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RESEARCH PAPER

Psychosocial Determinants of Interpersonal Difficulties among Adolescents: The Mediating Roles of Mindfulness, Emotion Dysregulation, Distress Tolerance, and Interpersonal Effectiveness

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ABSTRACT

The present study examined psychosocial determinants of interpersonal difficulties among adolescents, with particular focus on family dynamics and problematic and risky use of internet. It also investigated the mediating roles of mindfulness, emotional dysregulation, distress tolerance, and relationship-related interpersonal effectiveness. A quantitative cross-sectional correlational research design was used. The sample consisted of 700 adolescents selected from colleges in Faisalabad and surrounding areas through purposive sampling. Data were collected using the Interpersonal Difficulties Scale, Family Dynamics Scale, Problematic and Risky Use of Internet Scale, Cognitive and Affective Mindfulness Scale–Revised, Brief Emotional Dysregulation Scale, Distress Tolerance Scale, Relationship Scale Questionnaire, and a demographic sheet. Data were analysed using IBM SPSS Statistics Version 29 and AMOS 29. Results showed that interpersonal difficulties were negatively associated with family dynamics and positively associated with problematic and risky internet use, emotional dysregulation, distress tolerance, mindfulness, and relationship functioning. Family dynamics also negatively predicted problematic and risky internet use. Mediation analysis showed that emotional dysregulation and distress tolerance were significant indirect pathways between family dynamics and interpersonal difficulties.

KEYWORDS Family Dynamics, Problematic and Risky Internet Use, Interpersonal Difficulties, Emotional Dysregulation, Distress Tolerance

Introduction

Adolescence is a well-documented period of transition and change, and is considered one of the most critical periods of the human life span, the transition between childhood dependence and adulthood. Adolescence is a time of change, with biological, cognitive, emotional, and social development occurring concurrently and changing quickly, creating an opportunity and vulnerability for young people. Adolescence is also a critical time to acquire coping skills, problem-solving skills, interpersonal skills, and emotion management (World Health Organization [WHO], 2025). Recent developmental studies also indicate that social and neurodevelopmental transitions can extend well into the mid-20s, complicating the notion that adolescence ends at age 18 (Sawyer et al., 2018; Steinberg, 2014). Increased vulnerability to anxiety and depressive symptoms among children and adolescents is also reflected in recent evidence from the global context, which calls for the study of psychosocial functioning in this age group (Kausar et al., 2022; Racine et al., 2021).

In this developmental context interpersonal functioning is particularly relevant as adolescents come to define themselves more and more in relation to parents, siblings, peers, teachers, and extended social networks. Interpersonal difficulties are ongoing problems in developing, sustaining, or regulating relationships. Some of these challenges can manifest themselves in communication, emotional expression, assertiveness, empathy, boundary setting or conflict resolution. These challenges are not just transient social inconveniences,

but can lead to feelings of loneliness, rejection by peers, family conflict, social isolation, anxiety and depressive symptoms. Adolescent peer relationships and interpersonal contexts are strongly connected with social and emotional development (Collins & Steinberg, 2006), and difficulties in peer and romantic relationships have been linked with symptoms of social anxiety and depression (La Greca & Harrison, 2005). Thus, interpersonal problems serve as an important dependent variable in the understanding of adolescent psychosocial adjustment.

Interpersonal skills are learned initially in the context of intimate relational environments, and interpersonal difficulties in the family are an important independent psychosocial risk factor. Family dynamics are the general relationships, roles, communication, cohesion, emotional support, and conflict that take place in the family system. A family systems approach to the family sees it as an emotional system, where what one family member does, how they feel, affects how the other members function (Bowen, 1978). Supportive families offer models of trust, emotional expression, cooperation, and problem-solving, while families that are conflictual, rigid, or emotionally invalidating may limit adolescents' capacities to express needs, tolerate disagreement, and regulate social conflict (Olson et al., 2004). Therefore, family dynamics can have direct impact on the development or decrease of interpersonal difficulties.

As adolescents become more independent, the dynamics of the family become more complicated as they simultaneously are still emotionally and socially attached to their family. Open communication, emotional validation and flexible boundaries in the family can help adolescents build confidence in their ability to manage relationships outside of the family. But if the child is controlled too severely, is not able to resolve conflict, is not disciplined consistently, or is not emotionally responsive, it can lead to heightened emotional insecurity, relational avoidance, and interpersonal sensitivity. Family environment is known to play a significant role in the development of emotion regulation (Morris et al., 2007) and parental factors are linked to depression and anxiety in adolescents (Khan et al., 2025; Yap et al., 2014). In a collectivistic and family-oriented setting, the expression of emotions, negotiation of autonomy and interpersonal demands may be further influenced by respect for authority, social harmony and family expectations (Hofstede, 2011).

In addition to family dynamics, problematic and risky Internet use is another important independent variable in today's adolescent development. Adolescents are growing up in a digital ecology where the internet is the main communication, educational, entertainment, identity exploration, and peer interaction tool (Ghazanfar & Ul Haq, 2025). Digital platforms can support learning, self-expression, and social connection, but problematic and risky internet use may interfere with sleep, academic engagement, emotional stability, and face-to-face relationships (Ali et al., 2025; Daniel et al., 2025). Problematic online engagement has been described through addiction-like features, including salience, mood modification, tolerance, withdrawal, conflict, and relapse (Ahmed et al., 2021; Andreassen, 2015). More recent evidence suggests that adolescence includes developmental windows of sensitivity to social media, meaning that digital engagement may have different implications depending on age, sex, and developmental timing (Orben et al., 2022).

This digital context is directly relevant to interpersonal difficulties because problematic and risky internet use may intensify social comparison, online conflict, cyber-related stress, dependence on digital validation, and avoidance of direct interpersonal communication. Social media platforms often expose adolescents to idealised images of others' lives, which may increase upward comparison and lower self-esteem (Vogel et al., 2014). The U.S. Surgeon General's advisory reported that social media use among young people is nearly universal, and adolescents spending more than three hours daily on social media face double the risk of mental health problems, including symptoms of depression

and anxiety (Office of the Surgeon General, 2023). However, internet use is not harmful in all cases; its impact depends on content, purpose, developmental stage, and individual vulnerability (American Psychological Association, 2023; Odgers & Jensen, 2020).

Together, family dynamics and problematic and risky internet use represent two relational contexts that may jointly shape adolescent interpersonal functioning. While the family offers the initial environment where adolescents learn to express their emotions, set boundaries and understand conflict resolution, the internet is now creating another environment where adolescents are looking for validation, comparison, belonging and exploring identity. In a situation of low family communication, adolescents may seek more reassurance or escape in online environments. This overlap indicates that interpersonal problems could arise not because of one individual factor, but because of the combination of family experiences, digital behaviour and adolescents' internal ability to cope with emotional and social stress (Andreassen, 2015; Keles et al., 2020; Morris et al., 2007; Nesi, 2020).

