

Humanities and Social Sciences Communications

Article in Press

<https://doi.org/10.1057/s41599-026-07012-6>

Socio-demographic factors, cyberbullying victimization, and digital resilience among adolescents in Pakistan

Received: 11 February 2025

Accepted: 9 March 2026

Cite this article as: Aftab, M., Iqbal, S. Socio-demographic factors, cyberbullying victimization, and digital resilience among adolescents in Pakistan. *Humanit Soc Sci Commun* (2026). <https://doi.org/10.1057/s41599-026-07012-6>

Muhammad Aftab & Sarosh Iqbal

We are providing an unedited version of this manuscript to give early access to its findings. Before final publication, the manuscript will undergo further editing. Please note there may be errors present which affect the content, and all legal disclaimers apply.

If this paper is publishing under a Transparent Peer Review model then Peer Review reports will publish with the final article.

Socio-demographic Factors, Cyberbullying Victimization, and Digital Resilience among Adolescents in Pakistan

Abstract

The paradigm of resilience is multifaceted, encapsulating the diverse mechanisms through which individuals navigate stress, adversity, and complex life circumstances. In the digital era, effectively managing online risks requires the deliberate development of digital resilience. This study sought to examine the socio-demographic characteristics of adolescents experiencing cyberbullying and to assess their coping strategies, with a particular focus on fostering digital resilience within the context of Lahore, Pakistan. Employing a cross-sectional research design, the study collected quantitative data through structured interviews (n = 384) with adolescents enrolled in 9th and 10th grades across public and private schools in Lahore, selected using a simple random sampling method.

Descriptive statistics, cross-tabulations, and both bivariate and multivariate regression analyses were conducted for data analysis. The results revealed that over 55% of respondents reported experiencing cyberbullying victimization. Cyberbullying victimization was found to be significantly associated with school sector, religion, hurtful content and threatened online. Coping strategies are significant associated with the father government employee. Perceived digital resilience are significant associated with gender, religion, wealth index quintile, and the use of the “report abuse” button. More than 40% of adolescents reported employing coping mechanisms, while approximately 48% demonstrated a strong sense of digital resilience. These findings underscore the necessity of cultivating digital resilience in response to the dynamic nature of the digital landscape, thereby fostering a society equipped to navigate and adapt to rapid technological advancement.

Keywords: Digital resilience, Online risks, Internet, Coping Styles, Adolescents.

Introduction

Since its emergence in the 1960s, the internet has evolved into a fundamental element of contemporary human existence (Davis, 2001; Wang et al., 2014). In today's world, it is exceedingly rare to encounter individuals entirely unfamiliar with this technology (Durkee et al., 2012; Kwak et al., 2022). At present, internet-enabled digital devices are ubiquitous across households (Yusuf et al., 2022), encompassing desktop computers, laptops, and portable technologies such as iPods, iPads, tablets, and smartphones (Nguyen et al., 2022). These technologies provide users with extensive opportunities for social interaction, communication, education, and entertainment (Weinstein & Lejoyeux, 2010; Jacob P., 2016; Raiziene et al., 2022). They also facilitate diverse activities, including reading e-books and digital magazines, engaging with family, friends, and colleagues on social networking platforms such as Facebook, streaming videos, sharing vlogs and short-form content, and downloading music, films, and literature (Tang et al., 2014; Chadwick, 2022). Moreover, digital media enable microblogging on Twitter, instant communication via platforms such as WhatsApp and Skype, audio-visual calling, text messaging, content sharing on Snapchat, and a wide range of leisure pursuits, including online gaming and shopping (Raeside et al., 2022).

Pakistan ranks among the top ten Asian countries in internet usage (Shah et al., 2022). Approximately 43% of the population, or 44.6 million individuals, use the internet, including nearly 35 million active social media users (Rehman et al., 2019; Ibrahim et al., 2022; Pasha et al., 2025). Secondary data estimated between 30.9 and 34.3 million internet users nationwide (Lenka & Barik, 2018; Dong et al., 2020). The country also hosts over 120 million mobile subscribers, placing it among Asia's top five nations in smartphone and tablet adoption (El Asam et al., 2019). Despite widespread connectivity, nearly 90% of users report relocating due to poor mobile services. Nevertheless, mobile subscriptions continue to rise, now exceeding 126 million (Shah et al., 2022).

The increasing internet usage among adolescents exposes them to a range of online risks and hazards. These encompass access to offensive content, including inappropriate language, sexual material, cyberbullying, and violent imagery, as well as material that promotes prejudice or social exclusion. Teenagers are further susceptible to unsuitable advertisements and viral or interactive content that obscures the distinction between commercial and editorial

messaging. Moreover, they may encounter individuals engaged in sexual harassment, pedophilia, hate speech, fraud, or scams. Online engagement also presents significant privacy risks, including potential disclosure of personal and familial information (Genachowski et al., 2009; Livingstone & Görzig, 2014; Thakur & Cohen, 2022; Syed, 2024).

Contemporary adolescents are increasingly immersed in both traditional and modern technologies (Xin et al., 2018). Computers have rapidly become indispensable elements of their daily lives (Wang et al., 2012), and the use of electronic devices such as laptops, tablets, and smartphones has grown markedly in recent years (Yubero et al., 2023; Maryam et al., 2025). While these technologies facilitate educational, communicative, and everyday activities, improper or excessive usage can result in a range of challenges (Vissenberg & D'haenens, 2020). Beyond their functional roles, technological devices also constitute primary sources of entertainment for adolescents (Stoilova et al., 2021; Raiziene et al., 2022).

Globally, nearly one-third of internet users are children and adolescents under the age of eighteen (Paat & Markham, 2021; Rahi et al., 2021; Raeside et al., 2022). Many adolescents actively engage with social media platforms to maintain peer connections and participate in digital gaming for leisure and recreation. However, limited internet literacy significantly increases their vulnerability to diverse online risks (Nguyen et al., 2022). Rather than utilizing the internet primarily for educational or work-related purposes, adolescents often prioritize recreational use, particularly social media and online gaming (Moosa et al., 2023). Such patterns of engagement increase tendencies toward risk-taking, unsafe digital practices, and the cultivation of poor online habits, thereby amplifying their exposure to online threats (Mols et al., 2023).

Existing research on digital resilience has largely concentrated on young people, professionals, consumers, and university students in regions such as the United States, Europe, and China (Udwan et al., 2020; Ragni et al., 2022; Qi & Yang, 2024). However, comparatively little attention has been devoted to middle- and high-school adolescents, despite their heightened vulnerability to online risks (Alhassan & Butler, 2021). While digital resilience is increasingly recognized as a critical skill for mitigating digital threats, much of the current literature examines resilience in relation to specific risk domains—such as technological challenges, cyberbullying

victimization, or information leakage—resulting in findings that are often fragmented and lacking in comprehensiveness (Chang et al., 2021; Gan et al., 2023).

In Pakistan, cyberbullying victimization represents one of the most critical internet-related risks faced by adolescents (Malik et al., 2022). Increasingly, young people are subjected to new and diverse forms of cyberbullying, including derogatory remarks, unsolicited messages and emails, and the non-consensual dissemination of intimate images online (Morales-Arjona et al., 2022). This phenomenon has gained prominence as a pressing public concern in recent years (Nagata et al., 2022; Nagata et al., 2023; Peker et al., 2024).

Adolescents who experience cyberbullying victimization often exhibit limited coping strategies, rendering them more vulnerable to psychological difficulties such as hopelessness, anxiety, and loneliness (Peker & Yalçın, 2023). Globally, Pakistan ranks 22nd among 25 countries with some of the highest reported rates of online bullying (Peprah et al., 2023). Studies indicate that six in ten children possess only a moderate understanding of cyberbullying, while survey findings among children aged 8 to 17 revealed that approximately 64% have experienced bullying, either in person or through digital platforms (Sorrentino et al., 2023; Syed, 2024).

Despite its alarming prevalence, limited research has examined the factors that contribute to adolescents' vulnerability to cyberbullying, the coping strategies they adopt in response, or the ways in which they develop digital resilience. In this context, digital resilience refers to the capacity of adolescents to regulate negative emotions and effectively manage adverse experiences within digital environments (Uddin & Rahman, 2022).

A Socio-Ecological Resilience Theory

Seeking insights from literature, this research has opted socio-ecological resilience theory for conceptual framework ([figure 1](#)). Initially, resilience was conceptualized as an individual or personality trait, defined as the capacity to recover from severe hardships or obstacles (UKCIS, 2019). Later, scholars reconceptualized resilience as a relational and transactional construct, emphasizing its dynamic nature as an outcome of interactions between the individual and the surrounding environment (Hodge S., 2020).

To advance the scholarly understanding of resilience, Livingstone et al., (2010) introduced the socio-ecological theory, which frames resilience as a dynamic, contextually embedded process arising from the reciprocal interaction between individuals and their environments. Within this theoretical framework, resilience is conceptualized not as an intrinsic or static trait, but rather as the capacity to strategically mobilize and effectively utilize internal and external resources that mitigate the impact of adversity and facilitate adaptive functioning within specific sociocultural contexts (Lin, & Tao, 2024). For adolescents, this adaptive process frequently entails relational and collaborative strategies, such as engaging parental support, which function as critical protective mechanisms against the risks and harms encountered within digital social networks (Ochieng et al., 2017).

Building on the framework proposed by Hammond et al. (2023), four core principles are delineated as essential to advancing a social-ecological conceptualization of resilience.

Individual Level: At the primary, individual level, research on resilience has predominantly focused on adolescents' susceptibility to offline vulnerabilities, including mental health challenges and special educational needs (Livingstone et al., 2010). Furthermore, studies have examined the extent to which enhanced digital competencies may facilitate risk mitigation and improve adaptive responses to adverse online experiences (Maureen et al., 2020; Qi, C., & Yang, N., 2024).

Household Level: At the household level, parental mediation is consistently emphasized as a critical factor in the development of resilience. Research has examined how parental strategies for managing conflicts influence children's access to, engagement with, and acquisition of digital skills (Livingstone et al., 2021). In the context of digital resilience, the adoption of supportive and facilitative mediation strategies, as opposed to restrictive practices, enables children to interact with online environments in a regulated and structured manner, thereby fostering opportunities to cultivate, exercise, and demonstrate adaptive digital resilience (Qin, H., 2022).

Community Level: At the community level, resilience is influenced not only by the experiences, knowledge, and mediation strategies of individuals within an adolescent's support networks but also by the broader social and spatial dynamics of communities and their interconnections (Craig et al., 2025). Research in this domain examines how social capital operates differently for vulnerable populations, the increasingly prominent role of educators as community mediators,

and how systemic issues—such as digital exclusion—emerge from broader social inequities that may limit children’s opportunities to access supportive networks and cultivate adaptive digital resilience (Ragni et al., 2022).

