These hostelites were more likely to show better self-regulation (Bashir et al., 2019; Chacón et al., 2019). The reason seems evident. When a person has to live on their own, they may experience a lot of stress and anxiety. This may be related to adjusting one's expectations, adjusting with demands of the hostel life and self-regulation to fit into the social environment. That may be distressing. And to survive and adjust to these demands, it is necessary to develop coping skills. Self-regulation is one of them. The present research indicates that the sample was using monitoring and control to regulate their behaviors in their daily experiences.

Conclusion and Recommendations

In summary, the research investigated the relationship between psychological distress, its subscales, and self-regulation among university students. Surprisingly, the results showed a positive correlation between psychological distress and self-regulation, contradicting the expected inverse relationship. This unexpected outcome suggests a need for further exploration into the complex nature of emotional regulation during adolescence and the potential influence of environmental factors. Moreover, the study examined gender differences in psychological distress and self-regulation, revealing significant variations between male and female students. Male students exhibited higher levels of anxiety and planning compared to their female counterparts, highlighting the importance of considering gender-specific factors in mental health interventions. Income disparities were also found to influence emotional dysregulation among students, with higher family incomes correlating with heightened distress levels. Maternal employment was associated with both increased distress and enhanced self-regulation among offspring, indicating a multifaceted relationship that warrants further investigation. Interestingly, the research found no significant impact of paternal employment status on students' mental health outcomes, suggesting the need to explore additional familial dynamics and coping mechanisms. Additionally, differences in living arrangements, such as joint versus nuclear families, and living at home versus in a hostel, were associated with distinct experiences of psychological distress and self-regulation. Overall, these findings underscore the complex interplay of individual, familial, and societal factors in shaping university students' mental health and emotional regulation abilities. Further research is needed to elucidate these dynamics and inform targeted interventions aimed at promoting the well-being of diverse student populations.

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Research Article

Gender Difference across Diabetes Distress, Cognitive Emotional Regulation, and Diabetes Related Quality of Life among Type II Diabetics

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Abstract

Background. Diabetes Mellitus is widely acknowledged as a major public health issue and is a prominent concern for middle- and lower-income countries like Pakistan. Considering its impact on physical and psychological health, scarce literature and limited prevalence surveys have halted the efforts to cope with this chronic illness adding to the disease burden.

Method. Keeping this broader context in mind the present research employed a cross-sectional research design, with an aim to examine gender differences across psychological aspects related to Type II diabetes, sample (N = 100) was approached to respond on a set of questionnaires including Diabetes Distress Scale, Cognitive Emotional Regulation Questionnaire, and Revised Version of Diabetes Quality of Life. Results were analyzed on SPSS 26 Version.

Results. Significant gender differences were observed across all study variables indicating that female had higher diabetic distress, poor diabetes related quality of life, and use more negative cognitive emotional regulation strategies in comparison to men. In comparison, men use more positive cognitive emotional regulation strategies to cope with the distress related to illness.

Conclusion. These findings of the present research could support in providing psychological help to diabetic patients considering their coping strategies and dealing with stress related to disease. These findings further highlight that differential interventions need to be designed for males and females to deal with distress related to diabetes. Awareness sessions, educational programs, intervention strategies could further be designed considering demographic related differences and other indigenous factors.

Keywords. Diabetes mellitus, cognitive emotion regulation, diabetes distress, diabetes related quality of life.

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Introduction

Diabetes is a metabolic condition that develops when pancreas does not contain sufficient insulin or when the body cannot use insulin it produces efficiently. Diabetes Mellitus (DM) is one of the most critical issues of public health with significant increase in cases globally and specially in middle- and lower-income countries (Cho et al., 2018). Earlier, projected cases of DM, according to Global Burden of Disease (GBD) and Human Development Index (HDI), indicate an upward trend with an increase of 3.73 cases per 100,000 people annually (Balooch et al., 2023). However, recently, it is estimated that these numbers will exceed from 495 million in 2017 to 693 million by 2045 (Ogurtsova, 2017). Among 463 million diabetic patients globally, 55 million are in the Middle East and North Africa (MENA) region and are projected to reach 108 million by 2045 (International Diabetes Federation, 2020). Pakistan, a developing country is facing a sharp increase in the diabetic patients. Aamir and colleagues (2019) highlighted 16.98% diabetic prevalence in a community sample of 18,856. They further highlighted that female had higher prevalence of DM (51.17%) as compared to males (48.83%). Similarly, most individuals living in urban areas were diabetic with 60.55 % prevalence. The influx of diabetic patients poses a serious threat to developing countries like Pakistan, with scarce financial resources and poor health care facilities. Therefore, it is imperative to understand how both male and female are coping with the illness, given the socioeconomic conditions of the country. Moreover, Pakistan has high prevalence of diabetes, but the psychological issues of diabetics are mostly ignored, so this study was carried out to explore the psychological aspects of diabetes.