Taken together, these mediating variables help explain how the independent variables may be linked with the dependent variable. Poor family dynamics may reduce mindfulness, increase emotion dysregulation, weaken distress tolerance, and limit opportunities to learn interpersonal effectiveness. Similarly, problematic and risky internet use may increase emotional reactivity, reduce present-moment awareness, encourage avoidance of distress, and interfere with face-to-face social learning. These pathways may then contribute to greater interpersonal difficulties among adolescents. Building on this literature, the present cross-sectional study examines family dynamics and problematic and risky internet use as psychosocial determinants of interpersonal difficulties among adolescents. It further investigates whether mindfulness, emotion dysregulation, distress tolerance, and interpersonal effectiveness function as mediating explanatory pathways in these relationships (Aslan et al., 2024; Office of the Surgeon General, 2023; Orben et al., 2022; Racine et al., 2021).

Literature Review

The etiology of adolescent interpersonal difficulties is a multifaceted issue that involves individual vulnerability, family environment, digital experiences, and a wider sociocultural context. Adolescent interpersonal issues can manifest as ongoing issues with emotional expression, communication, assertiveness, conflict resolution, boundary setting, and forming and maintaining a stable relationship. The challenges are particularly significant as adolescence is a time when interpersonal skills are developed, refined, and solidified within the context of relationships with parents, siblings, peers, teachers, and extended social circles (Collins & Steinberg, 2006). Adolescent psychosocial adjustment is also a key focus on the development of coping, problem solving, interpersonal skills and emotion management, which highlights the importance of interpersonal functioning during adolescence (World Health Organization [WHO], 2025). Thus, rather than viewing adolescent interpersonal difficulties as individual problems, they must be seen as the products of relational and ecological contexts (La Greca & Harrison, 2005; WHO, 2025).

The family system is one of the closest and most lasting factors contributing to adolescent interpersonal functioning, building upon this multifactorial understanding. Family dynamics encompass the family system's patterns of interaction, roles, communication, cohesion, emotional support, boundaries and conflict. Family systems theory views the family as an emotional unit with members who are interdependent and who affect each other in predictable ways of communication and emotional response (Bowen, 1978). Families that are supportive offer adolescents models of trust, emotional expression, cooperation, and constructive conflict resolution, while families characterized by rigidity, emotional disengagement, conflict, or invalidation may limit adolescents' ability to express needs, tolerate disagreement, and manage social stress (Gavazzi, 2011; Olson et

al., 2004). Therefore, family relationships constitute a key psychosocial environment in which adolescents acquire adaptive or maladaptive interpersonal skills.

The influence of this family is more significant during adolescence when the young are striving for independence but still part of the family system. The best family environment has clear, but flexible, boundaries that enable connectedness and independence. This setting offers adolescents a safe base to venture into more complex peer and social relationships and also offers them support and guidance from the family (Olson et al., 2004). Too strict boundaries, however, can lead to emotional isolation and lack of support while too loose boundaries can make it difficult for adolescents to develop autonomy and self-direction. Family norms, family values, respect for authority, and social harmony are other factors that could influence adolescents' expression of emotions, negotiation of autonomy, and interpersonal demands, especially within collectivistic and family-oriented contexts, such as in Pakistani society (Hofstede, 2011; Yap et al., 2014).

Family dynamics are reinforced by attachment and emotional development perspectives. Adolescents who have consistent, responsive and emotionally secure early and continued relationships are more likely to have positive expectations of self and others. Adolescents who are exposed to rejection, inconsistency or emotional unavailability, however, may have relational patterns that involve fear of abandonment, emotional distancing, too much dependence, or discomfort with intimacy (Cassidy & Shaver, 2016). These attachment-related interpersonal patterns may influence adolescent peer relationships, family interactions, and broader relational competence. The cultural relevance of interpersonal difficulties in Pakistan is also supported by the development of an indigenous Interpersonal Difficulties Scale, which reflects the need to assess relational functioning within the local sociocultural context (Saleem et al., 2014). Therefore, family experiences provide a foundation for how adolescents understand closeness, conflict, support, autonomy, and emotional safety in later relationships (Cassidy & Shaver, 2016; Collins & Steinberg, 2006).

The family context can also be intertwined with the digital context. Adolescents may seek reassurance, escape, belonging, or even expression of identity in online environments when they feel disrespected or emotionally invalidated by their families or when they encounter relational conflict. Meanwhile, too much or inappropriate Internet usage can lead to more family conflict, less family time together, and disagreements regarding Internet use. This overlap indicates that interpersonal problems could not only stem from family relationships and/or Internet use, but also from the interaction between family relationships and digital behaviours and adolescents' internal regulatory capacities (Andreassen, 2015; Keles et al., 2020). This is aligned with ecological thinking, which views adolescent behaviour as the result of multiple relational, emotional, and contextual systems that impact one another, rather than as a single cause (Bronfenbrenner, 1979; Nesi, 2020).

Mindfulness might be a protective pathway because of being aware of the present moment and not judging oneself or one's experience.Adolescents with higher mindfulness may be better able to observe emotional triggers, pause before reacting, and respond more thoughtfully during family conflict, peer disagreement, or online stress. Mindfulness has been conceptualised in relation to attention, awareness, and acceptance, all of which are relevant to emotional and interpersonal functioning (Feldman et al., 2007; Shahid et al., 2025). In contrast, low mindfulness may increase impulsive reactions, emotional over-involvement, and difficulty separating immediate feelings from interpersonal realities. Thus, mindfulness may help explain why some adolescents exposed to poor family dynamics or problematic internet use experience fewer interpersonal difficulties than others (Feldman et al., 2007; Linehan, 1993).

Emotion dysregulation is another central pathway because adolescents who struggle to understand, accept, and regulate emotions may react intensely to interpersonal

stress. Difficulties in emotion regulation include poor emotional clarity, limited access to adaptive strategies, non-acceptance of emotional responses, impulse-control difficulties, and difficulty engaging in goal-directed behaviour during emotional arousal (Gratz & Roemer, 2004). Family conflict, peer criticism, and negative online experiences may therefore lead to withdrawal, aggression, reassurance seeking, or unstable relational patterns when adolescents lack effective regulation skills. Emotion regulation is central to psychological functioning, and recent psychiatric literature identifies emotion regulation difficulties as transdiagnostic processes across psychiatric disorders (Aslan et al., 2024; Gross, 2015). This is consistent with the notion of emotion dysregulation as a mediator between family and digital stressors and interpersonal problems.