Societal Level: At the societal level, resilience is shaped by key societal actors including government institutions, internet service providers, the educational system, and civil society as well as the cultural norms these actors depend on prior to, during, and after perceived threats (Al-Abdulghani Y., 2021).

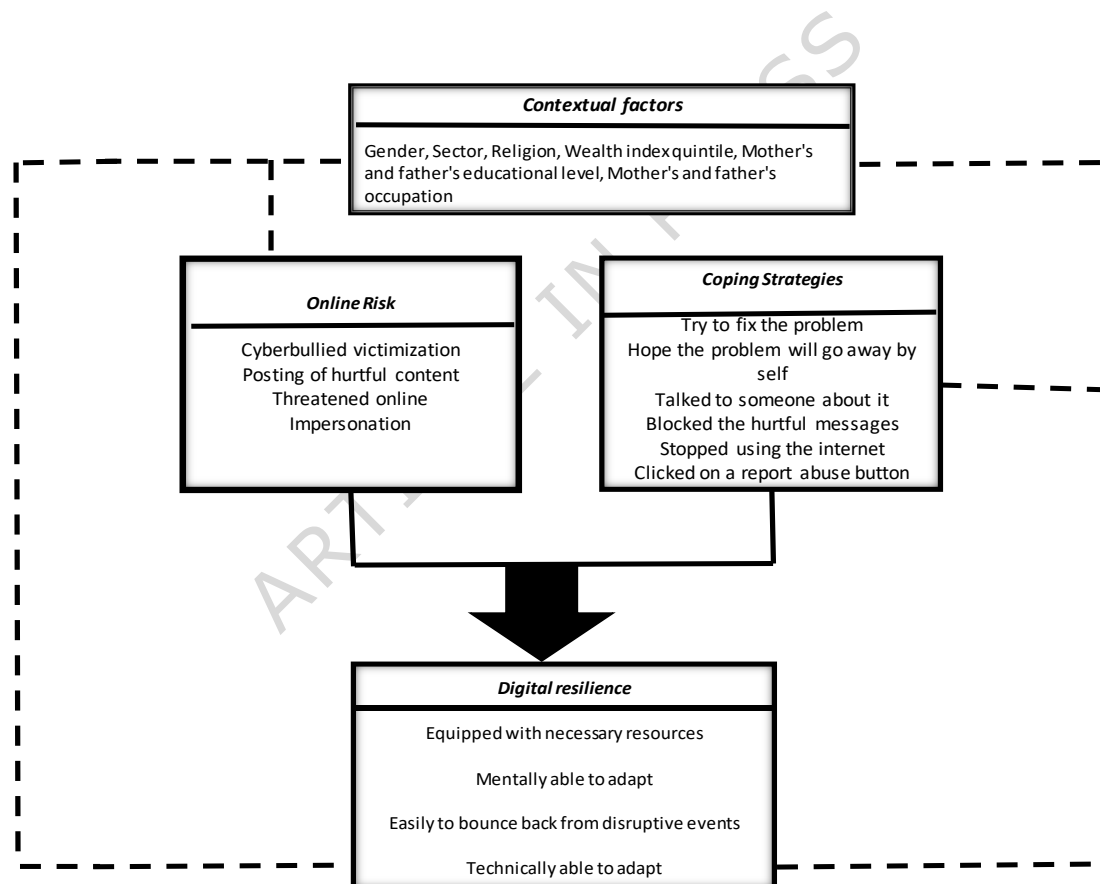


Figure 1 Conceptual Framework of Research

Literature Review

Cyberbullying Victimization

Cyberbullying victimization is defined as the experience of being targeted by hostile or harmful behaviors delivered through electronic communication technologies. It is also described in the literature as electronic aggression, cyber aggression, or internet harassment (Peker et al., 2024). Aggressive acts perpetrated via various digital devices are widely recognized as constitutive of cyberbullying victimization (Peker & Yalçın, 2023). Accumulating evidence indicates that adolescent experiences of cyberbullying are significantly associated with a range of psychological difficulties and adjustment challenges, including school disengagement, susceptibility to negative peer influences, and diminished academic performance (Nyarko et al., 2023).

Previous studies indicate that cyberbullying victimization significantly diminishes adolescents' resilience, while higher resilience levels are associated with reduced victimization (Alhothali & Enezi, 2023). Adolescents experiencing repeated victimization report elevated psychological distress and multiple traumas, whereas those with higher resilience exhibit lower distress. Key resilience-enhancing factors include interpersonal skills, meaning-making, and self-regulation. Additionally, longer internet use, shifts in online activities during the pandemic, and sharing negative online experiences have been linked to increased cyberbullying victimization (Hendekci et al., 2023).

H1: Adolescents from higher wealth quintiles are more likely to report cyberbullying victimization.

Coping Strategies

Numerous studies indicate that adolescents who experience cyberbullying victimization often struggle with emotional regulation and adopt unhealthy coping mechanisms to manage their challenges (Cauberghe et al., 2022). Socioeconomic and family-level factors significantly influence adverse emotional responses and maladaptive coping behaviors among adolescents aged 13-24 who experience cyberbullying victimization. Specifically, adolescents from middle-class families, those with fathers employed in unskilled occupations, and those

exposed to high social stress are more likely to exhibit negative emotional and behavioral responses to cyberbullying (Chen & Zhu, 2022).

Adolescents responding to cyberbullying victimization frequently relied on self-help or passive approaches, whereas seeking support from parents or family members was consistently perceived as the most effective strategy by both victims and non-victims across all forms of victimization. Self-compassion also emerged as a beneficial coping mechanism for managing cyberbullying experiences (Fullerton et al., 2021). Maladaptive coping strategies were more common among adolescents whose fathers had less than a secondary education and those from lower wealth quintiles. Gender differences were observed in emotion-focused and avoidance coping, with girls exhibiting higher proficiency in both domains, whereas no significant gender differences were found in emotionally competent behavior or problem-focused coping (Hendekci et al., 2023).

H2: Female adolescents adopt more coping strategies than male adolescents.

Digital Resilience

The primary antecedent of digital resilience is adversity arising from digital technology use. Such adversities include cyberbullying victimization, excessive engagement with digital technologies, limited access to advanced technologies, and webinar fatigue (Ramadan et al., 2024). Alongside other internal and external factors, these risks heighten individual's susceptibility to maladaptive outcomes.

The second antecedent of digital resilience comprises external factors, including content, service, environment, support, and policy (Han et al., 2021). In the context of digital technology use, content encompasses both educational and entertainment materials, as well as messages, terms, and conditions presented to users (El-Masri et al., 2021). Service refers to applications, websites, platforms, devices, and games that may introduce new encounters, challenges, and stressors (Ang et al., 2022). The environment reflects internet accessibility across private and public spaces such as homes, schools, universities, parks, malls, and transport hubs and includes exposure to outcomes such as training contexts and distance learning opportunities (Batmaz et al., 2023).

The third antecedent of digital resilience is the internal factor, which comprises digital literacy and psychological characteristics (Lachapelle et al., 2021). Digital literacy refers to the technical skills and knowledge required to evaluate information and effectively perform tasks through digital technologies (Lachapelle et al., 2021). Psychological characteristics foster resilience following exposure to risks in both online and offline environments (Angela et al., 2023). Particularly relevant traits include self-efficacy, self-control, and confidence, which support adaptive coping. In this context, digital resilience reflects a proactive interaction between positive psychological resources and repeated encounters with risk (Angela et al., 2023).

Dong et al. (2020) reconceptualized digital resilience as comprising management, recognition, learning, and recovery. Its development is shaped by technological access, digital literacy, psychological resilience, and self-efficacy, reflecting the multifaceted nature of resilience in digital environments. Empirical evidence further indicates that digital resilience is positively associated with parental education and household wealth, with urban students demonstrating higher resilience levels than their rural counterparts. Moreover, gender has been shown to significantly influence students' digital resilience (Kaur, 2024).

H3: Higher parental education is positively associated with digital resilience.

Methods

Research Design

The research used a cross-sectional design and quantitative research methods, aiming to describe the phenomena like how, when, where, and what, it answers the questions by gathering numerical data and using particular statistical techniques (Salkind, 2013; Duckett, 2021; Ghanad, 2023).

Research Setting

This research was conducted in the district of Lahore; Lahore is the capital of the province of Punjab (Pakistan). Lahore is the most populous city in Pakistan. It is the 2nd largest city of Pakistan. Its total population is approximately 11 million (Bureau of Statistics, 2020). It has five tehsils and 274 union councils (Government of Punjab, district Lahore). According to the most updated School Information System 2024, the area of Lahore is 3,544 Km/Sq. with a total enrolled student are 653,382, 283,492 boys, 369,778 girls, and 112 transgender population enrolled in different schools within district Lahore (School information system, SED, Govt. of Punjab, 2024).

For this study, the target population comprised adolescents enrolled in Grades 9 and 10 across public and private schools in Lahore, Pakistan. Private schools were identified through the e-license database provided by the School Education Department, Government of Punjab. The selection process involved accessing the department's official website, filtering schools by district (Lahore), and selecting only those with valid e-licenses. This procedure yielded 1,884 private schools with active licenses (Bureau of Statistics, 2020). Public schools were identified using an official list obtained directly from the School Education Department. A simple random sampling technique was employed, guided by theoretical justification to ensure representation of the key characteristics of the target population.

a) Selection of public and private schools.

The Punjab Government's School Education Department initially provided a comprehensive list of public and private schools in the Lahore district. For the purposes of this study, schools located within the Cantt and Model Town tehsils were considered, as

these areas were geographically proximate to the researcher's residence, thereby reducing transportation costs and saving time. Each school within the selected tehsils was assigned a unique numerical identifier. Using a randomizer application, 20 public schools and 20 private schools were randomly selected from the respective lists to ensure unbiased representation of both sectors (Romano et al., 2021).

b) Selection of eligible respondents.

The second stage involved the random selection of eligible respondents, comprising adolescent boys and girls aged 13–18 years who were enrolled in classes 9 and 10 in both public and private schools. A total sample of 384 students was obtained through Cochran formula of $(n) = \frac{z^2 \cdot p(1-p)}{d^2}$ was used to calculate the sample size, assuming $z = 95\%$ significance level, $\alpha = 95\%$ confidence interval, $p = 18\%$ population proportion using the internet, $d = 5\%$ absolute precision and 1.5 design effect (Cochran, 1962). evenly distributed between school types: 192 from private schools (96 girls and 96 boys) and 192 from public schools (96 girls and 96 boys). To minimize selection bias and ensure broad geographical representation, a maximum of 10 respondents were recruited from each school for participation in the interviews (Tsagdi & Tzavaras, 2022).