Type II diabetes is a chronic disorder that has a substantial influence on people's physical and mental health. Gender disparities in how people manage and perceive diabetes are becoming more well acknowledged, although they remain underexplored. Women with Type II diabetes frequently experience increased diabetic distress, which can impair their capacity to control emotions and general quality of life (Perrin et al., 2017) . Women are more prone to experience emotional burden, and regimen related distress. Men, on the other hand, may use distinct cognitive emotional control mechanisms, which might contribute to differences in diabetes treatment and results. Understanding these gender-specific characteristics is critical for creating targeted therapies to meet the distinct issues that both men and women with Type II diabetes encounter.

Literature (Groot et al., 2001; Thomas et al., 2015) indicates that diabetic patients, especially female, experience psychological distress (anxiety, depression, and emotional distress) due to their illness, and are more likely to focus on the negative side of the disease and use of maladaptive cognitive emotional regulation strategies (Fisher et al., 2009; Rubin & Peyrot, 1999). These factors decrease coping with the disease and quality of life. Keeping this in view, the present research aims to examine gender differences on psychological aspects of type II diabetes among diabetic patients.

Strong comorbidity has been documented between Diabetic Distress (DD) and negative emotions including denial, stress and guilt perception. Empirical findings strongly indicate that the likelihood of experiencing negative and aversive emotions increase manifold because of diabetes. This tends to push individuals to employ negative cognitive emotional regulation strategies to deal with these aversive co-morbid negative emotions. With reference to epidemiology, findings indicate that one in every five individuals diagnosed with type II diabetes report experiencing diabetic distress (Kreider, 2017). This is found to be more prevalent in females in comparison to males (Graue et al., 2012), and it is further strongly associated with issues related to mental health (Nawaz et al., 2018). This is further complicated by the fact that that along with management of physical symptoms, psychological aspect related to disease apparent in the form of diabetic distress needs to be managed as well, which if often ignored. This poses a dual burden on countries like Pakistan where mental health facilities are already scarce (Islam et al., 2013). As a consequence it remains a challenge for individuals to manage both aspects of the disease simultaneously.

Coping strategies employed by the individuals play a crucial role in managing the distress related to disease. These strategies encompass a wide range of mechanisms that control and regulate the strategies that are employed usually at cognitive level to deal with distress and develop an understanding of the situation. These can be both negative and positive depending on how they are playing a role in developing an understanding of the disease and perceived control over it (Kane et al., 2018). With gender being the main focus the findings indicate that females tend to employ more negative cognitive emotional regulation

strategies in comparison to males putting them at risk of mental health problems like distress and depression.

Diabetes Quality of Life (DQoL) broadly refers to the quality of life of people diagnosed with diabetes. It is shaped by a wide variety of factors that include perception of disease, perceived control over the disease, and life satisfaction (Bujang et al., 2018). Diagnosis of diabetes has a significant impact on lives of the individuals that further affects the quality of their life. Gender is one of the significant contributing factors influencing DQoL among diabetic patients (Timar et al., 2016), as male patients have higher quality of life as compared to female suffering with the disease (Al Ayed et al., 2020; Fisher et al., 2009).

DM's association with co-morbid distress results in the dual burden on patients and the community hallmarks its chronic health issue for Pakistan (Islam et al., 2013). Though diabetes is a physiological condition, it significantly impacts the psychological health of patients. Diabetic patients encounter many difficulties in life as they must deal with the chronic illness with the rest of their lives. They need physical as well as psychological strength to cope with the illness. It can be established that both male and female perceive the illness differently and have different levels of distress and quality of life. Hence, this study intended to add into the literature how psychological help can be provided to patients considering their capabilities based on their gender.