Emotion dysregulation is similar to distress tolerance but is also a coping ability. It's about feeling and tolerating negative emotions without running away, avoiding, or reacting impulsively to them. Disagreement, rejection, family criticism or conflict on the internet can be overwhelming for adolescents with low distress tolerance, leading to coping behaviors such as avoiding, emotional outburst, withdrawal, and excessive internet use. Perceived tolerance, absorption in distress, appraisal of distress and attempts to regulate distress are conceptualized as the multidimensional aspects of distress tolerance (Simons & Gaher, 2005). In interpersonal difficulties, distress tolerance can be used to predict if adolescents will persist or if they will react to interpersonal stressors in ways that will increase interpersonal distance, interpersonal misunderstandings, and interpersonal conflict (Lin ehan, 1993; Simons & Gaher, 2005).

Interpersonal effectiveness is the mediator most directly associated to interpersonal difficulties since it involves communicating needs, establishing limits, maintaining self-respect, handling conflict, and maintaining relationships. Whilst many of these skills are learnt through family communication and peer interaction, too much use of digital communication can restrict the opportunities for adolescents to practice these skills in face-to-face situations. Interpersonal competence is a key developmental stage during adolescence when young people are learning to manage the tension between autonomy and connection in their family, peer, school, and emerging romantic relationships (Collins & Steinberg, 2006). Adolescents who are better able to assert themselves interpersonally may have more resources to negotiate family expectations, resist peer pressure, and respond effectively to conflict in the online and offline worlds. On the other hand, interpersonal effectiveness deficits can exacerbate interpersonal problems, interpersonal distress, and relational instability (Linehan, 1993; Miller et al., 2007).

Considering family dynamics, these mediators help to explain how family experiences can be translated into interpersonal outcomes. Supportive family dynamics can foster adolescents' mindfulness by enabling them to experience emotions without fear of rejection, emotion regulation by modelling and emotional coaching, distress tolerance by supportive responses when facing difficulty, and interpersonal effectiveness by encouraging open communication and constructive conflict resolution. On the other hand, dysfunctional families can decrease mindful awareness, increase emotion dysregulation, lower tolerance for distress, and decrease opportunities to practise effective communication. This pathway is consistent with family-based models of emotional development that propose that the emotional climate of the family has an influence on regulatory and interpersonal capacities (Bowen, 1978; Morris et al., 2007; Olson et al., 2004).

The same mediators can help to understand how digital engagement may be linked to interpersonal problems, in relation to problematic and risky use of internet. Excessive or risky use of the Internet can decrease mindfulness by fostering automatic checking and attentional fragmentation, increase emotion dysregulation through comparison and online conflict, decrease distress tolerance by providing instant distraction from distress, and decrease interpersonal effectiveness by replacing in-person social practice. Conversely, adolescents with stronger mindfulness, lower emotion dysregulation, higher distress

tolerance, and stronger interpersonal effectiveness may be more able to use the internet intentionally and maintain healthier online and offline relationships. This supports the mediating role of these variables between problematic internet use and interpersonal difficulties (American Psychological Association, 2023; Andreassen, 2015; Nesi, 2020; Orben et al., 2022).

Gap in the literature emerges from the fact that previous research has often examined family dynamics, digital technology use, emotion regulation, mindfulness, distress tolerance, or interpersonal competence separately, rather than integrating them within one explanatory model of adolescent interpersonal difficulties. Existing evidence supports the importance of family relationships (Bowen, 1978; Morris et al., 2007), problematic digital engagement (Andreassen, 2015; Office of the Surgeon General, 2023), and emotion-related psychological processes (Aslan et al., 2024; Gratz & Roemer, 2004). However, limited research has examined whether mindfulness, emotion dysregulation, distress tolerance, and interpersonal effectiveness explain the pathways through which family dynamics and problematic and risky use of internet are associated with interpersonal difficulties. This gap is particularly significant in culturally family-oriented contexts where adolescent relationships are influenced by family expectations, emotional communication, harmony, and growing exposure to digital media. The present cross-sectional study, therefore, investigates family dynamics and problematic and risky use of the internet as psychosocial factors in interpersonal difficulties and explores the mediating role of mindfulness, emotion dysregulation, distress tolerance, and interpersonal effectiveness (Hofstede, 2011; Orben et al., 2022; Saleem et al., 2014; WHO, 2025).

Theoretical Framework

This current research is based on an integrated psychosocial perspective that elucidates the interpersonal problems of adolescents as a result of family, digital, emotional and interpersonal processes. The family is considered a unit of emotion in which family members influence each other through recurring patterns of communication, emotional bonding, emotional support, boundaries and conflict (Bowen, 1978), and family systems theory is the main theory used to understand family dynamics. The theory of attachment also helps to understand how adolescents' experiences with relationships during their development influence their expectations of closeness, support, autonomy, and emotional safety in relationships (Cassidy & Shaver, 2016). In this context, adverse family experiences can raise adolescents' risk factors for interpersonal issues, including a lack of emotional support, assertiveness, conflict resolution, and relational security. Ecological systems theory also justifies the consideration of problematic and risky use of Internet because today's adolescents grow up in family and digital environments which affect their emotional and social development (Bronfenbrenner, 1979; Nesi, 2020). Internet behaviors that are problematic or risky can lead to interpersonal challenges, such as social comparison, emotional avoidance, online conflict, reliance on online validation, and a decrease in in-person interactions (Andreassen, 2015; Orben et al., 2022; Vogel et al., 2014).

The framework also suggests that the connection between family dynamics and problematic and risky use of internet and interpersonal difficulties can be explained by four mediators: mindfulness, emotion dysregulation, distress tolerance, and interpersonal effectiveness. These mediators are psychological and interpersonal abilities by which adolescents pay attention to emotional experiences, control emotional arousal, tolerate emotional distress and regulate relationships effectively. Adolescents may experience more intense or maladaptive reactions to family conflict, peer stress or online comparison due to emotion dysregulation, while mindfulness may help adolescents become aware of their emotional triggers and respond in a thoughtful manner instead of an impulsive one (Feldman et al., 2007; Gross, 2015). Distress tolerance refers to the capacity to stay engaged in disagreement, rejection, and/or emotional distress without avoiding or engaging in impulsive reactions (Simons & Gaher, 2005); interpersonal effectiveness concerns the

ability to communicate needs, establish boundaries, manage conflict, and maintain relationships (Linehan, 1993; Miller et al., 2007). The present theoretical model therefore proposes that family dynamics and problematic and risky use of the internet are independent variables, interpersonal difficulties are a dependent variable, while mindfulness, emotion dysregulation, distress tolerance, and interpersonal effectiveness are proposed as mediators.

Hypotheses

H1. Poorer family dynamics and higher problematic & risky internet use will be associated with greater interpersonal difficulties.

H2. Family dynamics and problematic & risky internet use will significantly predict interpersonal difficulties.

H3. Mindfulness, emotion dysregulation, distress tolerance, and interpersonal effectiveness will show significant indirect-pathway patterns linking family dynamics with interpersonal difficulties.

H4. Mindfulness, emotion dysregulation, distress tolerance, and interpersonal effectiveness will show significant indirect-pathway patterns linking problematic & risky internet use with interpersonal difficulties.

