

RESEARCH ARTICLE

Bullying prevalence in Pakistan's educational institutes: Preclusion to the framework for a teacher-led antibullying intervention

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Abstract

Increasing reports of bullying and cyberbullying in schools in recent years are undeniable and have been recognized as a serious public health problem. Conventional bullying and cyberbullying are not only a problem in higher educational institutions in Pakistan, but also in primary and secondary schools. Although statistics show higher levels of bullying and cyber-risky behaviors among youth, policies and interventions to control the consequences of conventional and cyberbullying are rare in the Pakistani context. This study explores teachers' perspectives and experiences in identifying bullying strategies in different school contexts. Four hundred fifty-four teachers working in different educational institutions completed an online survey that provided data to draw conclusions and to get a better sense of the situation in educational institutions in Pakistan. According to the results, teachers experience verbal and social bullying more frequently than online and physical bullying. In addition, teachers in lower grades reported noticing more physical bullying than teachers in higher grades. Facebook was reported to be the most common platform students used to bully each other. Researchers also found significant differences between rural and urban teachers' experiences with social bullying. Bullying intervention strategies should be developed and integrated into educational settings in Pakistan. The data presented will be used to develop tailored anti-bullying interventions that are culturally and socially appropriate for Pakistani educational settings.

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Introduction

Aggression is a set of actions that are considered a significant challenge for society to deal with and are defined by social psychology as any behavior aimed at harming a person or animal [1]. If there is no immediate intervention, some of these aggressive behaviours, can lead to serious societal consequences, such as extreme forms of bullying or irreversible negative effects such as delinquency [2]. Bullying is a repeated aggressive behavior with the intention to afflict physical, emotional, or mental harm and usually results from a power imbalance [3]. To differentiate, bullying others without using electronic or digital means is nowadays considered to be "traditional bullying"; when technology is used to intentionally harm others, it is referred to as

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cyberbullying. School bullying and neighborhood bullying are two examples of traditional bullying, while cyberbullying is a result of technology, such as the Internet [4].

Traditional bullying, or face-to-face bullying, is further subdivided into physical, verbal, or social/emotional/relational bullying. Acts such as hitting, kicking, tripping, pinching, and pushing or damaging property are considered different forms of physical bullying. Contrarily, name-calling, insults, use of swear words, teasing, intimidation, and rude remarks are different kinds of verbal abuse or verbal bullying. Social bullying, sometimes referred to as covert/relational or emotional bullying, is often challenging to recognize and can be carried out behind the bullied person's back. It is designed to harm someone's social reputation and/or to cause them humiliation. The most common types of this behavior include lying and spreading rumors, negative facial or physical gestures, menacing or contemptuous looks, playing nasty jokes to embarrass and humiliate, mimicking unkindly, encouraging others to socially exclude someone, damaging someone's social reputation, or affecting acceptance of the person [5].

The advent of technology and frequent internet usage has introduced a more technologically-oriented form of aggression known as cyber aggression [6]. It is defined as 'intentional harm delivered by the use of electronic means to a person or a group of people irrespective of their age who perceive(s) such acts as offensive, derogatory, harmful or unwanted' [7]. Englander et al. (2017) defined cyberbullying as willful and repeated harm inflicted upon a victim through the use of computers, cell phones, and other electronic devices [8]. Even though several initiatives and interventions have been designed to prevent and control this harmful behavior, the rate of cyberbullying and traditional bullying continues to rise around the world [9]. Facebook statistics revealed that between 2017 and 2021, harassment-related posts constantly increased [10]. Delgado (2020) also reported that abusive language among children and teens rose by 70% and more soon after engagement in online classes [11]. Moreover, as school work had to be done from home, traditional bullying was replaced by cyberbullying in households [12].

The issue of bullying and cyberbullying has gained prominence worldwide, but for educational institutions in Pakistan, this matter has yet to be studied in depth. Additionally, the vast majority of the data collected and published are based on respondents' self-reports, which may be skewed by social desirability biases or misremembrance issues, thus undermining validity. The aim of this article is to discuss the range of traditional bullying and cyberbullying and their concomitants in Pakistan's educational system by including experiences of teachers working at different educational institutions. Moreover, the need for a socially and culturally adapted/newly developed bullying intervention will be discussed by revisiting steps and interventions taken in the past and the data gathered from teachers.

Theoretical background

The theoretical basis for explaining the concept of bullying and aggression

Aggression is a broad term comprising multiple constructs and is not just limited to behavior evaluated at the symptom level [13]. Aggression is also described from a variety of perspectives including antisocial behavior, juvenile delinquency, coercion, assertiveness, or bullying [14]. Gay (1999) summarized the concept of the Psychoanalytical Theory presented by Sigmund Freud in the late 19th century and stated that aggression is an innate and fundamental feeling which is a part of human nature; it is essential for defense and the fight for dominance [15]. Pinker (2012) supported Freud's concept and explained that the motive behind bullying is the need for power, which is a special kind of instrumental violence that is inherent in human nature [16, 17]. Dehue (2013); Slonje *et al.*, (2013) reported that traditional bullying and cyberbullying behaviors constitute unjustified aggression, based on power imbalance, and continue

over time [18, 19]. A psychoanalytic model explains that human nature is always seeking superiority, and bullying is a way of displaying authority and showcasing prestigiousness.

In early studies, one of the other main factors being considered was frustration as a cause of aggression [20]. Similarly, Agnew (1992) developed a General Strain Theory and defined strain as events or conditions that individuals dislike, with strains also classified as the inability to achieve desired goals, the presentation of harmful or negatively valued stimuli, and the loss of desirable stimuli [21]. All these strains can be seen as major contributors to a perpetrator's involvement in bullying behavior and victims' transformation into perpetrators. The literature has elaborated that bullying and cyberbullying are generally associated with people who have been maltreated or have a higher level of anxiety, academic difficulties, passive aggressive behaviors, and internalizing and externalizing problems than their peers [22–24].