In light of the above argument, the present research was carried out to examine gender differences among Pakistani diabetic patients across diabetic distress, cognitive emotional regulation strategies, and diabetic quality of life. The study hypothesized that female would have higher diabetic related stress, and male will have better diabetic related quality of life as well as they will score higher on using adaptive emotional regulation strategies to cope with their illness. The study aims to examine these differences to understand how psychological help, awareness, education, and self-help training and guides can be developed for both male and female to cope with the illness.

Method

Sample

This descriptive-comparative research study was carried out in the North region of Pakistan (Baltistan). Type II diabetic patients ($N = 100$) participated, from different areas of Baltistan through purposive and snowball sampling techniques. Participants with a minimum qualification of Intermediate were included in the study. The patients were informed about the objective of the study and informed consent was obtained. Around 250 participants were approached and only 100 agreed or returned the filled questionnaire. A booklet comprising of all study measures was shared with the participants. Participants were briefed about the purpose of the study, it was shared with them that the data would be used only for research purpose and they have the right to withdraw from the study at any stage.

Assessment Measures

Diabetes Distress Scale (Yousaf et al., 2014). This 17-item Urdu version assesses diabetes related distress on a 6-point Likert scale. The scale has four dimensions: diabetes related interpersonal distress, physician-related distress, emotional burden, and regimen related distress. The scale had acceptable Cronbach alpha reliabilities ranging from=.76 to = .92 (Chin et al., 2017; Yousaf et al., 2014).

Cognitive Emotion Regulation Questionnaire (Butt et al., 2013). Urdu version of 36 item Cognitive Emotion Regulation Questionnaire with five positive cognitive emotion-regulation domains (acceptance, positive reappraisal, refocus on planning, positive refocusing, and putting into perspective) and four negative cognitive emotion-regulation domains (catastrophizing, rumination, other-blame, and self-blame) was used to assess cognitive emotion regulation strategies. The high scores, on a 5-point Likert scale vary from 1 to 5, suggesting a higher possibility of a negative or positive regulation of cognitive emotions vice versa. The alpha reliability of different domains ranged from = .75 to = .87 (Kraaij & Gernifski, 2007).

Revised Version of Diabetes Quality of Life Instrument (DQOL; Bujang et al., 2018). English version of DQoL comprising of 13 items with three subscales: satisfaction (6 items; 1-6), impact (4 items; 7-10), and worry (3 items; 11-13) was used to assess diabetes related quality of life among patients with type II diabetes. High scores, on a 6- point Likert scale vary from scale 1 (very satisfied) to 6 (very dissatisfied), indicate poorer quality of life and low score indicates better quality of life. The alpha reliability of subscales ranges from = .78 to = .92 (Bujang et al., 2018).

Results

The age of the sample (*N* = 100) with male (*n* = 59) and female (*n* = 41) ranged from 17-85 years (*M* = 45.02, *SD* = 12.89). Sample distribution indicated most of the patients were (78 %), taking tablet (98 %) to control their diabetes instead of insulin, living in joint family system (66 %), had HbA1c above average (57 %). Additionally, participants reported they had blood pressure (49 %), and eye problem (40 %). However, some of them also indicated absence of any other disease (20.3 %).

Psychometric properties of the scales and data distribution across the sample are explained in Table 1. Results indicated satisfactory Cronbach alpha reliability of all scales and their subscales and ranged between *α* = .67 to *α* = .97.

Table 1

Descriptive Statistics of the Variables of the Study (N = 100)

Scale	k	M	SD	α	Range Actual	Range Potential	Skewness	Kurtosis
Diabetic Distress	17	60	24	.97	24-96	17-102	-.15	-1.7
Emotional Burden	05	17.40	7.91	.93	6-30	5-30	-.11	-1.6
Physician Distress	04	14.27	5.88	.87	5-23	4-24	-.12	-1.51
Regimen Distress	05	18.91	7.91	.93	5-30	5-30	-.26	-1.58
Interpersonal Distress	03	10.00	4.4	.85	3-18	3-18	.05	-1.37
Positive Cognitive Emotional Regulation								
Positive Refocusing	04	11.60	4.47	.86	4-20	4-20	.18	-1.29
Refocus on Planning	04	11.29	5.04	.89	4-19	4-20	.17	-1.63
Positive Reappraisal	04	11.12	5.16	.92	4-20	4-20	.21	-1.51
Putting into Perspective	04	11.55	4.35	.80	4-19	4-20	.20	-1.45
Acceptance	04	10.79	3.81	.67	4-18	4-20	-.08	-.91
Negative Cognitive Emotional Regulation								
Self-Blame	04	13.00	4.71	.89	5-20	4-20	-.06	-1.37
Rumination	04	12.45	5.04	.84	4-20	4-20	-.11	-1.43
Catastrophizing	04	11.90	6.44	.93	4-20	4-20	-.09	-1.74
Others Blame	04	10.35	4.6	.90	4-20	4-20	.47	-1.01
Diabetic Quality of Life	13	40.02	16.95	.97	17-61	13-65	-.25	-1.81
Satisfaction	06	18.55	08	.95	8-29	6-30	-.19	-1.78
Impact	04	12.45	5.34	.91	4-20	4-20	-.26	-1.71
Worry	03	9.02	4.05	.86	3-15	3-15	-.10	-1.69