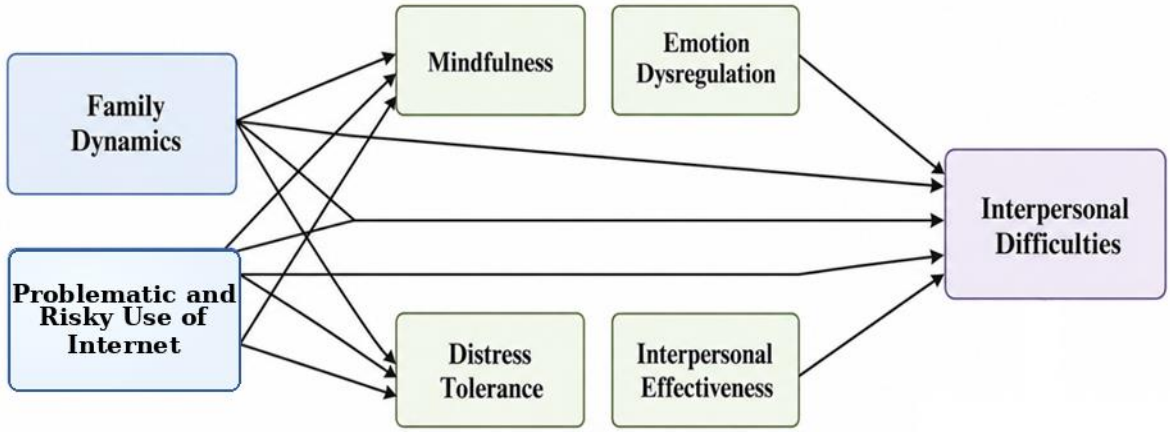

Figure 1: Theoretical Framework

Material and Methods

Research Design

A quantitative cross-sectional correlational design was used. The study examined associations, prediction, and indirect-pathway patterns among family dynamics, problematic and risky use of internet, mindfulness, emotion dysregulation, distress tolerance, relationship functioning, and interpersonal difficulties. As the data were cross-sectional, findings were interpreted as associations and explanatory pathways, not causal effects.

Sampling Strategy

Purposive sampling with gender-based quota distribution was used. Participants were selected from colleges and in Faisalabad and surrounding areas. Equal numbers of boys and girls were included. Sample size was calculated through G*Power. The final sample

of 700 adolescents exceeded the minimum required sample and was considered adequate for correlation, regression, group comparison, and structural equation modelling.

Participants

The final sample consisted of 700 adolescents from selected colleges and in Faisalabad and surrounding areas. The sample included 350 boys and 350 girls, aged 15–19 years.

Inclusion Criteria

1. Adolescents in this developmental period were specifically targeted, as this stage is characterised by significant interpersonal, emotional, and social changes.
2. Only students actively enrolled in public or private colleges & in Faisalabad and its surrounding areas were considered eligible.
3. Participants were included only if they provided written assent and also submitted parental or guardian consent.

Exclusion Criteria

1. Students under 15 years and over 19 years of age were omitted because they were not in the developmental stage being studied.
2. Adolescents who had been diagnosed with psychiatric disorders or learning disabilities or who were registered with special education programmes were not included.
3. Questionnaires with substantial missing responses and those without completion of the IDS were not included in the final data set.

Measures

A set of 7 instruments were used to measure interpersonal problems and related psychosocial variables in adolescents.

Research Procedure

The initial challenge was institutional approval and access. Permission letters were obtained from principals and administrators of selected public and private colleges & universities in Faisalabad. A formal request was given at each of the institutions stating the aims of the study, the tools to be used, the anticipated time needed for administration and assurances of confidentiality and voluntary participation. Ethical approval and consent was the second step. The departmental research ethics committee gave its approval before data collection. Ethical guidelines for research with minors were adhered to as per APA (2020). Parents/guardians gave written informed consent and students gave written assent.

The third step was instruments preparation and administration procedures. The eight instrument battery (IDS, RSSFD, PUSNS, CAMS-R, BEDS, DTS, IES, and Demographic Sheet) was compiled into a standardised questionnaire booklet. Clear, age appropriate, English instructions were written. Order effects were reduced by alternating the primary constructs and ancillary measures. The total time to complete the battery averaged about 20-30 minutes. The fourth step was data collection in classrooms. Groups of 25-30 students participated in sessions during regular school hours. The researcher presented the study, checked confidentiality forms and gave standard instructions on how to complete the forms. The researcher and a faculty coordinator observed the process during the sessions, clarifying questions and ensuring adherence.

Data checking and management was the fifth step. Completed questionnaires were retrieved right after administration. Before participants left the session, each set was reviewed for missing responses or ambiguities, and corrections were made if necessary. Responses were anonymized using ID codes which were used to ensure confidentiality. All data was entered into SPSS version 29 and double entry and cross validation was carried out to reduce input errors. Students were thanked at the end of each session and information was provided on counseling and academic support. A summary of the purpose of the research was also given to the institutional authorities and they were assured that no individual level data would be shared.

Research Setting and Site

The study was carried out in colleges in the urban area of Faisalabad and its nearby colleges. Faisalabad was chosen as it offered access to a wide range of adolescent population in terms of socio-economic, cultural and educational status. The data was collected in classrooms which were set up to reduce distractions and privacy when questionnaires were administered. Overall, 700 adolescents were sampled (350 boys and 350 girls) from various colleges.

Ethical Considerations

All ethical issues were adhered to during the research process, especially since the participants were adolescents from 16 to 19 years old. Prior to the start of data collection, the study protocol was reviewed and approved by the Institutional Review Board/Ethics Review Committee of Riphah International University.

Statistical Analysis

Data were analysed using IBM SPSS Statistics Version 29 and AMOS 29.

Table 2
Descriptive analysis and Alpha Reliabilities for Study Variables

Scales	*N*	*M*	*SD*	Min	Max	*α*	Range		Skewness
							Potential	Actual	
Family Dynamics Scale	14	56.09	9.01	18	70	.84	1-5	52	-.97
The Problematic and Risky Use of Internet	18	29.97	15.05	0	72	.89	0-4	72	.29
Social Impairment	6	9.35	5.39	0	24	.69	0-4	24	.32
Emotional Impairment	5	8.42	5.47	0	22	.84	0-4	22	.29
Risky/Impulsive Internet Use	7	12.17	6.52	0	28	.80	0-4	28	.24
Distress Tolerance Scale	15	45.67	11.46	15	75	.88	1-5	60	-.10
Relationship Scale	13	39.67	10.44	13	65	.83	1-5	52	-.01
Cognitive and Affective Mindfulness	10	27.05	5.51	10	48	.72	1-4	38	.06
Brief Emotional dysregulation Scale	12	31.59	5.84	15	45	.72	1-4	30	-.14
Interpersonal Difficulties Scale	59	109.6	42.40	0	236	.95	0-4	236	.07
Dominated by Others	15	26.89	11.81	0	60	.86	0-4	60	.17
Low Self-confidence	11	20.91	8.89	0	44	.82	0-4	44	.07
Mistrust	12	22.20	9.63	0	48	.83	0-4	48	.07
Lack of Assertiveness	8	16.12	6.93	0	32	.80	0-4	32	-.05
Lack of Boundaries	6	10.63	4.80	0	42	.64	0-4	24	.16
Instability in Relationships	7	12.96	6.00	0	28	.76	0-4	28	.10

Note: N = No of items, M= mean, SD = Standard deviation, α = Cronbach's Alpha

The table given above demonstrates that all primary instruments exhibited acceptable to excellent internal consistency and score distributions that closely approximate normality an essential prerequisite for most parametric psychometric analyses. These patterns indicated no violation of the normality assumption in any of the scales, which justified the use of parametric statistical methods (Pearson correlation, t test, ANOVA and regression) in further analyses.