Measurements

Sociodemographic Factors

The sociodemographic information collected included respondent's gender (male, female), class level (9th, 10th), school sector (public, private), and religion (Muslim, Christian, others). Socioeconomic status was measured through the wealth index quintile (lower, middle, rich). Parental education was categorized as higher, secondary, primary, or no education. Mother's occupation was classified as retired officer, self-employed/business owner, employee in the private or government sector, or housewife. Father's occupation was recorded as self-employed/business owner, retired officer, employee in the private or government sector, or unemployed.

Cyberbullying Victimization

The Cyberbullying Victimization Scale was adapted to examine whether respondents had ever experienced cyberbullying in their lifetime, a mean score was used to dichotomize all three responses cyberbullying victimization into two categories: “Yes” (experienced cyberbullying) and “No” (did not experienced cyberbullying) after computing. To assess the likelihood of such experiences (e.g., posting of hurtful content, online threats, and impersonation) across nine items measured on a Likert scale (Byrne, 2021).

The items included experiences such as someone posting mean or hurtful comments or pictures online, sharing hurtful videos or creating a harmful webpage about the respondent, spreading online rumors, after computing all the items above, named as “posting of hurtful content” and threatening harm through text messages or online platforms, named as “online threats” and impersonating the respondent in a hurtful manner, named as “impersonation” (Ramos, 2021). A mean score was used to dichotomize three responses of posting of hurtful content, online threats, and impersonation into two categories: “Yes” and “No”.

Coping Strategies

Adolescents’ coping strategies were assessed using an abbreviated six-item scale (Sun et al., 2022). The items included blocking the perpetrator, confiding in a family member or others, ignoring the incident without taking any action, temporarily disengaging from online activities, attempting to resolve the issue directly, and reporting the incident to the application administrator (Qin H., 2022). All the six questions are computed, in order to illustrate a did not utilize coping strategy and utilized coping strategy, a cut-off value was determined by calculating the mean value. Following computation, responses were dichotomized into two categories: “Yes” (utilized coping strategy) and “No” (did not utilize coping strategy).

Perceived Digital Resilience

Perceived digital resilience was measured using a scale encompassing four primary dimensions: (i) mental preparedness, (ii) technical competence, (iii) perceived ease of performing online tasks following a problem, and (iv) availability of necessary resources within the digital environment (Emanuel, 2021; Setiansah et al., 2023). A mean score was used to

dichotomize all 4 items perceived digital resilience into two categories: “Yes” and “No” after computing all the variables above.

Measurement Tools Validation

The reliability and internal consistency of all study measures were assessed using Cronbach’s alpha coefficients. The values ranged between 0.71 and 0.83, indicating acceptable to good internal consistency.

Data Collection, Data Entry and Statistical Analysis

The survey was conducted between April and May 2024, using Google Forms. After collection, responses were exported and analyzed in IBM SPSS version 25 (Statistical Package for Social Sciences). Response codes and scales were predefined during data entry. Descriptive analysis and cross-tabulations were initially performed, with chi-square tests applied to assess associations, considering p-values ≤ 0.05 as statistically significant. Bivariate and multivariate logistic regression analyses were conducted. Odds ratios (OR) with 95% confidence intervals (CI) were calculated in the bivariate analysis, while adjusted odds ratios (AOR) with 95% CI were reported in the multivariate analysis.

Results

Table 1.

Descriptive statistics of Socio-demographic characteristics

Characteristics	n=384	
	Frequency (f)	Percentage (%)
Gender		
Male	192	50.0
Female	192	50.0
Class		
9 th	192	50.0
10 th	192	50.0
Sector		
Public	192	50.0
Private	192	50.0
Religion		
Muslim	310	80.7
Christian	74	19.3
Wealth index quintile		
Lower	50	13.0
Middle	248	64.6
Rich	86	22.4
Mother's level of education		
No formal	35	9.1
Primary	60	15.6
Secondary	181	47.1
Higher	108	28.1
Mother's occupation		
Housewife	182	47.4
Retired	31	8.1
Government employee	40	10.4
Private sector	82	21.4

Own business	49	12.8
Father's level of education		
No formal	34	8.9
Primary	57	14.8
Secondary	177	46.1
Higher	116	30.2
Father's occupation		
Not working/ unemployed	62	16.1
Retired	43	11.2
Government employee	68	17.7
Private sector	114	29.7
Own business	97	25.3

Table 1 illustrates the descriptive statistics of socio-demographic characteristics. Results informed that equally, 50% are male and 50% are female, in terms of class, 50% from 9th and 50% from 10th and sector-wise, 50% from public and 50% from private. Further results revealed that the majority of the respondents belong to Muslim (80.7%) and middle household quintile (64.6%).

Furthermore, results indicated that a significant proportion of their mothers' educational level had secondary (47.1%) whereas a higher number of their mothers worked as housewives (47.4%). According to findings, a larger proportion reported that their father's educational level was secondary (46.1%) while a nearly higher number of their fathers working as private employees (29.7%).

Table 2.
Descriptive statistics of Cyberbullying victimization

Characteristics	n=384	
	Frequency (f)	Percentage (%)
I have been cyberbullied.		
Disagree	102	26.6
Neutral	63	16.4
Agree	219	57.0
Someone posted mean or hurtful comments about me online.		
Disagree	94	24.5
Neutral	116	30.2
Agree	174	45.3
Someone posted a mean or hurtful picture of me online.		
Disagree	117	30.5
Neutral	115	29.9
Agree	152	39.6
Someone posted a mean or hurtful video of me online.		
Disagree	123	32.0
Neutral	112	29.2
Agree	149	38.8
Someone created a mean or hurtful web page about me.		
Disagree	111	28.9
Neutral	103	26.8
Agree	170	44.3
Someone spread rumors about me online.		
Disagree	93	24.2
Neutral	74	19.3
Agree	217	56.5
Someone threatened to hurt me through a cell phone text message.		
Disagree	77	20.1
Neutral	69	18.0

Agree	238	62.0
-------	-----	------

Someone threatened to hurt me online.

Disagree	91	23.7
----------	----	------

Neutral	102	26.6
---------	-----	------

Agree	191	49.7
-------	-----	------

Someone pretended to be me online and acted in a way that was mean or hurtful.

Disagree	111	28.9
----------	-----	------

Neutral	91	23.7
---------	----	------

Agree	182	47.4
-------	-----	------

Coping strategies

Characteristics

Try to fix the problem.

Disagree	57	14.8
----------	----	------

Neutral	70	18.2
---------	----	------

Agree	257	66.9
-------	-----	------

Hope the problem will go

away by itself

Disagree	105	27.3
----------	-----	------

Neutral	123	32.0
---------	-----	------

Agree	156	40.6
-------	-----	------

Talked to someone about it

Disagree	102	26.6
----------	-----	------

Neutral	83	21.6
---------	----	------

Agree	199	51.8
-------	-----	------

To block the person who

sent the hurtful messages

Disagree	67	17.4
----------	----	------

Neutral	66	17.2
---------	----	------

Agree	251	65.4
-------	-----	------

I stopped using the internet

for a while

Disagree	121	31.5
Neutral	109	28.4
Agree	154	40.1

I reported the problem e.g. clicking on a report abuse button, contacting an internet advisor or internet service provider (ISP)

Disagree	91	23.7
Neutral	80	20.8
Agree	213	55.5

Perceived digital resilience

I am equipped with the necessary resources to operate in a digital environment.

Disagree	60	15.6
Neutral	44	11.5
Agree	280	72.9

I am mentally able to adapt to the digital environment.

Disagree	82	21.4
Neutral	96	25.0
Agree	206	53.6

I find it is easy to bounce back from disruptive events by operating on digital platforms.

Disagree	118	30.7
Neutral	79	20.6
Agree	187	48.7

**I am technically able to
adapt to the digital
environment.**

Disagree	69	18.0
Neutral	67	17.4
Agree	248	64.6

Table 2 shows the descriptive statistics of cyberbullying victimization, coping strategies and perceived digital resilience. Results show that more than 55% of respondents have been cyberbullying victimization. A larger proportion of respondents reported, threatened through a cell phone text message online (62.0%). Findings revealed that the majority of respondents have more coping strategy such as trying to fix the problem (66.9%) and higher perceived digital resilience involving I am equipped with the necessary resources to operate in a digital environment (72.9%).

Table 3.

Association of cyberbullying victimization, coping strategies, and perceived digital resilience with various sociodemographic factors.

Characteristics	Cyberbullying victimization			Coping strategies			Perceived digital resilience		
	n= 384			n= 384			n= 384		
	No %	Yes %	p-value	No %	Yes %	p-value	No %	Yes %	p-value
Gender									
Male	22.9	77.1	0.10	17.7	82.3	0.43	14.6	85.4	0.00
Female	30.2	69.8		20.8	79.2		27.1	72.9	
Class									
9 th	30.7	69.3	0.06	19.8	80.2	0.79	22.4	77.6	0.45
10 th	22.4	77.6		18.8	81.3		19.3	80.7	
Sector									
Public	18.8	81.3	0.00	18.8	81.3	0.79	21.9	78.1	0.61
Private	34.4	65.6		19.8	80.2		19.8	80.2	
Religion									
Muslim	23.5	76.5	0.00	18.4	81.6	0.36	19.4	80.6	0.14
Christian	39.2	60.8		23.0	77.0		27.0	73.0	
Wealth index quintile									
Lower	28.2	71.8	0.47	22.0	78.0	0.51	36.0	64.0	0.01
Middle	25.6	74.4		20.2	79.8		19.8	80.2	
Rich	20.0	80.0		15.1	84.9		18.1	81.9	
Mother's level of education									
No formal	35.7	64.3	0.89	28.6	71.4	0.54	17.1	82.9	0.31
Primary	28.2	71.8		27.3	72.7		26.7	73.3	
Secondary	26.7	73.3		24.2	75.8		22.7	77.3	
Higher	24.1	75.9		18.5	81.5		15.7	84.3	

Mother's**occupation**

Housewife	23.1	76.9	0.54	16.5	83.5	0.37	23.1	76.9	0.29
Retired	25.8	74.2		29.0	71.0		16.1	83.9	
Government employee	30.0	70.0		25.0	75.0		17.5	82.5	
Private sector	32.9	67.1		17.1	82.9		14.6	85.4	
Own business	26.5	73.5		22.4	77.6		28.6	71.4	

**Father's level
of education**

No formal	40.6	59.4	0.26	34.7	65.3	0.47	35.3	64.7	0.08
Primary	31.1	68.9		31.1	68.9		26.3	73.7	
Secondary	26.3	73.7		22.0	78.0		23.1	76.9	
Higher	21.6	78.4		15.5	84.5		18.1	81.9	

Father's**occupation**

Not working/ unemployed	30.7	69.3	0.43	25.6	74.4	0.18	30.6	69.4	0.19
Retired	25.6	74.4		24.2	75.8		16.3	83.7	
Government employee	29.4	70.6		11.8	88.2		14.7	85.3	
Private sector	17.7	82.3		15.8	84.2		19.3	80.7	
Own business	25.8	74.2		22.7	77.3		22.7	77.3	

The P-value was calculated using a chi-square.