Albert Bandura introduced the concept of social learning in the development of aggression. He further elaborated that interventions designed to modify behavior via rewards and punishment were incomplete for explaining the development of behaviors, as humans tend to mimic others and learn from them [25]. Garandeau and Cillessen (2006) explained that perpetrators are popular and considered to have competent social-cognitive skills [26]. The desire for supremacy and high status are some of the motives behind bullying others [27]. Bystanders often mimic bullies to gain the same social influence as they perceive a bully's fame and peers' anxiety about becoming the next victim.

Another theory regarding child behavior is the Social Information Processing Theory (SIP), which examines how children and teenagers process information in social contexts. According to SIP, children with disruptive behavior problems perceive, interpret, and make decisions about social information in a way that increases their likelihood of engaging in aggressive behavior [28]. Attachment problems or coercive cycles could explain such difficulties with interpersonal processing. Similarly, coercive parenting can explain harsh parental behavior such as hitting, yelling, scolding, threatening, rejection, and psychological control to achieve compliance from the child. As an example of how social information processing theory is applied, a child may assume another child intentionally pushed them in the lunch line rather than assuming it was an accident.

Social Interaction Theory proposed by Tedeschi and Felson (1994) demonstrated aggression as psychologically influenced behavior aimed at changing the target's behavior [29]. These actions are used by a perpetrator to obtain something valuable such as money, goods, information, services, or to achieve desired social or self-identity. Anderson and Bushman (2002) introduced the General aggression model (GAM) that integrated existing mini-theories of aggression into an amalgamated whole. This model is more comprehensive, explains aggressive acts based on multiple motives, and provides broader insights into child-rearing and development issues [30].

Status and frequency of bullying and cyberbullying in Pakistan

The increase of bullying and cyberbullying in academic settings in recent years is indisputable [31] and has been established as a serious public health problem [32], with long-term negative effects on physical and mental health [33]. Similarly, traditional and cyberbullying have not only found their way into Pakistan's higher educational institutions, but appear in primary and secondary schools as well [34, 35]. Various investigations have shown that bullying and cyberbullying are common practices in Pakistan's educational institutions and have affected the physical, emotional, and mental health of students.

Saleem et al. (2021) report that the level of cyberbullying has substantially increased in educational institutions in Pakistan [35]. Data gathered from universities of the province of Sindh

has confirmed that cyberbullying is common in urban universities. Previously, Musharraf and Anis-ul-Haque (2018) also supported the findings of [35] and found that more than 60% of university students were involved in cyberbullying behavior [36]. Similarly, Mirza *et al.* (2020) found that cyberbullying is ubiquitous in higher educational institutions [37].

Saleem *et al.* (2021) added that substantial differences in victimization and perpetrators were found with respect to socioeconomic status and access to the Internet [35]. Further, Rafi (2019) reports that linguistic skills were exploited by the aggressors to victimize the participants [38]. Young social media addicts often have offline disputes, which becomes the rudimentary rationale for cyber-associated behaviour [38–40]. Although studies concluded that boys are more involved in perpetration and victimization, researchers have reported that females have also been victimized through conventional and online media. Magsi *et al.* (2017) found that females in universities are also being scoffed at and harassed using electronic media, but about half of the victims do not disclose this due to cultural and religious restraints and to protect themselves from being blamed as immoral [41]. Women suffer in silence and as a self-defense leave activities that are taking place in cyberspace. Lack of knowledge about how to handle cyberbullying and lack of trust in law enforcement agencies are additional important factors that encourage bullies to victimize women in urban university settings. It is also reported that females are more susceptible to developing anxiousness due to cyber victimization as compared to their male counterparts [36]. Additionally, both targets of bullying and offenders of bullying experienced adverse emotional and social consequences. Bullying perpetrators exhibited a greater severity of depressive symptoms due to problems in psychosocial functioning [42].

Bullying and cyberbullying is not limited to the university level but have permeated the schooling system in Pakistan [34, 42–45]. Khawaja *et al.* (2015) found that violence in the form of physical and verbal abuse is commonplace in major cities and provincial capitals [44]. Asif (2016) further added that bullying and victimization are also associated with poor academic performance [46] and they are one of the causes of the high dropout rate in schools [45].

Murshid (2017) and Musharraf and Anis-ul-Haque (2018) reported that victimization is the major cause of mental health issues, such as anxiety and depression among youth in Pakistan, while low to middle-income countries like Pakistan have limited resources to address such mental issues [47, 48]. It is recommended in recent publications [6, 35, 49, 50] to build support centers in academic settings to deal with bullying and cyberbullying situations and to implement anti-bullying interventions. The goal of these centers is to raise students' awareness of prevention and coping measures. In Pakistan, interventions should be tailored to the country's specific circumstances.

Sources of frustration-aggression in Pakistani society

Dollard *et al.* (1939) considered that frustration and dissatisfaction are the main causes of aggression development [51]. In continuation, the concept of displaced aggression described by Denson *et al.* (2006) also explains how the level of frustration redirects aggression to an alternative target to cope with stress [52]. Moreover, Patchin and Hinduja (2011) explained bullying behaviour in terms of the General Strain Theory (Agnew, 1992) that argues that individuals who experience strain feel angry or frustrated as a result and are more at risk to engage in criminal, deviant or bullying behavior [21, 53]. Correspondingly, traditional bullying and cyberbullying are more common among people who are traditionally or cyber victimized, show a high level of anxiety, academic difficulties, passive-aggressive behaviours, and internalizing and externalizing problems than among their peers [22–24]. Husain (2000) reported that post-independence economic development has predominantly benefited a small class of the

elite, while the majority of the population remains uneducated and poor [54]. Unemployment, accelerating inflation, uncontrolled population growth and low literacy rates are some additional enduring factors in the declining standard of living of Pakistan's major population [55, 56]. Rapid urbanization, limited and insecure water supply [57], food insecurity and malnutrition [58] are some of the additional factors that contribute to rising aggression in Pakistan's society. Empirically, it is reported that there is a high prevalence of behavioral problems and emotional and behavioral difficulties among Pakistani school children [34].

Supporting the statements of [34] and elaborating the reasons behind the behavioral problems of children, Asad *et al.* (2017) and Karmaliani *et al.* (2017) emphasized that peer violence in Pakistan is rooted in poverty and the socialization of children, especially at home [59, 60]. Murshid (2018) reported that one of the reasons for victimization is poor hygiene that indicates victims' disadvantaged social class to bullies [61].