Table 3
Pearson moment Correlation among variables in adolescents (N = 700)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1.Family Dynamics Scale	--												
2.The Problematic and Risky Use of Internet	-.22**	--											
3.Distress Tolerance Scale	.58	.37**	--										
4.Relationship Scale Questionnaire	.34	.33**	.53**	--									
5.Cognitive and Affective Mindfulness	.18**	.06	.25**	.26**	--								
6.Brief Emotional dysregulation	.79**	.30**	.52**	.46**	.27**	--							
7.Interpersonal Difficulty Scale	-.38	.48**	.61**	.61**	.18**	.46**	--						
8.Dominated by Others (Factor 1)	-.68*	.48**	.58**	.54**	.15**	.40**	.92**	--					
9.Low Self-confidence (Factor 2)	.49	.42**	.56**	.56**	.14**	.45**	.89**	.76**	--				
10. Mistrust (Factor 3)	.28	.39**	.52**	.55**	.16**	.39**	.89**	.79**	.76**	--			
11.Lack of Assertiveness (Factor 4)	.25	.33**	.510**	.53**	.19**	.46**	.81**	.68**	.75**	.64**	--		
12.Lack of Boundaries (Factor 5)	-.64*	.44**	.53**	.50**	.20**	.35**	.83**	.77**	.70**	.72**	.63**	--	
13.Instability in Relationships (Factor 6)	-.75*	.45**	.51**	.50**	.15**	.35**	.84**	.76**	.71**	.71**	.63**	.67**	--

Note. Correlation is significant at the 0.01 level (1-tailed). *. Correlation is significant at the 0.05 level (1-tailed).

The correlation matrix in Table 3 presents the associations among family dynamics, problematic and risky internet use, distress tolerance, relationship patterns, mindfulness, emotional dysregulation, interpersonal difficulties, and IDS subscales among adolescents. These findings indicate that higher interpersonal difficulty scores were associated with higher scores on several psychosocial and emotional variables, while better family dynamics were associated with lower overall interpersonal difficulties. There were also positive relationships between distress tolerance, relationship patterns, and emotional dysregulation with overall interpersonal difficulties and some IDS subscales. The pattern of correlations supports Hypothesis 1.

Table 4
Family Dynamics and Problematic Internet Use as a predictor of Interpersonal Difficulties

Predictor variables	Unstandardised Coefficients		Standardised Coefficients	T	P	95.0% Confidence Interval for B	
						Lower	Upper
	B	SE	B				
(Constant)	42.33	12.47		3.39	<.00	17.84	66.82
Family Dynamics Scale	.47	.21	.07	2.21	.02	.05	.89
The Problematic and Risky Use of Internet Scale	1.40	.09	.50	14.75	<.00	1.21	1.59

Notes: R^2 = .24, p< 0.05, a. Dependent Variable: Interpersonal Difficulty Scale

A multiple regression was conducted to determine the extent to which family dynamics and problematic and risky internet use were related to interpersonal difficulties among adolescents. The overall model was statistically significant ($p < .001$) and explained 24% of the variance in interpersonal difficulties. More problematic and risky use of the internet ($\beta = .50$, $t = 14.75$, $p < .001$) was the better predictor in the model, with higher scores on the problematic internet use scale corresponding to higher scores on the interpersonal difficulty scale.

Family dynamics also contributed to the model, albeit in a small way, $\beta = .07$, $t = 2.21$, $p = .027$. Caution must be taken in interpreting the positive direction of this coefficient because the bivariate correlation between family dynamics and interpersonal difficulties was negative. This pattern can be due to common variance in the regression model's predictors. In general, the findings lend support to Hypothesis 2, which suggests that family dynamics and problematic internet use were predictive of interpersonal difficulties, and problematic internet use was more strongly related to interpersonal difficulties.

Mediation analysis within Structural Equation Modeling (SEM)

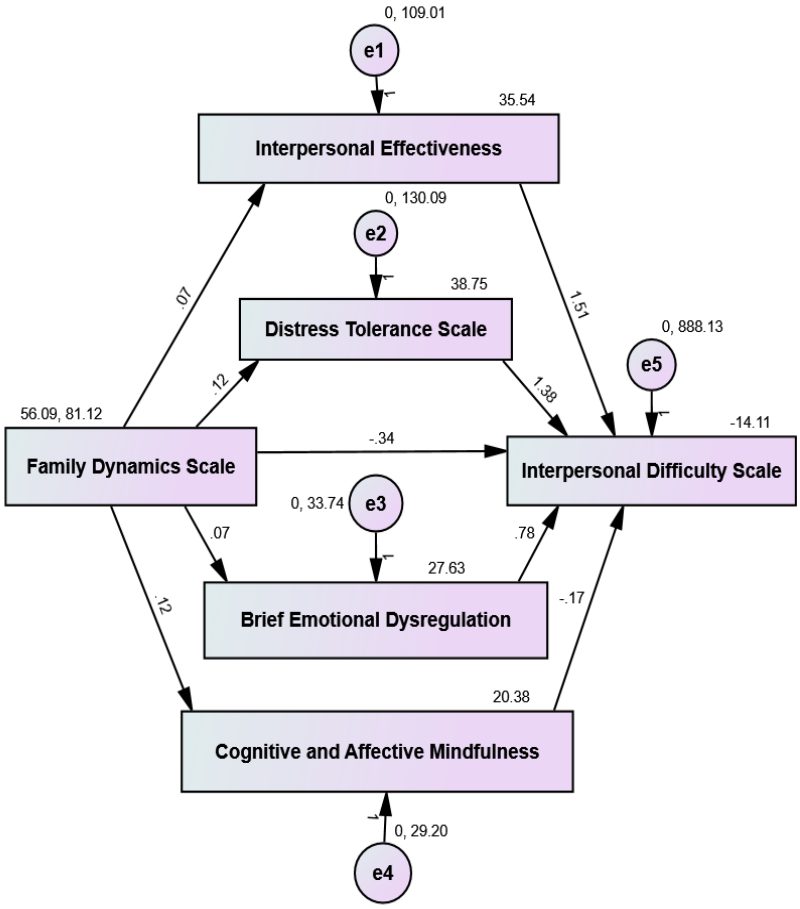

Figure 2: Mediation Analysis 1

Table 6
Direct Effects in the Mediation Model (Maximum Likelihood Estimates; N = 700)