In order to assess mean differences across gender, the *t*- test was computed. Table 2 illustrates mean difference across patient's gender on study variables. Significant mean difference was apparent across all the scales and their subscales except for acceptance, subscale of positive cognitive emotional regulation. Female scored higher on all the scales and domains of Diabetes Distress and Diabetic Quality of Life as compared to male. However, male scored higher on positive domain of the Cognitive emotional Regulation and female scored higher on negative domain of the scale.

Table 2

Mean Differences of Patient's Gender across Study Variables (*N* = 100)

Variables	Gender		*t*(98)	*p*	95 % CI		Cohen's *d*
	Male (*n* = 59)	Female (*n* = 41)					
	M (SD)	*M (SD)*			LL	UL	
Diabetic Distress	54.00 (26.22)	70.04 (19.81)	3.48	.00	-25.19	-6.90	.69
Emotional Burden	15.49 (8.29)	20.14 (6.50)	3.14	.00	-7.59	-1.71	.62
Physician Distress	12.83 (6.15)	16.34 (4.81)	3.19	.00	-5.69	-1.32	.63
Regimen Distress	16.94 (8.58)	21.73 (5.86)	3.31	.00	-7.64	-1.91	.65
Interpersonal Distress	8.72 (4.18)	11.82 (4.10)	3.67	.00	-4.77	-1.42	.74
Positive Cognitive Emotional Regulation							
Positive Refocusing	12.49 (4.82)	10.31 (3.59)	2.58	.01	.50	3.84	.51
Refocus on Planning	12.47 (5.27)	9.58 (4.20)	3.04	.00	1.00	4.77	.60
Positive Reappraisal	12.28 (5.22)	9.43 (4.64)	2.80	.00	.83	4.86	.57
Putting into Perspective	12.35 (4.57)	10.39 (3.78)	2.34	.02	.30	3.62	.46
Acceptance	11.20 (3.53)	10.19 (4.16)	1.30	.19	-.52	2.54	.26
Negative Cognitive Emotional Regulation							
Self-Blame	11.88 (4.67)	14.60 (4.33)	2.95	.00	-4.56	-.89	.61
Rumination	11.32 (5.04)	14.07 (4.63)	2.76	.00	-4.72	-.77	.56
Catastrophizing	10.61 (6.67)	13.75 (5.67)	2.53	.01	-5.6	-.68	.50
Others Blame	9.18 (4.10)	12.02 (4.82)	3.16	.00	-4.61	-1.05	.63
Diabetic Quality of Life	35.38 (17.39)	46.68 (13.98)	3.59	.00	-17.53	-5.04	.71
Satisfaction	16.37 (8.11)	21.68 (6.79)	3.54	.00	-8.28	-2.33	.70
Impact	11.10 (5.48)	14.39 (4.53)	3.27	.00	-5.28	-1.29	.65
Worry	7.91 (4.20)	10.60 (3.27)	3.59	.00	-4.18	-1.20	.71