Malik and Abdullah (2017) concluded on the basis of information gathered from teachers and students that violent programs on TV, news and discussions on unemployment, underemployment, and other socio-political problems were a major source of aggression among youths in Pakistan [62]. Concerning bullying, the majority of students, as well as teachers, rated verbal bullying to be a catalyst for aggression.

Interestingly, despite low economic conditions in Pakistan, internet use has significantly increased in the past two decades. In 2001, only 1.3% of the population used the internet [63], but by 2012, Pakistan was at the top 20th position in the world in terms of internet users [64]. One of the major reasons for the spread of the internet is the huge competition in the ISP (Internet Service Providers) and telecommunication market. The easy availability of WIFI [65] and accessibility of smartphones at ever cheaper rates have caused the number of mobile internet users to increase consistently [66].

Status and conditions of interventions in Pakistan's context

International investigations have indicated that countries with a higher prevalence of face-to-face traditional bullying have a high level of cyberbullying as well [67]. Cyberbullying seems to co-occur with traditional bullying [24] and interventions should be pertinent for managing both types of bullying, otherwise, several studies have shown that controlling one form of bullying can lead to the perpetrator engaging in other forms of bullying [68, 69]. Many of the interventions dealing with traditional school bullying are modified for tackling cyberbullying issues on the presumptions of similarities in both types of bullying behaviour. Both constitute unjustified aggression, based on a power imbalance, and persist over time. Repetition criteria are debated among scientists as it is not as obvious in cyberbullying as it is in traditional bullying [18, 19].

The Federal Investigation Agency (FIA) of Pakistan has reported that delinquency related to the internet is constantly rising [70]. Although statistics have unveiled a higher number of cyber risks behaviours especially in youngsters, interventions designed to control cyberbullying and consequences are substandard so far in Pakistan's context [35]. Similarly, despite a high frequency and concerns about bullying and victimization as a public health issue in low- and middle-income countries in addition to the chronicity of behavioral problems there are limited policies and interventions designed, implemented, and evaluated [34]. One of the effective trials conducted by McFarlane *et al.* (2017) was the application of an international intervention program named "Right to Play Intervention" [43]. In this whole-school approach students were engaged with different physical activities to help build their cognitive, social, emotional, and physical skills. Right To Play's Positive Child and Youth Development program in Pakistan includes games and activities from the manual Red Ball Child Play that focuses on

4 areas of youth development, including physical, cognitive, social, and emotional domains. However, this intervention did not produce convincing results and the authors suggested several limitations and differences in the context of Pakistan in terms of climate, living conditions, attitudes towards school, etc. Contrarily, in another study by Karmaliani et al. (2020) play-based life-skills interventions delivered in public schools in Pakistan were able to elicit a significant reduction in peer violence [71].

Maryam and Ijaz (2019) also attempted to integrate some of the activities from the anti-bullying program of Operation Respect from the USA in addition to behavioral and cognitive techniques used in therapy with school children in Pakistan [72, 73]. The program was implemented over a 4-months timespan with the main focus on enhancing the pro-social skills, emotional management and problem-solving aptitude of the victims. The participants showed improvement in the skills taught to them, and an overall reduction was seen in the incidents of bullying.

Hakim and Shah (2017) investigated strategies used to control bullying in primary schools of Haripur, Pakistan. They found that the majority of the teachers adopted the strategy of providing a safe physical environment by instructing about rules before engaging students in any activity to control bullying and behavioral problems [74]. It should be noted that teachers' job satisfaction can also be achieved by creating a conducive working environment and fostering strong relationships [75]. However, detailed information and steps for the creation of a conducive environment were not specifically discussed or elaborated in the study of Hakim and Shah (2017) [74]. Similarly, involving parents and students to stand against bullying was also reported by teachers but content, methodology, and details of the intervention programs were not provided or clarified. It is concluded that while there are general rules of understanding on how to handle bullying issues, expertise in this field is still insufficient.

This review of the limited number of interventions in Pakistan has shown that there is a need for intervention of bullying and cyberbullying. Moreover, most of the interventions adapted/adopted and applied were only focusing on one aspect of training like engaging with physical activities [43, 71], creating safe physical environment [74], enhancing pro-social skills or emotion regulation of the victims [72]. Naveed et al. (2020) have further emphasized the need to comprehend the underlying patterns of behavioral difficulties in order to devise effective pragmatic anti-bullying initiatives, school-based mental health services and psychosocial counseling procedures [34]. Using a literature review, which focuses on Pakistan's particular context, the authors of the current study conducted a baseline survey to get a snapshot of what teachers believe about bullying incidents and what interventions they expect to be able to use to identify, combat, and stand up to bullying. Educators have a broader role to play than just in the classroom; they can contribute to the overall planning and implementation of schools' policies and plans [76]. Teachers are the primary agents that can influence the entire school environment by introducing measures against bullying perpetration and victimization [77]. A constant presence of teachers in classrooms throughout the academic year also allows students to seek help whenever they experience or witness bullying or victimization. When designing a teacher-led intervention, it is essential to obtain information about bullying in educational institutions from teachers and to ask their opinions about the intervention design they will use to address bullying. With this goal in mind, this study was designed to obtain the necessary information from teachers before designing and implementing a teacher-led intervention program.

Methods

The present study used a quantitative cross-sectional survey design to determine the prevalence of different forms of bullying in educational institutions of Pakistan. Many of the referenced

researchers noted that the prevalence of bullying and its subtypes in educational institutions in Pakistan is understudied [6, 34, 35, 49, 50]. The purpose of this study was to fill this gap by expanding the knowledge about bullying and its categories in Pakistani educational institutions.