Predictor → Outcome	B	SE	C.R.	P	β
Family dynamics → Emotional dysregulation	0.071	0.024	2.893	.004	.109
Family dynamics → Mindfulness	0.119	0.023	5.252	< .001	.195
Family dynamics → Distress tolerance	0.124	0.048	2.579	.010	.097
Family dynamics → Interpersonal effectiveness	0.075	0.044	1.703	.088	.064
Family dynamics → Interpersonal difficulties	−0.339	0.129	−2.627	.009	−.082
Emotional dysregulation → Interpersonal difficulties	0.783	0.194	4.035	< .001	.122
Mindfulness → Interpersonal difficulties	−0.170	0.209	−0.816	.414	−.025
Distress tolerance → Interpersonal difficulties	1.380	0.099	13.959	< .001	.422
Interpersonal effectiveness → Interpersonal difficulties	1.506	0.108	13.945	< .001	.420

Note. Non-significant paths (p > .05) are: family dynamics → interpersonal effectiveness (p = .088) and mindfulness → interpersonal difficulties (p = .414).

Table 6 presents the direct effects in the mediation model. Among the mediating variables, emotional dysregulation, distress tolerance, and interpersonal effectiveness significantly predicted interpersonal difficulties. Emotional dysregulation positively predicted interpersonal difficulties, B = 0.783, β = .122, p < .001. Distress tolerance, B = 1.380, β = .422, p < .001, and interpersonal effectiveness, B = 1.506, β = .420, p < .001, also significantly predicted interpersonal difficulties. The path from mindfulness to interpersonal difficulties was not statistically significant, B = −0.170, β = −.025, p = .414.

Table 7
Specific Indirect Effects of Family Dynamics on Interpersonal Difficulties

Mediator	a (Family dynamics → M)	b (M → IDS)	Indirect Effect (a × b)	Boot SE	95% CI	P
Emotional dysregulation	0.071*	0.783*	0.056	0.021	[0.016, 0.099]	.004
Mindfulness	0.119*	−0.170	−0.020	0.027	[−0.073, 0.030]	.414
Distress tolerance	0.124*	1.380*	0.171	0.058	[0.060, 0.288]	.010
Interpersonal effectiveness	0.075	1.506*	0.113	0.066	[−0.016, 0.246]	.088

Note. M = mediator; IDS = Interpersonal difficulties. *p < .05 for the component path (a or b). Bootstrapped standard errors and 95% confidence intervals (bias-corrected) based on 5,000 bootstrap samples. Significance of the indirect effect is indicated by a 95% CI that does not include zero.

Table 7 presents the specific indirect effects of family dynamics on interpersonal difficulties through the proposed mediators. The indirect effects through emotional dysregulation, B = 0.056, 95% CI [0.016, 0.099], and distress tolerance, B = 0.171, 95% CI [0.060, 0.288], were statistically significant. The indirect effects through mindfulness, B = −0.020, 95% CI [−0.073, 0.030], and interpersonal effectiveness, B = 0.113, 95% CI [−0.016, 0.246], were not statistically significant, as their confidence intervals included zero.

Table 8
Overall Direct, Indirect, and Total Effects of Family Dynamics on Interpersonal Difficulties

Effect	B	SE	p	β (Std.)
Direct	**−0.339**	**0.123**	**.009**	**−.082**
Total indirect	**0.320**	**0.128**	**.010**	**.076**
Total	**−0.019**	**0.225**	**.932**	**−.006**

Table 8 shows the overall direct, indirect, and total effects. The direct effect of family dynamics on interpersonal difficulties was significant and negative, B = −0.339, β = −.082, p = .009. The total indirect effect was significant and positive, B = 0.320, β = .076, p = .010. The

total effect was not statistically significant, B = −0.019, β = −.006, p = .932. This pattern indicates that the direct and indirect effects differed in direction, and the overall association between family dynamics and interpersonal difficulties was non-significant when the total effect was considered

Mediation analysis within Structural Equation Modeling (SEM)

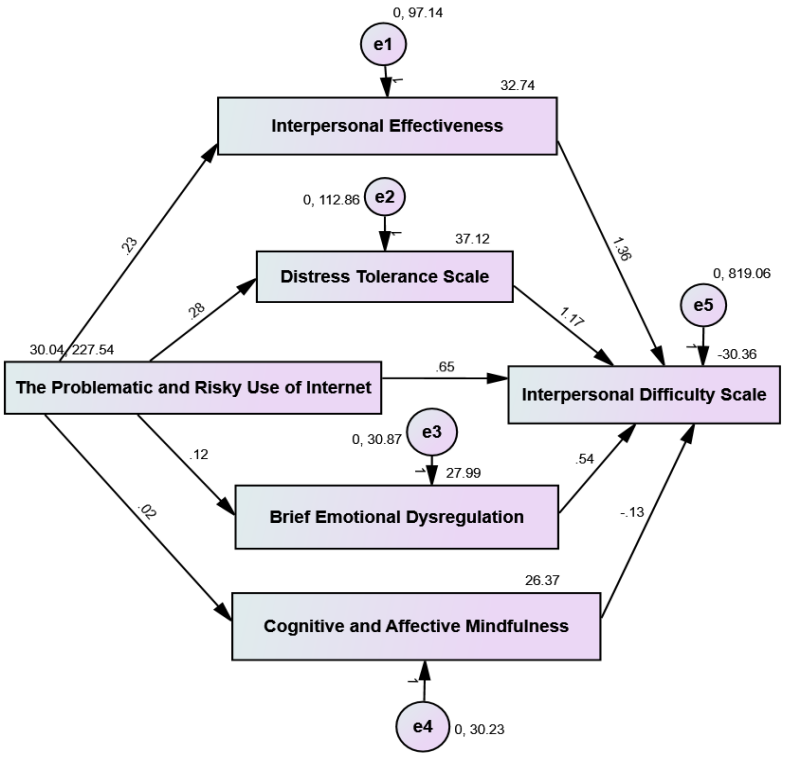

Figure 3: Mediation Analysis 2

Table 9
Direct Effects in the Mediation Model (Maximum Likelihood Estimates; N = 700)

Predictor → Outcome	B	SE	C.R.	p	B
Risky internet use → Mindfulness	0.023	0.014	1.680	.093	.063
Risky internet use → Emotion dysregulation	0.120	0.014	8.603	< .001	.309
Risky internet use → Interpersonal effectiveness	0.233	0.025	9.417	< .001	.336
Risky internet use → Distress tolerance	0.285	0.027	10.695	< .001	.375
Risky internet use → Interpersonal difficulties	0.647	0.085	7.616	< .001	.245
Mindfulness → Interpersonal difficulties	−0.133	0.197	−0.673	.501	−.018
Emotion dysregulation → Interpersonal difficulties	0.543	0.195	2.787	.005	.080
Interpersonal effectiveness → Interpersonal difficulties	1.355	0.110	12.340	< .001	.357
Distress tolerance → Interpersonal difficulties	1.168	0.102	11.459	< .001	.337

Note. Non-significant paths (p > .05) are: risky internet use → mindfulness (p = .093) and mindfulness → interpersonal difficulties (p = .501).