Table 3 indicated an association between cyberbullied, coping strategies, and perceived digital resilience with various sociodemographic factors. Cyberbullying victimization strongly associated with sector, religion. Moreover, perceived digital resilience strongly associated with gender and wealth index quintile.

Table 4.

Bivariate and Multivariate Logistic Regression of Cyberbullying victimization with Socio-demographic characteristics, posting, threats, impersonation, coping strategies, and perceived digital resilience

Characteristics	Cyberbullying victimization					
	Bivariate			Multivariate		
	OR	CI (95%)	p-value	AOR	CI (95%)	p-value
Gender						
Female	1			1		
Male	1.45	0.92-2.29	0.10	1.54	0.88-2.68	0.12
Class						
9 th	1			1		
10 th	1.53	0.97-2.42	0.06	1.68*	0.99-2.87	0.05
Sector						
Public	1			1		
Private	0.44*	0.27-0.70	0.00	0.32*	0.18-0.57	0.00
Religion						
Christian	1			1		
Muslim	2.09*	1.22-3.57	0.00	2.86*	1.44-5.68	0.00
Wealth index quintile						
Lower	1			1		
Middle	0.63	0.30-1.34	0.23	0.51	0.20-1.33	0.17
Rich	0.72	0.31-1.69	0.46	0.63	0.21-1.92	0.42
Mother's level of education						
No formal	1			1		
Primary	0.88	0.38-2.01	0.76	0.93	0.29-2.97	0.91
Secondary	0.95	0.36-2.46	0.91	1.11	0.40-3.09	0.83
Higher	1.09	0.45-2.62	0.84	1.22	0.39-3.80	0.72

Mother's occupation						
Retired	1			1		
Housewife	1.15	0.48-2.78	0.74	0.63	0.21-1.89	0.41
Government employee	0.81	0.28-2.32	0.69	0.36	0.10-1.25	0.10
Private sector	0.70	0.28-1.79	0.46	0.51	0.16-1.62	0.25
Own business	0.96	0.34-2.68	0.94	0.52	0.14-1.83	0.31
Father's level of education						
No formal	1			1		
Primary	0.72	0.26-2.01	0.53	1.05	0.30-3.68	0.93
Secondary	0.57	0.23-1.40	0.22	1.13	0.35-3.65	0.83
Higher	0.94	0.36-2.42	0.90	1.80	0.49-6.64	0.37
Father's occupation						
Retired	1			1		
Not working/unemployed	0.82	0.34-1.95	0.66	0.63	0.23-1.76	0.38
Government employee	1.59	0.61-4.10	0.33	1.73	0.57-5.22	0.33
Private sector	0.77	0.35-1.71	0.53	0.70	0.28-1.73	0.44
Own business	0.99	0.43-2.25	0.98	0.97	0.37-2.52	0.96
Posting of hurtful content						
No	1			1		
Yes	1.57	0.89-2.77	0.11	2.31*	1.14-4.65	0.01
Threatened Online						
No	1			1		
Yes	0.51	0.23-1.41	0.10	0.40*	0.15-1.03	0.05

Impersonation

No	1			1		
Yes	0.96	0.58-1.59	0.90	0.87	0.48-1.57	0.64

Try to fix the problem.

Disagree	1			1		
Neutral	0.97	0.44-2.12	0.95	0.72	0.28-1.84	0.49
Agree	1.12	0.59-2.14	0.71	1.04	0.48-2.27	0.91

Hope the problem will go away by itself

Disagree	1			1		
Neutral	0.92	0.51-1.64	0.78	0.90	0.44-1.84	0.78
Agree	1.22	0.69-2.15	0.47	1.14	0.57-2.92	0.70

Talked to someone about it

Disagree	1			1		
Neutral	1.08	0.57-2.06	0.79	0.84	0.37-1.89	0.68
Agree	1.27	0.74-2.17	0.37	1.13	0.57-2.23	0.71

Block the hurtful messages.

Disagree	1			1		
Neutral	1.34	0.61-2.94	0.45	1.14	0.45-2.92	0.77
Agree	1.06	0.58-1.94	0.83	0.97	0.46-2.03	0.93

Stopped using the internet for a while

Disagree	1			1		
Neutral	0.91	0.49-1.67	0.77	0.79	0.38-1.63	0.53

Agree	0.68	0.39-1.18	0.17	0.62	0.32-1.20	0.16
Clicked on a report abuse button/ internet service provider (ISP)						
Disagree	1			1		
Neutral	1.53	0.76-3.04	0.22	1.42	0.62-3.24	0.40
Agree	1.24	0.72-2.13	0.42	1.32	0.69-2.52	0.39
Perceived digital resilience						
No	1			1		
Yes	0.90	0.51-1.58	0.72	0.88	0.43-1.80	0.73

* indicates the p -value ≤ 0.05 .

The findings of Table 4 revealed that cyberbullying victimization had a strong relationship with the class 10th (AOR: 1.68, 95% CI: 0.99-2.87), private sector (AOR: 0.32, 95% CI: 0.18-0.57), belong to Muslim religion (AOR: 2.86, 95% CI: 1.44-5.68), posting of hurtful content (AOR: 2.31, 95% CI: 1.14-4.65), and threatened online (AOR: 0.40, 95% CI: 0.15-1.03). Hence, H1 was rejected, as there is no significant difference between higher wealth quintiles and cyberbullying victimization.

Table 5.

Bivariate and Multivariate Logistic Regression of Coping strategies with Socio-demographic characteristics, cyberbullying victimization, and perceived digital resilience

Characteristics	Coping strategies					
	Bivariate			Multivariate		
	OR	CI (95%)	p-value	AOR	CI (95%)	p-value
Gender						
Female	1			1		
Male	1.22	0.73-2.03	0.43	1.04	0.57-1.87	0.89
Class						
9 th	1			1		
10 th	1.06	0.64-1.77	0.79	0.97	0.55-1.72	0.93
Sector						
Public	1			1		
Private	0.93	0.56-1.55	0.79	0.95	0.52-1.72	0.87
Religion						
Christian	1			1		
Muslim	1.32	0.71-2.44	0.37	1.38	0.65-2.91	0.39
Wealth index quintile						
Lower	1			1		
Middle	1.11	0.53-2.33	0.76	1.18	0.47-2.99	0.71
Rich	1.58	0.64-3.86	0.31	1.80	0.58-5.61	0.30
Mother's level of education						
No formal	1			1		

Primary	1.76	0.66-4.76	0.24	1.86	0.60-5.73	0.27
Secondary	1.78	0.78-4.09	0.16	2.27	0.93-6.60	0.06
Higher	1.79	0.73-4.24	0.20	2.48	0.73-7.06	0.15
Mother's occupation						
Retired	1			1		
Housewife	2.07	0.86-4.94	0.10	2.69	0.91-7.95	0.07
Government employee	1.22	0.42-3.52	0.70	1.41	0.40-4.91	0.58
Private sector	1.98	0.75-5.21	0.16	2.84	0.86-9.34	0.08
Own business	1.41	0.50-3.94	0.50	1.99	0.55-7.20	0.39
Father's level of education						
No formal	1			1		
Primary	0.61	0.20-2.02	0.45	0.49	0.19-2.58	0.60
Secondary	0.64	0.22-1.68	0.33	0.56	0.14-1.67	0.25
Higher	0.93	0.32-2.74	0.90	0.71	0.14-2.32	0.41
Father's occupation						
Retired	1			1		
Not working/ unemployed	1.07	0.43-2.64	0.87	1.02	0.36-2.94	0.95
Government employee	2.57	0.94-7.05	0.06	3.66*	1.19-11.2	0.02
Private sector	1.83	0.78-4.29	0.16	2.25	0.87-5.80	0.09
Own business	1.17	0.50-2.69	0.70	1.19	0.46-3.09	0.71
Cyberbullying Victimization						
No	1			1		
Yes	1.21	0.69-2.12	0.49	1.18	0.61-2.27	0.61
Posting of hurtful content						
No	1			1		
Yes	1.55	0.83-2.88	0.16	1.75	0.85-3.63	0.12
Threatened Online						

No	1			1		
Yes	1.47	0.72-2.99	0.28	1.40	0.62-3.14	0.40
Impersonation						
No	1			1		
Yes	0.81	0.46-1.45	0.49	0.75	0.40-1.43	0.39
Perceived digital resilience						
No	1			1		
Yes	0.86	0.45-1.63	0.65	0.83	0.39-1.74	0.62

* indicates the p -value ≤ 0.05 .

Table 5 shows coping strategies are positively associated with the father government employee (AOR: 3.66, 95% CI: 1.19-11.2). Hence, H2 was rejected, as there is no significant relationship between gender difference and coping strategies.

Table 6.

Bivariate and Multivariate Logistic Regression of Perceived digital resilience with Socio-demographic characteristics

Characteristics	Perceived digital resilience					
	Bivariate			Multivariate		
	OR	CI (95%)	p-value	AOR	CI (95%)	p-value
Gender						
Female	1			1		
Male	2.17*	1.30-3.62	0.00	3.45*	1.75-6.76	0.00
Class						
9 th	1			1		
10 th	1.20	0.73-1.98	0.45	1.51	0.81-2.82	0.18
Sector						
Public	1			1		
Private	1.13	0.69-1.85	0.61	1.13	0.59-2.17	0.69
Religion						
Christian	1			1		
Muslim	1.54	0.85-2.77	0.14	2.90*	1.30-6.48	0.00
Wealth index quintile						
Lower	1			1		

Middle	2.53*	1.30-4.91	0.00	3.75*	1.45-9.68	0.00
Rich	2.28*	1.04-5.00	0.03	3.93*	1.25-12.40	0.01
Mother's level of education						
No formal	1			1		
Primary	0.56	0.19-1.62	0.29	0.33	0.19-2.63	0.62
Secondary	0.70	0.27-1.81	0.47	0.41	0.10-1.14	0.08
Higher	1.10	0.39-3.07	0.84	0.72	0.10-1.73	0.22
Mother's occupation						
Retired	1			1		
Housewife	0.64	0.23-1.77	0.39	0.64	0.17-2.40	0.51
Government employee	0.90	0.25-3.18	0.87	1.78	0.37-8.59	0.47
Private sector	1.12	0.36-3.49	0.84	1.75	0.41-7.45	0.44
Own business	0.48	0.15-1.50	0.20	0.71	0.16-3.11	0.65
Father's level of education						
No formal	1			1		
Primary	1.52	0.61-3.82	0.36	1.94	0.52-7.23	0.32
Secondary	2.37*	1.11-5.50	0.02	2.31	0.67-7.99	0.18