Ethical statement

The researchers followed basic ethical principles and the APA's ethical code. Participants provided informed consent through an online forum which can be considered written consent since, after reading details about the purpose of the study, anonymity, free participation, planned use of data, and the right to end participation without negative consequences, they explicitly agreed to these study conditions by clicking the "Agree" button at the beginning of the online survey. In this way, informed consent was assured according to the ethical guidelines and federal legislation. Participants were adults and the questionnaire did not relate to their own victimization experiences thus the probability of re-victimization was low. Ethical review and approval were not required for the study on human participants in accordance with the local legislation and institutional requirements. The entire study and questionnaire were reviewed by the second author's research team consisting of educational psychologists and educationalists and two educators from a private university in the Metropolis City of Pakistan who are well acquainted with the educational system of Pakistan. The team of reviewers found no potential conflict of interest or harm to participants, nor any activities that went beyond the ethical code of conduct.

Instruments

The study variables were assessed using a questionnaire in which teachers reported the prevalence of bullying among students as they perceived it.

Demographics. Participants' demographic information was used to determine their level of teaching (e.g. primary, secondary), type of institution (e.g. public, private) and place of institution (urban, rural).

In order to assess *cyberbullying* from the teachers' perspectives, an adapted version of the Berlin Cyberbullying-Cybervictimization Questionnaire (BCyQ) by Schultze-Krumbholz and Scheithauer (2011) was used [78]. Teachers were asked 17 statements on a 5-point Likert scale (1 = never to 5 = frequently) to identify their perceptions of cyberbullying incidents among students (*Example statements: "Bad things were told/written about student on the Internet or by mobile phone to destroy his/her friendships or reputation.", "Student received messages on the Internet or by mobile phone in which he/she was verbally abused or insulted."*).

To assess *social bullying* among students from the teachers' perspective researchers adapted and contextualized 10 items developed by Doğruer (2015) [79]. A five-point Likert scale was used (1 = never to 5 = frequently). (*Example statements: "Some student(s) prevent other students from being friends with people they don't like.", "Some student(s) tell lies and stories about others students to make them look bad."*).

Verbal bullying among students was measured using adapted and contextualized items from various studies [79–81]. Eight items with a five-point Likert scale were used (1 = never to 5 = frequently). (*Example statements: "Some student(s) swears at others.", "Some student(s) has insulted or said nasty words to others.", "Some student(s) threatens to physically hurt someone."*).

Nine items were adapted and contextualized from various studies [80–82] to measure *physical bullying* among students on a five-point Likert scale (1 = never to 5 = frequently). (*Example statements: "Some student(s) has thrown things at another student or hit others with an object for physical abuse.", "Some student(s) has tripped (causing someone to stumble or fall) another student on purpose."*).

Table 1. Demographics.

	Demographic Variable	No. of Participants	Percentage
Level of Teaching	Primary (1–5 Grades)	101	22.2
	Secondary (6-10/ O-Levels)	186	41.0
	Higher Secondary (A-Levels)	60	13.2
	University	107	23.6
Institutional Location	Urban	364	80.2
	Sub Urban	27	5.9
	Rural	63	13.9
Institutional Setting	Public	129	28.4
	Semi Private/Public	56	12.3
	Private	269	59.3
	Total	454	100.0

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Teachers' opinions about new antibullying interventions were also measured with six items to better understand what educators expect from new interventions. Identifying the characteristics of an intervention that teachers expect to help in controlling bullying in their schools was the primary goal. Each item was based on a single question (Refer to Table 6).

The questionnaire was reviewed by the research team of the second author consisting of educational psychologists and educational scientists and two educators from a private university in the Metropolis City of Pakistan who are well acquainted with Pakistan's educational system. Several items were revised by the German and Pakistani experts in order to avoid ambiguous statements, to eliminate duplicate or compound questions, and to contextualize and adjust statements for better understanding by Pakistani teachers.

Participants

Using Google forms, a questionnaire survey was conducted online. Over 1,000 forms were sent to educators to invite them to participate in the study. The researchers followed basic ethical principles and the APA's ethical code. Teachers were informed about the study's purpose, voluntariness of participation and were given the right to withdraw from the study. In total, 454 teachers from different parts of Pakistan responded to the questionnaire from November 2021 until January 2022. The demographics of the participants are summarized in Table 1.

Most of the responding teachers were from secondary-level education (41%), from urban settings (80.2%), and associated with private educational institutions (59.3%). Also, teachers were asked about the source of information concerning bullying incidents (see Table 4) and the most common platform for cyberbullying (see Table 5).

Data analysis

Data were analyzed using one-way ANOVA and Pearson correlation in SPSS 27. Exploratory and confirmatory factor analysis were computed using SPSS 27 and AMOS 22. To determine if the sample data is drawn from a normally distributed population (within a certain tolerance), a normality test is usually performed. Several statistical tests require normally distributed sample populations, such as the student's t-test and the one-way and two-way ANOVA. Normality can have serious effects in small samples, but this impact effectively diminishes when sample size reaches 30 according to Cohen et al. (2002) and 50 according to de Winter et al. (2009) [83, 84]. This means that the sampling distribution of the mean can be

assumed to be normal if each sample contains a large number of observations (in the present study $n = 454$).

Factor analysis

Pre-analyses indicated that the sample size is satisfactory as the KMO value is higher than 0.7 (.961) [85, 86] and an exploratory factor analysis can be conducted as the Bartlett's test is significant ($\chi^2(630) = 10533.685$, $p < .001$) [87, 88]. Results of the factor analysis and factor loadings are shown in Table 2. After the factor analysis some of the items were removed to satisfy model fit criteria and reliability indexes. The final questionnaire was based on 36 questions

Table 2. Factor loadings and reliability statistics.

S. No	Type of Bullying	Estimates	No. of Items	Reliability Cronbach Alpha
1.	Cyber	.591	13	.931
2.	Cyber	.619		
3.	Cyber	.719		
4.	Cyber	.695		
5.	Cyber	.728		
6.	Cyber	.715		
7.	Cyber	.768		
8.	Cyber	.741		
9.	Cyber	.713		
10.	Cyber	.726		
11.	Cyber	.778		
12.	Cyber	.768		
13.	Cyber	.731		
1.	Social	.667		
2	Social	.652		
3	Social	.706		
4	Social	.707		
5	Social	.677		
6	Social	.764		
7	Social	.739		
8	Social	.736		
9	Social	.726	7	.900
1	Verbal	.699		
2	Verbal	.750		
3	Verbal	.759		
4	Verbal	.768		
5	Verbal	.746		
6	Verbal	.685		
7	Verbal	.785	7	.919
1	Physical	.738		
2	Physical	.791		
3	Physical	.801		
4	Physical	.757		
5	Physical	.796		
6	Physical	.785		
7	Physical	.787		

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Table 3. Prevalence of different bullying types as perceived by teachers.