Table 9 presents the direct effects in the mediation model. Among the mediating variables, emotion dysregulation, interpersonal effectiveness, and distress tolerance significantly predicted interpersonal difficulties..

Table 10
Specific Indirect Effects of Risky Internet Use on Interpersonal Difficulties

Mediator	a (RUoI → M)	b (M → IDS)	Indirect Effect (a × b)	Boot SE	95% CI	P
Emotion dysregulation	0.12	0.54	0.065	0.023	[0.09, 0.14]	.005
Interpersonal effectiveness	0.23	1.35	0.316	0.045	[1.02, 1.68]	< .001
Distress tolerance	0.28	1.16	0.333	0.041	[0.87, 1.47]	< .001
Mindfulness	0.02	−0.13	−0.003	0.004	[−0.01, 0.05]	.093

Note. RUoI = Risky internet use; M = mediator; IDS = Interpersonal difficulties. Bootstrapped standard errors and confidence intervals (95%) are based on 5,000 bootstrap samples. Significance of the indirect effect is determined by both component paths (a and b) being significant at $p < .05$.

Table 10 presents the specific indirect effects of risky internet use on interpersonal difficulties through the proposed mediators. These findings indicate that emotion dysregulation, interpersonal effectiveness, and distress tolerance served as significant indirect pathways, whereas mindfulness did not show a significant indirect effect in the model.

Table 11
Overall Direct, Indirect, and Total Effects of Risky Internet Use on Interpersonal Difficulties

Effect	B	SE	β (Std.)	P
Direct	0.64	0.08	.24	< .001
Total indirect	0.71	0.06	.26	< .001
Total	1.35	0.10	.51	< .001

The table 11 given above shows that the direct, indirect and total effects of risky internet use on interpersonal difficulties. The results of this study suggest that risky use of the Internet was directly and indirectly related to interpersonal problems through the proposed intervening variables. The direct effect remained significant despite accounting for the indirect pathways, suggesting a partial mediation effect.

Discussion

The present investigation aimed to explore the complex relationship between family functioning, problematic and risky use of internet and interpersonal problems among adolescent population (15-19 years) in Pakistan. The results revealed that interpersonal difficulties were significantly correlated with family dynamics, problematic and risky Internet use, distress tolerance, relationship patterns, mindfulness, and emotional dysregulation. This pattern reinforces the perspective that adolescent interpersonal problems stem from a variety of factors, including family, digital, emotional, and relational influences, and are not simply caused by one single factor (Bronfenbrenner, 1979; Collins & Steinberg, 2006; La Greca & Harrison, 2005).

The first hypothesis was that lower family functioning and increased problematic and risky Internet use would be related to increased interpersonal problems. This was confirmed by this hypothesis. Family dynamics was also a strong correlate of adolescent interpersonal functioning, with higher family functioning being related to less overall interpersonal problems. The results are consistent with family systems theory, which posits that family communication, cohesion, emotional support and boundaries influence adolescents' emotional and interpersonal functioning (Bowen, 1978; Olson et al., 2004; Titelman, 2014).

The significant negative correlations between family dynamics and certain interpersonal difficulty subscores (dominated by others, lack of boundaries, and instability of interpersonal relationships) indicate that family functioning may be particularly important to adolescents' sense of autonomy, ability to set interpersonal limits, and stability of interpersonal relationships. The results support the notion that adolescents develop emotional expression, trust, setting boundaries, and conflict resolution in the family setting. They also align with previous studies that reported that the family environment was linked to adolescent emotion regulation and psychological adjustment (Morris et al., 2007; Yap et al., 2014).

In the Pakistani and collectivistic context, the family is a major source of socialisation, emotional support, authority and learning of relations. Thus, better family dynamics can help adolescents establish more secure interpersonal styles, and the lack of communication, strict control, or unresolved family conflict may make adolescents more susceptible to interpersonal problems. This is in line with the cultural and family-based interpretations that focus on interdependence, family solidarity, and hierarchy in collectivistic societies (Bukhari et al., 2025; Hofstede, 2011; Qadir et al., 2005; Ramzan, 2022).

The current results also apply to Pakistani studies on parenting, family environment and interpersonal functioning of adolescents. In the study Saleem et al. (2020) parenting styles were found to be associated with interpersonal problems in adolescents, and self-esteem was found to be an important psychological process. Likewise, Hafeez and Rafique (2021) pointed out that digital parenting and parental control of adolescents' online behavior are significant in the context of Pakistan. The findings corroborate the present result of family dynamics being not only a factor in interpersonal problems but also in adolescents' digital behaviour (Hafeez & Rafique, 2021; Saleem et al., 2020; Saleem et al., 2025).

The second hypothesis was supported by the positive relationship between problematic/ risky use of the Internet and all IDS subscales and overall interpersonal difficulties. Adolescents with higher problematic internet use reported more difficulties in self-confidence, trust, assertiveness, boundaries, and relationship stability. This finding is consistent with literature suggesting that problematic digital engagement may increase social comparison, emotional dependence, online conflict, and reduced face-to-face interpersonal practice (Andreassen, 2015; Keles et al., 2020; Nesi, 2020; Sharafat et al., 2025; Vogel et al., 2014).

This finding is also meaningful in relation to Pakistani and Asian evidence on adolescent digital behaviour. Shabir et al. (2019) found that social media use was a psychosocial concern among youth in Bahawalpur, and Iqbal and Yousaf (2020) found that intergenerational conflict and social media use among Pakistani adolescents were related to perceived parental control. In a study of Chinese adolescents, Wang (2022) also discovered that parent-child closeness, school climate, and peer relationships were associated with problematic internet use. The findings of the present study corroborate the previous studies that show that problematic internet use should be considered in the broader family and relationship environment of adolescents (Hamid, 2025; Iqbal & Yousaf, 2020; Shabir et al., 2019; Wang, 2022).

The second hypothesis suggested that the family environment and problematic and risky Internet use would have a strong predictive effect on adolescents' interpersonal problems. This hypothesis was confirmed. The regression model was statistically significant and accounted for 24% of the variance of interpersonal difficulties. The problematic and risky use of the Internet was the stronger predictor, and the maladaptive use of the Internet was strongly correlated with interpersonal difficulties even when controlling for family

factors. This finding aligns with previous studies that have linked problematic digital engagement with psychological distress and adolescent adjustment, but digital media effects are also influenced by developmental stage, vulnerability, and psychosocial context (American Psychological Association, 2023; Keles et al., 2020; Odgers & Jensen, 2020; Orben et al., 2022).