Discussion

The present study aimed to examine gender differences for psychological aspects across gender for Baltistan community. Findings of *t*-test indicated that women with type II diabetes have higher diabetic distress, use negative cognitive emotional strategies to cope with the illness and have poor quality of life as compared to men with type II diabetes. Further, women are more likely to blame themselves for the onset of disease. They are usually more attentive towards minute details of the disease and as a consequence tend to have a magnified and loud emotional expression (Kane et al., 2018). These findings are closely in line with existing literature across different cultures which indicate females experience and report more diabetic distress and have poor diabetes related quality of life in comparison to males (Kautzky-Willer et al., 2023) . One plausible reason for this could be an excessive focus on negative aspects of disease. Further this chronic illness leads to other related fears regarding declining physical health and fertility related issues. Females are further at higher risk of chronic illnesses such as diabetes dur to

underlying conditions of hormonal fluctuations and obesity. Interpreting these findings within the indigenous context and culture reveal that women experience relational problems when they are diagnosed with an illness, and being an Eastern woman, are expected to must juggle home and their work life which makes them more vulnerable to distress due to their illness. Lack of adequate knowledge and diagnostic delay can further complicate the process of acceptance. Previous literature indicated that males with diabetes show better quality of life in comparison to the female patients. These findings hold special relevance with the culture of Baltistan where males can access the health facilities more readily in comparison to females. This can be attributed to the fact that males in our society have more access to medical facilities. The perception of control over the symptoms of diabetes is much better in males as compared to females. This perceived control is a supporting factor that aids males in dealing with diabetes related distress more effectively (Nawaz et al., 2018).Negative cognitive emotional regulation strategies further include strategies like rumination, self-blame and catastrophizing. Empirical findings pair

the use of these strategies with more distress and poor mental health outcomes in context of both chronic disease and childhood trauma. The use of more negative cognitive emotional regulation strategies among women can affect their disease perception as a consequence, they are less likely to manage the disease more effectively. This can foster experiencing negative emotions and are likely to aggravate the diabetes distress which can further negatively affect the quality of life (Huebschmann et al., 2019; Kautzky-Willer et al., 2023).

These findings can be interpreted better keeping the Pakistani context in mind. Women in Pakistan are usually expected to play a significant role in maintaining relationship. The additional burden of role expectation of keeping the family intact and maintaining the important familial connections adds on the disease related distress. This is further complicated by the fact that chronic health conditions like diabetes are likely to affect the reproductive ability of the female as well. The element of poor health literacy specifically among the females in Pakistan is additional missing piece of the puzzle in this context. All these factors put the women at risk where they are likely to experience more negative cognitive emotional regulation strategies. This negatively impacts the quality of life.

The finding that males experience a better diabetes related quality of life in comparison to females can also be understood keeping the similar aspect in mind. Health sensitivity and literacy among males in Pakistan is much higher in comparison to females. Similarly taking the expected gender roles into account, males are not expected to maintain the sense of care, responsibility and connection with in the context of family. As a consequence, the sole distress they need to manage is the one related to disease. Stigmatization related to disease is not same across both genders (Nawaz et al., 2018). All this lead to use of more problem focused and positive coping strategies in comparison to females which ultimately leads to better quality of life.

The findings of present research strongly indicated a need to design both preventive measures and intervention strategies through the gender lens. Further, these should be culturally tailored as gender roles play a crucial role in shaping diabetic distress, cognitive emotional regulation strategies and quality of life tend to vary across cultures. Support groups and group therapies can play a facilitative role by providing women with safe spaces to vent out the feelings related to distress.

Conclusion

The present research aimed to study gender differences across diabetes distress, cognitive emotional regulation strategies and quality of life among women with type II diabetes. Findings indicated that women are likely to experience more diabetic distress and tend to have a poor quality of life in comparison to males. Similarly, males tend to use more positive cognitive emotional regulation strategies in comparison to females.

Implications

The findings of the present research can be used to spread awareness among masses that diabetes needs to be managed both at physical and psychological levels. A special attention needs to be given to gender and societal gender roles and norms in designing preventive strategies and interventions to deal with diabetic distress and enhance the quality of life of patients with type II diabetes. . Additionally, the study could be a source for professionals, as their can advise and encourage their female patients to be more expressive about their emotions. This could reduce the negative effects of the disease such as distress, control of frustration, loss of trust in family and friends, and tension of persistence symptoms. Despite the significant contributions of the present research there are some limitations. A smaller sample size and reliance on self-report measures limit the generalizability of the findings and add the element of desirability to it. Further, samples were only collected from the Baltistan region which is an additional threat to external validity of the study. To conclude, the study reflects on a novel finding of developing tailored gender based preventive and intervention strategies to manage diabetes distress and improve the quality of life of patients with type II diabetes.

Declaration

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