	Cyberbullying	Verbal Bullying	Physical Bullying	Social Bullying
N	454	454	454	454
Mean	2.6415	3.1718	2.7942	3.3529
Standard Deviation	.87115	.85354	.91081	.81194
Range	4.00	4.00	4.00	4.00

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with 4 main factors (Cyberbullying- 13 items, Social Bullying- 9 items, Verbal Bullying-7 items, Physical Bullying-7 items) (Refer to [Table 2](#)).

For every construct, Cronbach's is higher than 0.7, indicating that the subscales are reliable [89] (Refer to [Table 2](#)). Construct validity is established through Average Variance Extracted (AVE) which was 0.60 and can be considered as good [90]. Further indicators of model fit also show that the instrument meets the model fit criteria ($\chi^2/df = 2.650$, CFI = .904, RMR = .066, RMSEA = .054, AGFI = .815, IFI = .905, PCFI = .810, PNFI = .716).

Results

Prevalence of bullying in educational institutions

The results regarding the frequency of different types of bullying incidents are shown in [Table 3](#). The purpose of compiling this information is to determine how many teachers have witnessed bullying incidents among students and shared their experiences. From the [Table 4](#), it appears that teachers have witnessed more social and verbal bullying incidents (mean values are higher than 3) than physical and cyberbullying.

The first common source of information is "sharing between a teacher and a colleague" (see [Table 4](#)). In addition, the majority of reported cases involved teachers themselves witnessing incidents and documenting them in surveys. The third common source of information was that the victim himself/herself reported it to the teacher. This shows that peer bystanders are least likely to speak out about the incident as compared to victimized children.

Additionally, which cyber platform is most commonly used for cyberbullying was also collected and is shown in [Table 5](#). Participants were asked to respond to the question: In terms of cyberbullying incidents which is the most common networking site students are using? The information gathered indicates that Facebook is still the most commonly used network for cyberbullying, followed by Instagram and TikTok.

Table 4. Source from which teachers get information about bullying incidents.

	Frequency	Percent
Never Witnessed	6	1.3
Witnessed by Teacher	113	24.9
Reported by Victim	80	17.6
Reported by Peer Bystander	46	10.1
Heard from Colleagues	121	26.7
Anonymous information	52	11.5
Reported by Parent	32	7.0
Various Means	4	.9
Total	454	100.0

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Table 5. Cyberbullying forums.

	Responses	Frequency	Percent
Valid	No Idea	8	1.8
	FaceBook	251	55.3
	TikTok	55	12.1
	Whatsapp	10	2.2
	Instagram	69	15.2
	Snapchat	14	3.1
	YouTube	26	5.7
	Twitter	11	2.4
	Zoom	2	.4
	All	6	1.3
	Gaming Apps	2	.4
	Total	454	100.0

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Association of bullying with level of teaching and educational setting

To understand the association between the level of teaching and different forms of bullying, the Pearson correlation test was run (Refer to Table 6). There is a significant decrease in the cases of physical bullying as the teaching level increases, which indicates that the physical form of bullying is more prevalent in primary schools than at higher educational institutions. In addition, cyberbullying is positively correlated with traditional forms of bullying, suggesting that institutions where cyberbullying is prevalent also experience higher levels of physical, verbal, and social bullying.

To examine the difference between educational institutional settings (independent variable) regarding different forms of bullying (dependent variable), one-way ANOVA tests were conducted (Refer to Tables 7 and 8). Using one-way ANOVA, bullying incidents among students were compared by locality of the educational institution (urban, sub-urban, and rural). According to the analysis, there was a significant difference for social bullying ($F(2,451) = 7.419, p = 0.001$). However, no significant differences were found for physical, verbal, or cyberbullying. According to a post-hoc analysis using the Tukey method, there was a significant difference in the prevalence of social bullying in rural ($M = 3.004, SD = 0.74615$) and urban institutions ($M = 3.42, SD = 0.81050$). From mean differences, we found that urban teachers reported more cases of social bullying than their rural counterparts (see Table 8). In this study, teachers from urban schools were more likely to respond ($N = 364$) compared to teachers from rural schools ($N = 63$), leading to uneven group sizes. The discussion section outlines some other possible explanations for these differences. Similarly, one-way ANOVA was also

Table 6. Correlations.

	Level of Teaching	Cyberbullying	Verbal Bullying	Physical Bullying	Social Bullying
Level of Teaching	1	.052	-.016	-.113*	.001
Cyberbullying		1	.633**	.572**	.628**
Verbal Bullying			1	.677**	.795**
Physical Bullying				1	.565**
Social Bullying					1

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

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Table 7. ANOVA. Dependent Variable: Form of Bullying.

		Sum of Squares	Df	Mean Square	F	Sig.
Cyberbullying	Between Groups	1.013	2	.507	.667	.514
	Within Groups	342.772	451	.760		
	Total	343.786	453			
Verbal Bullying	Between Groups	3.161	2	1.580	2.181	.114
	Within Groups	326.867	451	.725		
	Total	330.028	453			
Physical Bullying	Between Groups	.230	2	.115	.138	.871
	Within Groups	375.564	451	.833		
	Total	375.794	453			
Social Bullying	Between Groups	9.512	2	4.756	7.419	.001
	Within Groups	289.129	451	.641		
	Total	298.641	453			

Independent Variable: Institutional Location (Urban, Rural, Sub Urban)

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conducted to examine differences between bullying incidents (dependent variable) in public, private and semi-private institutions (independent variables). No significant difference was observed.

Teachers' opinions about new intervention

Teachers were also asked about various aspects of new interventions to control traditional bullying and cyberbullying. Table 9 provides an overview of the items and participants' responses. Finally, recommendations and suggestions offer further insight into teachers' opinions.