Higher	2.47*	1.50- 5.75	0.03	3.01	0.90- 10.01	0.07
Father's occupation						
Retired	1			1		
Not working/ unemployed	0.44	0.16- 1.16	0.09	0.54	0.16-1.83	0.32
Government employee	1.12	0.39- 3.22	0.82	1.17	0.31-4.41	0.80
Private sector	0.81	0.32- 2.06	0.66	0.92	0.29-2.90	0.88
Own business	0.66	0.25- 1.69	0.39	0.83	0.26-2.63	0.75
Cyberbullying Victimization						
No	1			1		
Yes	0.90	0.51- 1.58	0.72	1.00	0.49-2.05	0.98
Posting of hurtful content						
No	1			1		
Yes	1.66	0.91- 3.02	0.09	1.89	0.86-4.15	0.11
Threatened Online						
No	1			1		
Yes	1.15	0.55- 2.37	0.70	0.94	0.39-2.27	0.89
Impersonation						
No	1			1		
Yes	1.15	0.67- 1.96	0.60	1.12	0.57-2.21	0.72

Try to fix the problem.						
Disagree	1			1		
Neutral	1.28	0.51-3.22	0.59	1.57	0.48-5.11	0.45
Agree	0.82	0.39-1.68	0.59	1.00	0.39-2.55	0.99
Hope the problem will go away by itself						
Disagree	1			1		
Neutral	1.16	0.62-2.17	0.63	1.04	0.45-2.40	0.92
Agree	1.36	0.74-2.50	0.30	1.19	0.53-2.67	0.65
Talked to someone about it						
Disagree	1			1		
Neutral	1.19	0.59-2.41	0.62	1.65	0.65-4.14	0.28
Agree	1.26	0.71-2.24	0.42	1.07	0.49-2.34	0.86
Block the hurtful messages.						
Disagree	1			1		
Neutral	1.07	0.46-2.50	0.86	0.90	0.30-2.66	0.85
Agree	0.98	0.50-1.91	0.96	0.49	0.19-1.26	0.14
Stopped using the internet for a while						

Disagree	1			1		
Neutral	1.25	0.63-	0.51	1.17	0.51-2.70	0.70
		2.45				
Agree	0.75	0.42-	0.34	0.59	0.27-1.27	0.18
		1.34				

Clicked on a report abuse button/ internet service provider (ISP)

Disagree	1			1		
Neutral	0.89	0.44-	0.75	0.89	0.36-2.19	0.81
		1.78				
Agree	1.51	0.83-	0.17	2.31*	1.08-4.94	0.03
		2.75				

* indicates the p -value ≤ 0.05 .

Table 6 showed a strong association of perceived digital resilience with gender (AOR: 3.45, 95% CI: 1.75-6.76), religion (AOR: 2.90, 95% CI: 1.30-6.48), wealth index quintile (AOR: 3.93, 95% CI: 1.25-12.40), and clicking on a report abuse button (AOR: 2.31, 95% CI: 1.08-4.94). Hence, H3 was rejected, as there is no significant difference between higher parental education and perceived digital resilience.

Discussion

This study aimed to examine the relationships between socio-demographic factors and adolescents' experiences of cyberbullying victimization, digital resilience, and coping strategies. The findings indicated that 57% of respondents reported experiencing cyberbullying. Additionally, over 40% of adolescents employed coping strategies, while 48% demonstrated high levels of digital resilience.

Cyberbullying victimization was found to be significantly associated with school sector and religion. These findings are consistent with Yan et al., (2022), who highlighted that individual demographic characteristics play a critical role in shaping resilience to online risks, including cyberbullying victimization. The results further support the view that prerequisites for personal resilience are largely psychological, whereas additional contributing factors often fall

within sociodemographic domains, such as income, educational attainment, occupation and age (Wang et al., 2019).

Muslim adolescents and those in public schools demonstrated higher cyberbullying victimization. These findings are consistent with prior research conducted in Saudi Arabia and Pakistan, which documented a positive association between socioeconomic status and cyberbullying victimization among adolescents (Saleem et al., 2021; Malik et al., 2022; AlShehry et al., 2023; Alhothali & Enezi, 2023; Anas & Arwa 2023).

Cyberbullying victimization was found to be significantly associated with posting of hurtful content and threatened online. However, these findings diverge from previous research, which suggests that adolescents and young adults exposed to cyberbullying frequently encounter difficulties in regulating their emotions and are more inclined to adopt maladaptive coping mechanisms (Patchin & Hinduja, 2015; Peprah et al., 2023; Noipom et al., 2023).

Coping strategies are positively associated with the father government employee. This finding aligns with previous literature indicating that maladaptive coping strategies are more prevalent among young people whose fathers had less than secondary education and who belonged to the lower wealth index quintiles (McLoughlin, 2021). The findings of the present study are consistent with those of Peker (2020), who highlighted that when college students encounter online risks in academic contexts, the majority seek external assistance. Their survey revealed that 66% of participants engaged in self-help strategies, 27% sought support from peers, and the remaining 7% relied on external or alternative resources.

A strong association was observed between perceived digital resilience and factors such as gender, religion, wealth index quintile, and coping strategies, including the use of the “report abuse” button. Similarly, Anas & Arwa (2023) reported that digitally resilient students are more likely to recognize online risks or threats and to make informed decisions within their digital environments. The findings of the present study are also consistent with Sun et al. (2022), who emphasized the role of external support as a critical mechanism for promoting digital resilience among adolescents, a perspective further reinforced by Thorvaldsen et al. (2024).

Hence, all hypotheses were rejected, as there are no significant association between cyberbullying victimization, coping strategies, digital resilience with sociodemographic factors.

Adolescent's digital interests, skills, and optimism were also found to enhance their digital resilience (Zayed, 2024; Soomra et al., 2024). Consistent with this, previous studies have highlighted that the availability of technology, digital literacy, psychological resilience, and self-efficacy are key determinants shaping an individual's perceived digital resilience (Emanuel, 2021; Estévez et al., 2023).

Digital resilience necessitates substantial investment in programmatic resources, particularly those aimed at strengthening knowledge and attitudinal components. Such interventions are critical in equipping adolescents to engage with social media in safe, informed, and constructive ways, thereby fostering their capacity for digital resilience (UK Council for Internet Safety, 2016; Ang et al., 2022; Zeng et al., 2022; Sun et al., 2022; Setiansah et al., 2023).

Conclusion

This study seeks to present evidence on the determinants of digital resilience. By applying the frameworks of the socio-ecological theory of resilience, the findings demonstrate that at least six contextual factors significantly influence levels of digital resilience. These factors include gender, school sector, religion, wealth index quintile, parental educational attainment, and parental occupational status.

The study identified cyberbullying victimization as a critical form of online risk influencing perceived digital resilience. Perceived digital resilience was found to be strongly associated with factors such as gender, wealth index quintile, and parental educational attainment. All hypotheses were rejected, as there are no significant association between cyberbullying victimization, coping strategies, digital resilience with sociodemographic factors.

The findings regarding setting differences in adolescent digital resilience underscore the critical role of cyberbullying victimization and coping strategies. Policymakers and educators should recognize that different contexts, such as schools, require tailored approaches to enhancing digital resilience. Context-specific strategies are likely to be more relevant and effective in fostering adolescent's capacity to navigate online risks.

Secondly, given the facilitating role of digital resilience in mediating coping strategies to mitigate cyber risks, education on digital resilience should be integrated into school curricula.

Such instruction would equip students with the skills to navigate online environments effectively and manage the challenges of the digital world. This includes fostering critical thinking, emotional regulation, and problem-solving abilities within digital contexts.

Furthermore, educators and parents play a pivotal role in fostering digital resilience among adolescents. This involves both minimizing exposure to cyber threats and enhancing adolescents' skills and confidence to engage with the online environment safely and effectively. Such efforts require coordinated initiatives, including guidance on responsible internet use and open discussions about online experiences.

Beyond personal and educational contexts, this study carries broader societal implications. It underscores the importance of digital resilience as a fundamental skill in an era of continuous technological change. The capacity to adapt and thrive in digital environments is increasingly critical, and this research contributes to the expanding body of knowledge on digital resilience. Developing such resilience is essential for preparing a society capable of navigating and benefiting from rapid technological advancement.

Limitations

The present cross-sectional study has inherent limitations regarding the establishment of causality and long-term effects, given its point-in-time assessment of factors, coping mechanisms, and digital resilience among adolescents. First, the study focused exclusively on the current status of digital resilience and its determinants within adolescents, limiting the findings to this specific subgroup. Participants were drawn from grades 9 and 10, which may constrain the generalizability and transferability of the results to other age groups, populations, or settings. Moreover, the particular educational and social environment of the sample further restricts the applicability of these findings to more diverse contexts.

Second, although the quantitative approach allows for a comprehensive and nuanced examination of the phenomenon, it presents several challenges in data collection, analysis, and interpretation (Sun et al., 2022). Researchers must ensure methodological compatibility, effectively manage large datasets, and address potential biases inherent in quantitative methods.

Third, the study relied on self-reported measures of digital resilience and coping strategies, which may not fully capture actual behaviors and outcomes across different contexts.

Fourth, the use of a cross-sectional design limits the ability to draw causal inferences and to examine the longitudinal effects of digital resilience on adolescents' well-being and development. Successful coping experiences strengthen self-efficacy, creates learning and mastery experiences and refines judgment about what works online. This aligns with developmental and process models of resilience, social cognitive theory. Repeated effective coping in digital contexts builds digital resilience over time.

Given that digital resilience is a relatively recent construct within resilience research, further investigation is needed to understand its dynamic nature and broader implications. Future studies should address these limitations by employing more objective and diverse measures of digital resilience and coping strategies, adopting longitudinal or experimental designs, and expanding the scope and diversity of study populations.

Ethical Approval

Ethical approval for this study was obtained from the Graduate Committee of the Department of Sociology, School of Social Sciences and Humanities, University of Management and Technology, Lahore, Pakistan, on 21 February 2024. The research was conducted as partial fulfillment of the requirements for the MPhil in Sociology degree (ID: F2022261017).

The researcher visited various schools between April 2024 and May 2024. During these visits, meetings were held with the heads of the respective schools, and a formal letter of recommendation along with a hard copy of the questionnaire was presented. The researcher assured the school authorities that all ethical guidelines and research protocols would be strictly observed during the interview process.

Informed Consent

Prior to conducting the interviews each day, informed consent was obtained from all respondents between 24 April and 16 May 2024, who voluntarily agreed to participate in the study.