Interpersonal difficulties were also slightly predicted by family dynamics (small but statistically significant effect). The positive regression coefficient needs to be interpreted with caution, however, as the bivariate correlation between family dynamics and interpersonal difficulties was negative. This pattern could be due to shared variance or suppression effect as family dynamics and problematic internet use were included simultaneously in the regression model. Thus, this finding corroborates the predictive importance of family processes, however, the sign of the regression coefficient is not to be interpreted as a causal relationship without further investigation (Bowen, 1978; Morris et al., 2007).

The simple linear regression that tested family dynamics as a predictor of problematic and risky Internet use was more supportive of the theoretical predictions. A positive family environment was linked to lower rates of problematic and risky internet use. The finding indicates that supportive family environments might offer emotional security, communication, supervision, and satisfying offline relationships, which could help to minimize excessive and risky use of the Internet among adolescents. This interpretation aligns with ecological and family-based views that view adolescent behaviour in the context of interacting family and social contexts (Bronfenbrenner, 1979; Olson et al., 2004; Wang, 2022).

The third hypothesis suggested that mindfulness, emotion dysregulation, distress tolerance, and interpersonal effectiveness would serve as mediators between family processes and interpersonal problems. This hypothesis was partially confirmed. The indirect effect of emotional dysregulation and the indirect effect of distress tolerance were significant, while the indirect effect of mindfulness and interpersonal effectiveness were not significant. The results indicate that the family environment is related to interpersonal problems primarily via emotional regulation and distress coping processes among adolescents (Gratz & Roemer, 2004; Gross, 2015; Simons & Gaher, 2005).

The indirect pathway via emotional dysregulation is noteworthy, indicating that adolescents with impaired emotional monitoring, understanding and regulation might be more susceptible to interpersonal conflict, impulsive responses, withdrawal and relationship instability. These challenges can be exacerbated by family dynamics, which can affect emotional modelling, validation, and reactions to distress in the family context. This interpretation aligns with research that has shown that emotion regulation is a key process in adolescent adjustment and psychological functioning (Aslan et al., 2024; Gross, 2015; Morris et al., 2007; Riaz et al., 2025).

The significant indirect effect through distress tolerance indicates that adolescents' ability to manage emotional discomfort may be important in explaining the relationship between family dynamics and interpersonal difficulties. Adolescents who struggle to tolerate distress may withdraw from difficult interpersonal situations, react impulsively, or escalate conflict, which can contribute to unstable relationship patterns. However, this finding should be interpreted according to the scoring direction of the Distress Tolerance Scale used in the present study (Linehan, 1993; Simons & Gaher, 2005).

The fourth hypothesis proposed that mindfulness, emotion dysregulation, distress tolerance, and interpersonal effectiveness would function as explanatory pathways between problematic and risky internet use and interpersonal difficulties. This hypothesis was also

partially supported. Emotional dysregulation, distress tolerance, and interpersonal effectiveness-related relationship functioning emerged as significant indirect pathways, whereas mindfulness did not. These findings indicate that problematic and risky internet use was associated with interpersonal difficulties both directly and indirectly through emotional and relational processes (Andreassen, 2015; Hormes et al., 2014; Nesi, 2020).

The significant mediation through interpersonal effectiveness-related relationship functioning is particularly noteworthy because it suggests that problematic internet use may be linked with the relational capacities needed for successful social interaction. This finding aligns with the displacement hypothesis, which proposes that time spent online may reduce opportunities for face-to-face interaction and the practice of interpersonal skills such as reading non-verbal cues, resolving conflict, and maintaining relational boundaries (Masih et al., 2026). At the same time, the finding should be interpreted as an indirect pathway rather than a causal mechanism because the study used a cross-sectional design (Nie et al., 2002; Odgers & Jensen, 2020).

Mindfulness did not emerge as a significant indirect pathway in either mediation model. Although mindfulness was associated with some study variables, it did not significantly predict interpersonal difficulties in the SEM models. The result indicates that the role of mindfulness in the current sample is not as strong as emotion dysregulation, distress tolerance and relationship functioning. This finding contrasts with previous studies that have found associations between mindfulness and psychological adjustment and emotion regulation (Feldman et al., 2007; Gross, 2015; Shakeel et al., 2025), and may be due to developmental, cultural, measurement, or model-specific differences.

The results of the two tests combined suggest that H1 and H2 were supported, but H3 and H4 were partially supported. The factors that were identified as important psychosocial correlates and predictors of interpersonal difficulties were family dynamics and problematic and risky internet use. In the mediation models, emotional dysregulation, distress tolerance, and relationship functioning emerged as significant indirect factors, while mindfulness did not have a significant indirect effect. Since the data were cross-sectional, these findings should be interpreted as associations and indirect-pathway patterns rather than evidence of causality (Bronfenbrenner, 1979; Gratz & Roemer, 2004; Simons & Gaher, 2005).

Conclusion

The study found that the interaction between family factors, problematic and risky Internet use, emotional dysregulation, distress tolerance, and mindfulness and relationship functioning is what influences interpersonal difficulties among adolescents. A healthier family dynamic was associated with fewer interpersonal difficulties and less problematic and risky internet use, while greater interpersonal difficulties were associated with greater problematic and risky internet use. The results indicated that problematic Internet use was the stronger predictor, whereas emotional dysregulation, distress tolerance and relationship functioning were important indirect predictors. There was no significant indirect effect of mindfulness. In general, the study shows that adolescent interpersonal difficulties are not solely attributable to one factor, but rather to the interplay of family environment, digital behaviour, emotional regulation, coping capacity, and interpersonal functioning.

Limitation

A major limitation of the study was the cross-sectional design, which prevented causal interpretations and did not enable the temporal relationships between family dynamics, problematic Internet use, mediators, and interpersonal difficulties to be

established. Furthermore, response bias, social desirability, and shared method variance may have potentially inflated the likelihood of obtaining positive responses, and the sample of adolescents collected from colleges and surrounding areas in Faisalabad may limit generalisability of the results to rural adolescents, out-of-college youth, adolescents from other provinces, and clinical populations.

Future Directions

Longitudinal designs with three or more waves of data should be used in future research to explore the directionality of the relationships between family dynamics, problematic internet use, emotional dysregulation, distress tolerance, mindfulness, interpersonal effectiveness, and interpersonal difficulties (Shah et al., 2025). Other studies in the future can also involve adolescents from rural areas, various provinces, and out-of-college and clinical populations. Multi-informant data from parents, teachers or peers could be utilized to minimize self-report data, and future interventions could target improving family communication, healthy internet use, emotion regulation, distress tolerance and relationship skills among adolescents.

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