Discussion

In this research paper, the authors collected information about bullying incidents among students observed and reported by teachers. It becomes evident that teachers have noticed more social and verbal bullying incidents than physical bullying and cyberbullying. The opposite has been found in other studies when data was collected from students in Pakistan, which showed that traditional and cyberbullying was a frequent practice in Pakistan's educational institutions [34, 35]. Investigations have shown that bullying and cyberbullying occur regularly in Pakistan's educational institutions, which negatively affect the mental, emotional, and physical

Table 8. Multiple comparisons.

Tukey HSD							
Dependent Variable	(I) Institutional Location	(J) Institutional Location	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Social Bullying	Urban	Sub Urban	.15223	.15970	.607	-.2233	.5278
		Rural	.41619*	.10926	.000	.1593	.6731
	Sub Urban	Urban	-.15223	.15970	.607	-.5278	.2233
		Rural	.26396	.18417	.325	-.1691	.6970
	Rural	Urban	-.41619*	.10926	.000	-.6731	-.1593
		Sub Urban	-.26396	.18417	.325	-.6970	.1691

*. The mean difference is significant at the 0.05 level.

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Table 9. Teachers' opinions about new intervention design.

S. No	Question	Options	Participants	%
1.	In order of your preference tick the most suitable mode of training intervention?	Face to Face only	250	55.1
		Online only	38	8.4
		Blended	99	21.8
		No Preference (All options work)	67	14.8
2.	Do you think that installing apps for bullying prevention can help you to learn better and utilize your free time more effectively?	Strongly Disagree	34	7.5
		Disagree	39	8.6
		Neutral	134	29.5
		Agree	141	31.1
		Strongly Agree	106	23.3
3.	Bullying and Cyberbullying are associated with some serious social issues such as sexual harassment, spreading of unethical content, grooming, etc. Intervention would also be helpful for you to understand and stand against this immoral, unethical, and antireligious content. Would it be acceptable to you to have a trainer of a different gender than you and be able to openly discuss these issues?	Strongly Disagree	14	3.1
		Disagree	30	6.6
		Neutral	127	28
		Agree	119	26.2
		Strongly Agree	164	36.1
4.	After training would it be feasible for you to train your students in segregated settings (boys and girls separately)?	Strongly Disagree	17	3.7
		Disagree	31	6.8
		Neutral	92	20.3
		Agree	135	29.7
		Strongly Agree	179	39.4
5.	In order to control unacceptable behavior, support from holy books, prophets' lifestyles examples, and stories from religious and cultural perspectives should also be part of the intervention	Strongly Disagree	12	2.6
		Disagree	25	5.5
		Neutral	78	17.2
		Agree	89	19.6
		Strongly Agree	250	55.1
6.	Discussion with other ethnicities, nationalities, and cultural exchange on social networking platforms (skype, zoom, or google meet) would be effective in reducing bullying/cyberbullying.	Strongly Disagree	22	4.8
		Disagree	32	7
		Neutral	99	21.8
		Agree	132	29.1
		Strongly Agree	169	37.2

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health of Pakistan's children and young adults [35, 37, 48]. Khawaja et al. (2015) found physical and verbal violence as a prevalent occurrence in major cities and provincial capitals' institutions of Pakistan [44]. However, the present data collected from teachers do not support the claim that bullying is prevalent in schools in the form of cyber or physical afflictions. Teachers' lack of interaction with students on social networking platforms where cyberbullying happens can be a contributing factor for deviating reports of cyberbullying. In addition, teachers usually aren't members of groups on social networking sites where students engage in cyberbullying and, since students maintain anonymity, teachers can't report or respond to students engaging in cyberbullying. Aside from that, the involvement in continuous online teaching platforms has reduced the time available for teachers to interact with students for socializing purposes or networking. Studies have shown that during the pandemic, online teaching-related technology stress suppresses the urge among teachers to interact online for purposes other than those related to education [91]. As a result of these contradictory statements, it can be concluded that bullying and cyberbullying are prevalent in educational institutions, but teachers are infrequently exposed to those incidents or are unfamiliar with them, and need training to identify

victimization and perpetrator behavior to intervene effectively and control unacceptable behavior.

Research has revealed that physical bullying tends to decrease as one goes up the educational ladder. This means physical bullying is more prevalent in primary schools than in higher education institutions. Zych *et al.* (2020) found that physical bullying decreases throughout adolescence, which is consistent with these results [92]. Contrary to Rafi *et al.* (2019), no significant difference was found between cyberbullying incidents and age in the present study [38]. Our results further demonstrate that cyberbullying is positively correlated with verbal, physical and social forms of bullying in institutions with a higher prevalence of cyberbullying, these forms of bullying are occurring more commonly. These results are in line with the explanation given by Kowalski *et al.* (2014) who stated that cyberbullying usually occurs in conjunction with traditional bullying, and institutions where cyberbullying is common also have a higher incidence of traditional bullying incidents [24].

Bjereld (2018) argued that victims often fear being seen as victims by others and thus attempt to conceal their victimization [93]. Victims are usually unenthusiastic to share their suffering due to multiple reasons such as distrust of adults and concern about being blamed [93]. On the contrary, the present teacher data revealed that bystanders are the least likely to report an incident. Bystanders are often the first to witness an incident and report it to a teacher, which is why in most interventions they are a central target of training [93]. However, the number of bystanders reporting an incident to a teacher or intervening directly appears to be lowest in Pakistan. Gordon (2019) reported numerous reasons why bystanders do not intervene or communicate incidents to adults [94]: fear of being victimized for reporting or intervening, a lack of knowledge of what to do in such a situation, mistrust of adults, having been taught to stay away from this kind of situations, and moral disengagement beliefs. There is still a need to investigate the reasons for the silence of bystanders in Pakistan. Additionally, the bystanders' role in the bullying chain should be emphasized in upcoming intervention designs for Pakistan's educational institutions.