Participants were informed that they were not required to disclose personal identifying information. Each participant was assigned a unique case ID as well as a separate questionnaire ID to ensure anonymity. All information collected during the interviews was kept strictly confidential and securely protected, with no disclosure of personal details.

The interviews were conducted without any discrimination based on class, race, ethnicity, culture, color, education, or social status. To maintain privacy, interviews were carried out in a designated classroom where no third party could listen to or record the conversation.

During the interviews, the researcher entered respondents' data into a Google Form. Upon completion of each interview, participants were thanked for their time and cooperation. The collected data were used solely for academic research purposes.

Funding

This research received no supporting funds from any funding agency in the public, commercial, or not-for-profit sector.

References

Al-Abdulghani, Y. (2021) Exploring Digital Resilience in Qatar: A Socio-Technical Perspective. Dissertation, Carnegie Mellon University.

https://kilthub.cmu.edu/articles/thesis/Exploring_Digital_Resilience_in_Qatar_A_Socio-Technical_Perspective/16725265?file=30962941

Angela Y. Lee, Jeffrey T. Hancock, (2023) Developing digital resilience: An educational intervention improves elementary students' response to digital challenges. *Computers and Education Open*. <https://doi.org/10.1016/j.caeo.2023.100144>

Alhassan, M. D., & Butler, M. (2021) Digital Resilience and the Continuance Use of Mobile Payment Services. Paper presented at the 1st Virtual Conference on Implications of Information and Digital Technologies for Development, Cornell University, New York, 22 Aug 2021. <https://arxiv.org/abs/2108.09743>

Alhothali, H. M., & Enezi, M. O. (2023) The Role of Digital Education in Reducing the Risk of Cyberbullying Among Female Secondary School Students From their point of view in Riyadh-

Saudi Arabia. *Information Sciences Letters*, 12(7): 2801–2817.

<http://dx.doi.org/10.18576/isl/120711>

AlShehry, A. A., Wan Sulaiman, W. S., Khairudin, R., & Abdullah, N.A. (2023) The role of resilience as mediator in the relationship between cyberbullying victimisation and depression among university students in Saudi Arabia. *F1000Research*, 12:1435.

<https://doi.org/10.12688/f1000research.141431.1>

Anas, A., & Arwa, A. (2023) Cyberbullying: An Overview of its prevalence in Saudi Arabia a literature review. *Journal of Contemporary Social Science and Education Studies*, 3(1): 93–104.

<https://doi.org/10.5281/zenodo.10183748>

Ang, W. H. D., Chew, H. S. J., Dong, J., Yi, H., Mahendren, R., & Lau, Y. (2022) Digital training for building resilience: Systematic review, meta-analysis, and meta-regression. *Stress and Health, journal of the International Society for the Investigation of Stress*, 38(5): 848–869.

<https://doi.org/10.1002/smi.3154>

Batmaz, H., Türk, N., Kaya, A., & Yıldırım, M. (2023) Cyberbullying and cyber victimization: examining mediating roles of empathy and resilience. *Current Psychology*, 42: 30959–30969.

<https://doi.org/10.1007/s12144-022-04134-3>

Bureau of Statistics, 2020 Population statistics by Punjab Bureau of Statistics (PBS).

<https://www.pbs.gov.pk/content/statistical-tables-pslm-2019-20>

Byrne, V. L. (2021) Blocking and Self-Silencing: Undergraduate Students' Cyberbullying Victimization and Coping Strategies. *TechTrends*, 65(2):164–173.

<https://doi.org/10.1007/s11528-020-00560-x>

Cauberghe, V., De Jans, S., Hudders, L., & Vanwesenbeeck, I. (2022) Children's resilience during Covid-19 confinement. A child's perspective—Which general and media coping strategies are useful? *Journal of Community Psychology*, 50(3): 1503–1520.

<https://doi.org/10.1002/jcop.22729>

Chadwick, D. D. (2022) “You Want to Know That You're Safe”: Experiences of Risk, Restriction and Resilience Online Among People With an Intellectual Disability.

Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 16(3).

<https://doi.org/10.5817/CP2022-3-8>

Chang Q., Xing J., Chang R., Ip P., Yee-Tak Fong D., Fan S., R. T. H., Ho, Yip., P. S.F. (2021) Online sexual exposure, cyberbullying victimization and suicidal ideation among Hong Kong adolescents: Moderating effects of gender and sexual orientation. *Psychiatry Research Communications*, 1(2), 100003.

<https://doi.org/10.1016/j.psycom.2021.100003>

Chen, Q., & Zhu, Y. (2022) Cyberbullying victimisation among adolescents in China: Coping strategies and the role of self-compassion. *Health & Social Care in the Community*, 30(3): 677–686. <https://doi.org/10.1111/hsc.13438>

Craig, S. L., Brooks, A. S., Doll, K., Eaton, A. D., McInroy, L. B., & Hui, J. (2025) Processes and Manifestations of Digital Resilience: Video and Textual Insights From Sexual and Gender Minority Youth. *Journal of adolescent research*, 40(2): 386–412. <https://doi.org/10.1177/07435584221144958>

Cochran CW. Sampling technique. Bombay: Asia Publishing House; 1962

Davis, R. A. (2001) A Cognitive-behavioral model of pathological Internet use. *Computers in Human Behavior*, 17(2): 187–195. [https://doi.org/10.1016/S0747-5632\(00\)00041-8](https://doi.org/10.1016/S0747-5632(00)00041-8)

Dong, H., Yang, F., Lu, X., & Hao, W. (2020) Internet Addiction and Related Psychological Factors Among Children and Adolescents in China During the Coronavirus Disease 2019 (COVID-19) Epidemic. *Frontiers in psychiatry*, 11: 00751. <https://doi.org/10.3389/fpsy.2020.00751>

Duckett, L. J. (2021) Quantitative Research Excellence: Study Design and Reliable and Valid Measurement of Variables. *Journal of Human Lactation*, 37(3): 456–463. <https://doi.org/10.1177/08903344211019285>

Durkee, T., Kaess, M., Carli, V., Parzer, P., Wasserman, C., Floderus, B., Apter, A., Balazs, J., Barzilay, S., Bobes, J., Brunner, R., Corcoran, P., Cosman, D., Cotter, P., Despalins, R., Graber, N., Guillemin, F., Haring, C., Kahn, J. P., Mandelli, L., Wasserman, D. (2012) Prevalence of pathological internet use among adolescents in Europe: demographic and social factors. *Addiction (Abingdon, England)*, 107(12): 2210–2222. <https://doi.org/10.1111/j.1360-0443.2012.03946.x>

El-Masri, M., Ramsay, A., Ahmed, H. M., & Ahmad, T. (2021) Positive sentiments as coping mechanisms and path to resilience: the case of Qatar blockade. *Information Communication & Society*, 24(13): 1835–1853. <https://doi.org/10.1080/1369118X.2020.1748086>

El Asam, A., Samara, M., & Terry, P. (2019) Problematic internet use and mental health among British children and adolescents. *Addictive Behaviors*, 90: 428–436. <https://doi.org/10.1016/j.addbeh.2018.09.007>

Emanuel, N. S. (2021) Reinforcing that it's a good thing, but there's dangers": Exploring Young People's Advice on Digital Resilience. Dissertation, University of East Anglia. <https://ueaeprints.uea.ac.uk/id/eprint/82270/>

Estévez, A., Macía, L., López-González, H., Momeñe, J., Jauregui, P., Etxaburu, N., Granero, R., Fernández-Aranda, F., Mestre-Bach, G., Vintró-Alcaraz, C., Munguía, L., Baenas, I., Mena-Moreno, T., Mora-Maltas, B., Valenciano-Mendoza, E., & Jiménez-Murcia, S. (2023)

- Cyberbullying and Gambling Disorder: Associations with Emotion Regulation and Coping Strategies. *Journal of gambling studies*, 39(3): 1399–1416. <https://doi.org/10.1007/s10899-022-10160-4>
- Genachowski, C., Copps, C., McDowell, Clyburn, Baker. (2009) Empowering parents and protecting children in an evolving media landscape. Federal Communications Commission, Washington, D.C. <https://www.fcc.gov/document/empowering-parents-and-protecting-children-evolving-media-landscape>
- Fullerton, D. J., Zhang, L. M., & Kleitman, S. (2021) An integrative process model of resilience in an academic context: Resilience resources, coping strategies, and positive adaptation. *PLoS one*, 16(2): 1–22. <https://doi.org/10.1371/journal.pone.0246000>
- Ghanad, A. (2023) An Overview of Quantitative Research Methods. *International Journal of Multidisciplinary Research and Analysis*, 06(8). <https://doi.org/10.47191/ijmra/v6-i8-52>
- Gan, X., Wang, P., Xiang, G., & Jin, X. (2023) Positive youth development attributes and cyberbullying victimization among Chinese middle school students: A longitudinal moderated mediation model involving internet gaming disorder and depression. *PloS one*, 18(6). <https://doi.org/10.1371/journal.pone.0287729>
- Government of Punjab, district Lahore <https://punjab.gov.pk/>
- Hammond, S. P., Polizzi, G., & Bartholomew, K. J. (2023) Using a socio-ecological framework to understand how 8–12-year-olds build and show digital resilience: A multi-perspective and multimethod qualitative study. *Education and Information Technologies*, 28(4), 3681–3709. <https://doi.org/10.1007/s10639-022-11240-z>
- Han, Z., Wang, Z., & Li, Y. (2021) Cyberbullying Involvement, Resilient Coping, and Loneliness of Adolescents During Covid-19 in Rural China. *Frontiers in psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.664612>
- Hendekci, A., Albayrak, E., & Şimşek, N. (2023) Cyber victimization with increasing digitization during the COVID-19 pandemic and coping strategies used by adolescents. *Child & Family Social Work*, 30(1): 37–47. <https://doi.org/10.1111/cfs.13104>
- Shah, B. H., Riaz, S., & Rashid, S. (2022). Internet Users Expectations versus Reality: A Comparative Study of South Korean and Pakistani Children. *Online Media and Society*, 3: 84–97. <https://doi.org/10.71016/oms/3yz17028>
- Peker, H. (2020). The Effect of Cyberbullying and Traditional Bullying on English Language Learners' National and Oriented Identities. *Bartın University Journal of Faculty of Education*, 9(1): 185–199. <https://doi.org/10.14686/buefad.664122>
- Hodge S, Johnson L. (2020) The digitally resilient student. *The British psychological society*. <https://www.bps.org.uk/psychologist/digitally-resilient-student>