Many of the social networking sites have been used as a venue for cyberbullying activities such as Instagram [95], twitter [96], Facebook [97], TikTok [98], WhatsApp [99], Snapchat [100], YouTube [101] Zoom [102], and online games [103]. However, our data from teachers in Pakistan showed that Facebook continues to be the most frequently used social networking platform where cyberbullying incidents are observed. There is a possibility that other platforms that are gaining more popularity among young people are being misused for cyberbullying. Teachers, however, still preferably use Facebook and therefore haven't noticed such incidents on other social networks. In order to find out the popularity of emerging social networks among youths, data should also be collected from them to reveal the true picture of social networking. Moreover, despite efforts being made by social networking sites to control bullying, there is still a considerable prevalence of bullying that indicates that users need training to protect themselves and others from cyber harms of online networking.

As Tayyaba (2012) demonstrates, there are differences between rural and urban educational institutions that are related to differences in student performance [104]. Different parenting styles, social characteristics and school climate may be responsible for this. As a result, the opinions and experiences of teachers may also differ regarding bullying issues. However, this area of research is still understudied and requires more comprehensive and detailed investigations. Moreover, a baseline assessment should always be conducted so that differences between rural and urban settings can be taken into account and bullying interventions can be tailored to the needs of individual schools.

Recommendations and suggestions

The previous sections already discussed that there are limited interventions designed to control traditional bullying in schools and hardly any intervention for controlling cyberbullying successfully implemented in Pakistan. It is now a major concern whether adopting Western school-based bullying control interventions would be promising in South Asia. Moreover, it is a question whether overburdened teachers will be able to participate and implement the program successfully. Based on the review of the literature and the baseline survey from teachers there are a few suggestions made by the authors for addressing this problem in Pakistan's educational institutions.

1. McFarlane et al. (2017) reported that Pakistan is a particularly challenging country for evaluating international interventions because of multiple variations in terms of climate and school cultures [43]. Given the specific societal, political, economic, and climatic challenges that teachers and students encounter in Pakistan [43], school-based interventions cannot produce successful results unless combined with some other measures. It is possible to introduce web-based interventions through teachers' professional development. Web-based interventions are also considered a cost-effective strategy, which can maintain anonymity/privacy and can address a large number of people [105]. These reports were cross-examined by asking about the teachers' preferred mode of training (blended, online or face-to-face training). A surprising 55.1% of the participants wanted to meet instructors in person and preferred face-to-face training sessions. Due to the difficulties Pakistani teachers faced during the transition to online learning and teaching, this phase has left a negative impression on teachers about online instruction. The failure of online learning to produce effective results has been attributed to multiple reasons [106–108]. The challenges of digital transformation of the educational system include poor internet signals/strength, high internet connectivity costs, electricity load shedding, lack of training and readiness of remote learners, difficulty in group activities, unreliable assessment methods and results, and insufficient interaction among participants and instructors [106, 108]. Some of the students reported health concerns from continuous online learning such as eye sight and ear pain issues [50]. Beside the lack of immediate feedback, the practical component of learning is also cited as a major problem [107]. In light of this observation, the authors suggest that teachers receive on-site training for anti-bullying intervention.
2. Cyberbullying is usually accompanied by traditional bullying [24] and it is recommended that interventions designed should be pertinent to managing both types of bullying, otherwise there are studies where controlling one form of bullying results in involvement of the perpetrators in another type of bullying [68, 69]. The statistical results of the current study have also revealed that students at institutions where cyberbullying occurs more frequently are also at greater risk of traditional bullying such as physical, verbal, and social forms. From these interpretations, it is concluded that new intervention programs should not only address traditional bullying but should also target cyberbullying. In addition, literature has shown both cyberbullying and traditional bullying are prevalent in Pakistan, but the teachers' data explained that the prevalence of cyberbullying or physical assault is less common than other two forms of bullying. These contradictory statements highlight the prevalence of bullying and cyberbullying in educational institutions, but educators are rarely exposed to these incidents or are unfamiliar with them. Therefore, educators need training in detecting victimization and perpetrator behaviors. A new intervention should include components that will assist teachers in identifying victimization and perpetration, allowing them to intervene immediately and control the situation.

3. The use of mobile apps and Virtual realities (VR) as a combating strategy is also suggested by many researchers. Apps such as Shazam or Unmute Daniel and iZ Hero are some of the technology-based interventions designed to create awareness and prevent bullying [109, 110]. The introduction of such programs can be effective in controlling behavioural problems with limited financial resources. Despite technological challenges, 54% of teachers in our study agreed that the use of apps, in combination with face-to-face sessions, can result in more effective training. Out of 454 respondents, 134 supported a neutral position. As a result, researchers suggest creating an app that supports intervention training, where participants can continue to learn at their own pace without being restricted by geography.
4. Maddison (2013) has clearly indicated that the social structure of South Asia is more complex than elsewhere [111]. Moreover, talking about cyber-associated risky behaviours like stalking and sexting is challenging due to cultural, moral, and religious beliefs in the Pakistani community [112]. Similarly, many families are against co-education and prefer to send their children to single-sex institutions [113]. Keeping the religious and cultural aspects in mind, teachers were also surveyed regarding their acceptance of segregated settings (men and women separated) for training sessions. Unexpectedly, 283 out of 464 participants are comfortable if they are professionally trained in a group setting with tutors of a different gender as them. It shows that despite religious and cultural beliefs, teachers are ready to study with male or female counterparts. On the other hand, when their perceptions on transferring knowledge to students after training was assessed, almost two thirds of the participants thought segregated classes would provide opportunities for both girls and boys to speak more openly about issues and concerns (if any) with instructors and fellow students. The implementation of separate programs for men and women is also recommended to ensure open dialogue and discussion without hurting any community's religious or traditional beliefs.
5. Religious education is widely used in Pakistan for character building and moral engagement. Previous studies have established that religious education contributes to moral development, like Perrin (2000), who found a positive association between honesty and religiosity [114]. Nucci (1989) stated, on the contrary, that children should be taught universal values devoid of ethnic and geographical differences in order to live a meaningful life [115]. He argued that when children are controlled by religious doctrines, they do not adopt these values, rather they rebel and refuse. In order to make an informed recommendation, the present study also asked teachers about their opinion on taking support from holy books, prophets' behavioral examples, and stories from religious and cultural perspectives to improve children's behavior. According to the descriptive results, three-fourths of participants agreed that religious support was necessary for the new intervention to be effective.
6. Khawaja *et al.* (2015) suggested that recreational and cultural enrichment programs can be beneficial to pupils, because they are exposed beyond the boundaries of their own community which may create tolerance and the motivation needed to improve their circumstances and behaviors [44]. Our descriptive findings revealed that about 66% of the teachers believed that forums in which students interact with other cultures and share their experiences would help them to develop tolerance towards others, acceptance of different opinions, and understanding of other cultures. As such, it is recommended that any future interventions emphasize some of the components needed to develop better intercultural perspectives and focus on cultural intelligence.
7. Peer training involves students either of the same age or of different ages who learn from each other in a structured manner. This type of training allows students to put their