Ibrahim, M. F., Wan Ismail, W. S., Nik Jaafar, N. R., Mohd Mokhtaruddin, U. K., Ong, H. Y., Abu Bakar, N. H., & Mohd Salleh Sahimi, H. (2022) Depression and Its Association With Self-Esteem and Lifestyle Factors Among School-Going Adolescents in Kuala Lumpur, Malaysia. *Frontiers in psychiatry*, 13. <https://doi.org/10.3389/fpsy.2022.913067>

Karaosmanoğlu, G., Adıgüzel, Ö., & Özdemir Şimşek, P. (2022) Understanding High School Students' Strategies for Coping with Cyberbullying through Creative Drama. *Education and Science*, 47(209): 207-237. <https://doi.org/10.15390/EB.2022.10368>

Kaur, G. (2024) Contribution and Role of Teacher in strengthen of Digital resilience in Higher Education", *International Journal of Emerging Technologies and Innovative Research*, 11(4): 70-74. <https://www.jetir.org/papers/JETIR2404D10.pdf>

Kim, H. (2023) Cyberbullying Among Adolescents: Their Threat Appraisal And Coping Strategies. Dissertation, University of Tampere. <https://trepo.tuni.fi/handle/10024/152159>

Kwak, Y., Kim, H., & Ahn, J. W. (2022) Impact of Internet usage time on mental health in adolescents: Using the 14th Korea Youth Risk Behavior Web-Based Survey 2018. *PloS one*, 17(3). <https://doi.org/10.1371/journal.pone.0264948>

Lachapelle, M., Fernet, M., Hébert, M., & Guyon, R. (2021) A Mixed Methods Approach Exploring Risk Factors Associated with Cyber Dating Victimization and Resilience in Adolescents and Emerging Adults. *Journal of Aggression, Maltreatment & Trauma*, 31(5): 589–608. <https://doi.org/10.1080/10926771.2021.1994499>

Lenka, S.K., Barik, R. (2018) Has expansion of mobile phone and internet use spurred financial inclusion in the SAARC countries? *Financial Innovation* 4(5). <https://doi.org/10.1186/s40854-018-0089-x>

Lin, J., & Tao, J. (2024). Digital resilience: A multiple case study of Taobao village in rural China. *Telematics and Informatics*, 86: 102072. <https://doi.org/10.1016/j.tele.2023.102072>

Livingstone, Sonia and Haddon, Leslie and Görzig, A. and Ólafsson, Kjartan (2010) Risks and safety for children on the internet: the UK report: summary of key findings. EU Kids Online Network, London, UK. LSE Research Online. <https://eprints.lse.ac.uk/43731/>

Livingstone, S., & Görzig, A. (2014) When adolescents receive sexual messages on the Internet: Explaining experiences of risk and harm. *Computers in Human Behavior*, 33: 8-15. <https://doi.org/10.1016/j.chb.2013.12.021>

Livingstone, S., Mascheroni, G., & Stoilova, M. (2021). The outcomes of gaining digital skills for young people's lives and wellbeing: A systematic evidence review. *New Media & Society*, 25(5), 1176-1202. <https://doi.org/10.1177/14614448211043189>

- Malik, H., Batoool, S., & Iqbal, S. (2022). Cyber Victimization among Pakistani Youth: Role of Media, Family and Peer. *Journal of Policy Research*, 8(4): 391-401.
<https://jprpk.com/index.php/jpr/article/view/188>
- Maureen, I.Y., van der Meij, H. & de Jong, T. (2020) Enhancing Storytelling Activities to Support Early (Digital) Literacy Development in Early Childhood Education. *International Journal of Early Childhood*, 52: 55–76. <https://doi.org/10.1007/s13158-020-00263-7>
- Maryam Ikram, Husaina Banu Kenayathulla, Syed Muhammad Umer Saleem (2023) Unlocking the potential of technology usage in fostering education quality and students' satisfaction: a case of Pakistani higher education. *Kybernetes*. 54 (3): 1938–1965. <https://doi.org/10.1108/K-03-2023-0452>
- McLoughlin, L.T. (2021) Understanding and measuring coping with cyberbullying in adolescents: exploratory factor analysis of the brief coping orientation to problems experienced inventory. *Current Psychology*, 40: 4300–4310. <https://doi.org/10.1007/s12144-019-00378-8>
- Mols, A., Campos, J. P., & Pridmore, J. (2023) Family Surveillance: Understanding Parental Monitoring, Reciprocal Practices, and Digital Resilience. *Surveillance and Society*, 21(4): 469–484. <https://doi.org/10.24908/ss.v21i4.15645>
- Moosa, A.S., Ng, D.X., Aau, W.K. et al. (2023) Resilience and coping behaviour among adolescents in a high-income city-state during the COVID-19 pandemic. *Scientific Reports*, 13. <https://doi.org/10.1038/s41598-023-31147-0>
- Morales-Arjona, I., Pastor-Moreno, G., Ruiz-Pérez, I., Sordo, L., & Henares-Montiel, J. (2022) Characterization of Cyberbullying Victimization and Perpetration Before and During the COVID-19 Pandemic in Spain. *Cyberpsychology, behavior and social networking*, 25(11): 733–743. <https://doi.org/10.1089/cyber.2022.0041>
- Nagata, J. M., Trompeter, N., Singh, G., Ganson, K. T., Testa, A., Jackson, D. B., Assari, S., Murray, S. B., Bibbins-Domingo, K., & Baker, F. C. (2022) Social Epidemiology of Early Adolescent Cyberbullying in the United States. *Academic pediatrics*, 22(8):1287–1293.
<https://doi.org/10.1016/j.acap.2022.07.003>
- Nagata, J. M., Trompeter, N., Singh, G., Raney, J., Ganson, K. T., Testa, A., Jackson, D. B., Murray, S. B., & Baker, F. C. (2023) Adverse childhood experiences and early adolescent cyberbullying in the United States. *Journal of adolescence*, 95(3): 609–616.
<https://doi.org/10.1002/jad.12124>
- Nguyen, T. T. P., Nguyen, T. T., Do, H. N., Vu, T. B. T., Vu, K. L., Do, H. M., Nguyen, N. T. T., Doan, L. P., Vu, G. T., Do, H. T., Nguyen, S. H., Latkin, C. A., Ho, C. S. H., & Ho, R. C. M. (2022) Parent-Child Relationship Quality and Internet Use in a Developing Country: Adolescents' Perspectives. *Frontiers in psychology*, 13.
<https://doi.org/10.3389/fpsyg.2022.847278>

- Noipom, R., Lim, A., Sittichai, R., Ma-A-lee, A., Sukkhum, S., & Dureh, N. (2023) Factors Associated with Negative Emotional Responses and Maladaptive Coping Strategies to Cyberbullying Among Young People in Southernmost Thailand. *Iranian Journal of Psychiatry and Behavioral Sciences*, 17(1):18–20. <https://doi.org/10.5812/ijpbs-132018>
- Nyarko, J. A., Kwabena-Adade, J., & Amey, F. K. (2023) Cyberbullying Victimization, Perpetration, and Psychosomatic Health Symptoms Among Students in a Ghanaian University. *Corvinus Journal of Sociology and Social Policy*, 14(1): 151–174. <https://doi.org/10.14267/CJSSP.2023.1.7>
- Ochieng, D.M., Olugbara, O.O. and Marks, M.M. (2017) Exploring Digital Archive System to Develop Digitally Resilient Youths in Marginalised Communities in South Africa. *The Electronic Journal of Information Systems in Developing Countries*, 80: 1-22. <https://doi.org/10.1002/j.1681-4835.2017.tb00588.x>
- Paat, Y. F., & Markham, C. (2021) Digital crime, trauma, and abuse: Internet safety and cyber risks for adolescents and emerging adults in the 21st century. *Social Work in Mental Health*, 19(1): 18–40. <https://doi.org/10.1080/15332985.2020.1845281>
- Pasha, S.A., Ali, S. & Jeljeli, R (2025) Artificial Intelligence Implementation to Counteract Cybercrimes Against Children in Pakistan. *Hu Arenas* 8: 79–97. <https://doi.org/10.1007/s42087-022-00312-8>
- Patchin, J. W., & Hinduja, S. (2015) Measuring cyberbullying: Implications for research. *Aggression and Violent Behavior*, 23: 69–74. <https://doi.org/10.1016/j.avb.2015.05.013>
- Peker, A., Cengiz, S., & Eroğlu, Y. (2024) Coping skills and perceived stress as pathways to well-being in adolescents experiencing cyber-victimization. *Current Psychology*, 43(23): 20709–20721. <https://doi.org/10.1007/s12144-024-05864-2>
- Peker, A., & Yalçın, R. Ü. (2023) Resilience levels of Turkish adolescents cyber-victims in social networking sites: The mediation roles of cyberbullying and active coping. *Current Psychology*, 42(22): 19286–19301. <https://doi.org/10.1007/s12144-022-04163-y>
- Peprah, P., Oduro, M. S., Okwei, R., Adu, C., Asiamah-Asare, B. Y., & Agyemang-Duah, W. (2023) Cyberbullying victimization and suicidal ideation among in-school adolescents in three countries: implications for prevention and intervention. *BMC psychiatry*, 23(1):944. <https://doi.org/10.1186/s12888-023-05268-9>
- Jacob P., (2016) Smartphone Ownership and Internet Usage Continues to Climb in Emerging Economies. Pew Research Center. <https://www.pewresearch.org/global/2016/02/22/smartphone-ownership-and-internet-usage-continues-to-climb-in-emerging-economies/>

- Qi, C., & Yang, N. (2024) Digital resilience in Chinese adolescents: a portrayal of the current condition, influencing factors, and improvement strategies. *Frontiers in Psychiatry*. <https://doi.org/10.3389/fpsy.2024.1278321>
- Qin, H. (2022) Cyberbullying Among Teenagers in China: From the Perspective of Major Factors and Coping Strategies. Paper Presented at 2022 3rd International Conference on Mental Health, Education and Human Development (MHEHD 2022), 670: 99–103. <https://doi.org/10.2991/assehr.k.220704.017>
- Ramadan, O. M. E., Alruwaili, M. M., Alruwaili, A. N., Elsharkawy, N. B., Abdelaziz, E. M., Ezzat, R. E. S. E. B., & El-Nasr, E. M. S. (2024) Digital Dilemma of Cyberbullying Victimization among High School Students: Prevalence, Risk Factors, and Associations with Stress and Mental Well-Being. *Children*, 11(6): 634. <https://doi.org/10.3390/children11060634>
- Raeside, R., Jia, S. S., Redfern, J., & Partridge, S. R. (2022) Navigating the Online World of Lifestyle Health Information: Qualitative Study With Adolescents. *JMIR Pediatrics and Parenting*, 5(1). <https://doi.org/10.2196/35165>
- Ragni, B., Guarini, P., Toto, G. A., & Limone, P. (2022) Digital Resilience and Psychological Wellbeing of Italian Higher Education Students: An Exploratory Study. Paper presented at 9th International Scientific Conference Technics and Informatics in Education – TIE 2022, 431–437, 16-18 September 2022. <https://doi.org/10.2478/1046793-tie22-431r/>
- Rahi, S., Khan, M. M., & Alghizzawi, M. (2021) Extension of technology continuance theory (TCT) with task technology fit (TTF) in the context of Internet banking user continuance intention. *International Journal of Quality & Reliability Management*, 38(4): 986–1004. <https://doi.org/10.1108/IJQRM-03-2020-0074>
- Raiziene, S., Erentaite, R., Pakalniskiene, V., Grigutyte, N., & Crocetti, E. (2022) Identity Formation Patterns and Online Activities in Adolescence. *Identity*, 22(2): 150–165. <https://doi.org/10.1080/15283488.2021.1960839>
- Rehman, S. U., Bhatti, A., Mohamed, R., & Ayoup, H. (2019) The moderating role of trust and commitment between consumer purchase intention and online shopping behavior in the context of Pakistan. *Journal of Global Entrepreneurship Research*, 9(43). <https://doi.org/10.1186/s40497-019-0166-2>
- Romano, L., Angelini, G., Consiglio, P., & Fiorilli, C. (2021) Academic Resilience and Engagement in High School Students: The Mediating Role of Perceived Teacher Emotional Support. *European journal of investigation in health, psychology and education*, 11(2): 334–344. <https://doi.org/10.3390/ejihpe11020025>
- Ramos Salazar L. (2021) Cyberbullying Victimization as a Predictor of Cyberbullying Perpetration, Body Image Dissatisfaction, Healthy Eating and Dieting Behaviors, and Life

Satisfaction. *Journal of interpersonal violence*, 36(2): 354–380.

<https://doi.org/10.1177/0886260517725737>

Shah, B. H., Riaz, S., & Rashid, S. (2022) Internet Users Expectations versus Reality: A Comparative Study of South Korean and Pakistani Children. *Online Media and Society*, 3: 84-97. <https://doi.org/10.71016/oms/3yz17028>

Salkind, N. (2013) Quantitative Research Methods. *Encyclopedia of Educational Psychology*. <https://doi.org/10.4135/9781412963848.n224>

Soomra, N. U. A., Ahmad, I., Muntaha, S. T., & Saba, Z. (2024) Cyber-Bullying Impact on Young Adults; Examining Stress, Coping Mechanism and Self-Esteem. *Journal of Excellence in Social Sciences*, 3(2): 94–104. <https://doi.org/10.69565/jess.v3i1.234>

Saleem, S., Khan, N. F., & Zafar, S. (2021) Prevalence of cyberbullying victimization among Pakistani Youth. *Technology in Society*, 65:101577. <https://doi.org/10.1016/j.techsoc.2021.101577>

School information system, SED, Govt. of Punjab, (2024) <https://sis.pesrp.edu.pk/>

Setiansah, M., Nuryanti, N., Santoso, E., Runtiko, A. G., & Novianti, W. (2023) Improving Indonesian seniors' digital resilience and quality of life through the Digital Academy for Seniors program. *Journal of Media Literacy Education*, 15(2): 71–83. <https://doi.org/10.23860/JMLE-2023-15-2-6>

Sorrentino, A., Sulla, F., Santamato, M., di Furia, M., Toto, G. A., & Monacis, L. (2023) Has the COVID-19 Pandemic Affected Cyberbullying and Cybervictimization Prevalence among Children and Adolescents? A Systematic Review. *International journal of environmental research and public health*, 20(10): 5825. <https://doi.org/10.3390/ijerph20105825>

Stoilova, M., Livingstone, S., & Khazbak, R. (2021) Investigating Risks and Opportunities for Children in a Digital World: A rapid review of the evidence on children's internet use and outcomes *Media and Communications*. UNI-iLibrary, 1-82. <https://www.unilibrary.org/content/papers/10.18356/25211110-2020-03>

Sun, H., Yuan, C., Qian, Q., He, S., & Luo, Q. (2022) Digital Resilience Among Individuals in School Education Settings: A Concept Analysis Based on a Scoping Review. *Frontiers in Psychiatry*, 13. <https://doi.org/10.3389/fpsy.2022.858515>

Syed, U. E., Safdar, G., & Khan, A., (2024) Relationship between Cyber-Victimization, Coping Strategies and Resilience among Social Media Users. *Journal of Media Studies*, 38(2): 1-21.

Tsagdi S, Tzavaras P. (2022) Designing a Language Project to Promote Digital Resilience to Greek Students. *American Journal of Sciences and Engineering Research*, 5(2): 8-14: <https://www.iarjournals.com/upload/520814.pdf>

Tang, J., Yu, Y., Du, Y., Ma, Y., Zhang, D., & Wang, J. (2014) Prevalence of internet addiction and its association with stressful life events and psychological symptoms among adolescent internet users. *Addictive Behaviors*, 39(3): 744–747.

<https://doi.org/10.1016/j.addbeh.2013.12.010>

Thakur, H., & Cohen, J. R. (2022) Short-Term and Long-Term Resilience Among At-Risk Adolescents: The Role of Family and Community Settings. *Journal of Clinical Child and Adolescent Psychology*, 51(5): 637–650. <https://doi.org/10.1080/15374416.2020.1756296>

Thorvaldsen, S., Hansen, K. T., & Forsberg, J. T. (2024) Children and adolescents weathering the storm: Resilience in the presence of bullying victimization, harassment, and pandemic lockdown in northern Norway. *Scandinavian Journal of Psychology*.

<https://doi.org/10.1111/sjop.13012>

Uddin, M. K., & Rahman, J. (2022) Cyber Victimization and Cyber Aggression among High School Students: Emotion Regulation as a Moderator. *Cyberpsychology*, 16(2).

<https://doi.org/10.5817/CP2022-2-4>

Udwan, G., Leurs, K., & Alencar, A. (2020) Digital Resilience Tactics of Syrian Refugees in the Netherlands: Social Media for Social Support, Health, and Identity. *Social Media and Society*, 6(2). <https://doi.org/10.1177/2056305120915587>

UK Council for Internet Safety (2016) Digital Resilience Working Group Policy Paper.

<https://www.gov.uk/government/publications/digital-resilience-framework>

UKCIS (2019) Digital Resilience Framework.

https://assets.publishing.service.gov.uk/media/5d7a00a0e5274a20381543e6/UKCIS_Digital_Resilience_Framework.pdf

Vissenberg, J., & D'haenens, L. (2020) Protecting youths' wellbeing online: Studying the associations between opportunities, risks, and resilience. *Media and Communication*, 8(2): 175–184. <https://doi.org/10.17645/mac.v8i2.2774>

Wang, M. J., Yogeewaran, K., Andrews, N. P., Hawi, D. R., & Sibley, C. G. (2019) How Common Is Cyberbullying Among Adults? Exploring Gender, Ethnic, and Age Differences in the Prevalence of Cyberbullying. *Cyberpsychology, behavior and social networking*, 22(11): 736–741. <https://doi.org/10.1089/cyber.2019.0146>

Wang, C. W., Chan, C. L., Mak, K. K., Ho, S. Y., Wong, P. W., & Ho, R. T. (2014) Prevalence and correlates of video and internet gaming addiction among Hong Kong adolescents: a pilot study. *TheScientificWorldJournal*. <https://doi.org/10.1155/2014/874648>

Wang, L., Luo, J., Gao, W., & Kong, J. (2012) The effect of Internet use on adolescents' lifestyles: A national survey. *Computers in Human Behavior*, 28(6): 2007–2013.

<https://doi.org/10.1016/j.chb.2012.04.007>

- Weinstein, A., & Lejoyeux, M. (2010) Internet addiction or excessive internet use. *The American journal of drug and alcohol abuse*, 36(5): 277–283. <https://doi.org/10.3109/00952990.2010.491880>
- Xin, M., Xing, J., Pengfei, W., Houru, L., Mengcheng, W., & Hong, Z. (2018) Online activities, prevalence of Internet addiction and risk factors related to family and school among adolescents in China. *Addictive behaviors reports*, 7: 14–18. <https://doi.org/10.1016/j.abrep.2017.10.003>
- Yubero, S., de las Heras, M., Navarro, R., & Larrañaga, E. (2023) Relations among chronic bullying victimization, subjective well-being and resilience in university students: a preliminary study. *Current Psychology*, 42(2): 855–866. <https://doi.org/10.1007/s12144-021-01489-x>
- Yusuf, A., Rachmawati, P. D., & Rachmawati, D. (2022) The correlation of Internet addiction towards adolescents' social interaction. *International Journal of Adolescent Medicine and Health*, 34(5): 351–355. <https://doi.org/10.1515/ijamh-2020-0110>
- Yan, Y., & Gai, X. (2022) High Achievers from Low Family Socioeconomic Status Families: Protective Factors for Academically Resilient Students. *International journal of environmental research and public health*, 19(23): 15882. <https://doi.org/10.3390/ijerph192315882>
- Zayed, A. M. (2024) Digital Resilience, Digital Stress, and Social Support as Predictors of Academic Well-Being among University Students. *Journal of Education and Training Studies*, 12(3). <https://doi.org/10.11114/jets.v12i3.6894>

Data availability statement

The datasets generated and/or analysed during the current study are provided in the supplementary files accompanying this article. These include the datasets, survey instruments, code. The supplementary materials are available online as part of the published article and can be accessed directly through the journal's website.

Ethical statements

Ethical approval for this study was obtained from the Graduate Committee of the Department of Sociology, School of Social Sciences and Humanities, University of Management and Technology, Lahore, Pakistan, on 21 February 2024. The research was conducted as partial fulfillment of the requirements for the MPhil in Sociology degree (ID: F2022261017).

The researcher visited various schools between April 2024 and May 2024. During these visits, meetings were held with the heads of the respective schools, and a formal letter of recommendation along with a hard copy of the questionnaire was presented. The researcher assured the school authorities that all ethical guidelines and research protocols would be strictly observed during the interview process.

Prior to conducting the interviews each day, informed consent was obtained from all respondents between 24 April and 16 May 2024, who voluntarily agreed to participate in the study.

Participants were informed that they were not required to disclose personal identifying information. Each participant was assigned a unique case ID as well as a separate questionnaire ID to ensure anonymity. All information collected during the interviews was kept strictly confidential and securely protected, with no disclosure of personal details.

The interviews were conducted without any discrimination based on class, race, ethnicity, culture, color, education, or social status. To maintain privacy, interviews were carried out in a designated classroom where no third party could listen to or record the conversation.

During the interviews, the researcher entered respondents' data into a Google Form. Upon completion of each interview, participants were thanked for their time and cooperation. The collected data were used solely for academic research purposes.