knowledge and skills to use, and creates a platform for both the trainer and trainee to boost their self-confidence. The tutor gains confidence in their ability to assist someone, while the trainee receives encouragement from their peers, strengthening their sense of self-competence [116]. It is recommended that along with teachers' professional development, components for peer training should also be introduced to control bullying incidents in educational settings.

Practical implications

This research study served as a baseline assessment conducted prior to the development of a teacher-led anti-bullying training program and has several practical implications. An analysis of the survey provided a comprehensive understanding of bullying in Pakistani schools and educational institutions. This information has been used to determine the extent of the problem and the need for an anti-bullying training program. The study also revealed what types of bullying are most common and what teachers expect from new interventions. This information can then be used by future researchers to tailor anti-bullying training programs to the specific needs of students.

Conclusions

This study serves as the basis for an anti-bullying intervention developed for a teacher training course. It is novel in that it does not rely on student self-reports of bullying incidences and frequencies as most of the previous studies in Pakistan have done and it includes teacher perceptions and experiences. The results show some clear differences to the research conducted previously in Pakistan.

A review of literature has already demonstrated that bullying and cyberbullying are undeniably prevalent in Pakistan's educational system and society and there is a dire need to develop and integrate bullying interventions. The current study also confirmed that verbal and social forms of bullying are widespread from the teachers' point of view. This study has provided a new perspective and general recommendations for planning and implementing new, socially contextualized anti-bullying interventions for teachers in Pakistan. According to the baseline survey, the intervention should not only explain how to handle and control bullying, but it should also provide training for teachers to help them identify victimization and perpetrator behavior, both in traditional schools and online. Moreover, it is equally imperative that intervention should be focused on both traditional and cyber forms of bullying, as both of these are prevalent in educational institutions. In Pakistan, bystanders are least likely to intervene or report bullying to teachers, though they are considered the strongest link in the bullying chain. It is also helpful to train peers or bystanders to intervene as soon as a bullying incident is observed.

The study findings have assisted the authors in developing a low-cost antibullying program led by teachers. Teachers will receive professional development in addressing bullying in institutions to implement the intervention design based on the outcomes of this study. An important concern is whether a teacher-led intervention can empower students to reduce their negative behavior in the context of poverty and social norms supportive of violence. To ensure the effectiveness of the new intervention design, further research is recommended for the future.

Limitations and directions for future research

Despite its strengths, the study also has certain limitations. Increasing the sample size and including additional educational stakeholders such as administrators, counselors, and

educational institution staff could provide a better insight into the issues. In addition, translated versions of the instruments are recommended, especially for teachers from rural areas where English is not commonly used for academic or communication purposes. A major limitation is the cross-sectional design of the study, which generally does not accurately capture actual measurement invariance scores over time. It is therefore suggested that similar studies be repeated with a longitudinal design, changing the sample size and including data from more institutions in different regions of Pakistan.

Author Contributions

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References

1. Siddiqui S, Saleem MF, Kazmi AB. Drifts of parenting styles and rage among juveniles: A research study of Pakistani families residing in Pakistan and abroad. *The Family Journal*. 2018;1066480718811325. <https://doi.org/10.1177/1066480718811325>
2. Thomas HJ, Connor JP, Scott JG. Integrating traditional bullying and cyberbullying: challenges of definition and measurement in adolescents—A review. *Educational Psychology Review*. 2015; 27(1):135–152. <https://doi.org/10.1007/s10648-014-9261-7>
3. Burger C, Strohmeier D, Spröber N, Bauman S, Rigby K. How teachers respond to school bullying: An examination of self-reported intervention strategy use, moderator effects, and concurrent use of multiple strategies. *Teaching and Teacher Education*. 2015; 51:191–202. <https://doi.org/10.1016/j.tate.2015.07.004>
4. Gladden RM, Vivolo-Kantor, AM, Hamburger ME, Lumpkin CD. Bullying surveillance among youths: Uniform definitions for public health and recommended data elements, version 1.0. 2014.
5. NCAB. National Center Against Bullying. 2021. <https://www.ncab.org.au/bullying-advice/bullying-for-parents/types-of-bullying/>
6. Siddiqui S, Kazmi AB, Siddiqui UN. Internet Addiction as a precursor for cyber and displaced aggression: A survey study on Pakistani youth. *Addicta: The Turkish Journal on Addictions*. 2021; 8(1):73–80. <https://doi.org/10.5152/ADDICTA.2021.20099>
7. Grigg DW. Cyber-aggression: Definition and concept of cyberbullying. *Journal of Psychologists and Counsellors in Schools*. 2010; 20(2):143–56. <https://doi.org/10.1375/ajgc.20.2.143>
8. Englander E, Donnerstein E, Kowalski R, Lin CA, Parti K. Defining cyberbullying. *Pediatrics*. 2017; 140 (Supplement_2):S148–51. <https://doi.org/10.1542/peds.2016-1758U> PMID: 29093051
9. Cook S. Cyberbullying facts and statistics for 2018–2021. 2021. <https://www.comparitech.com/internet-providers/cyberbullying-statistics/>
10. Statista Research Department. Global number of bullying and harassment-Related content taken action on by Facebook from 3rd quarter 2018 to 2nd quarter 2021(in millions). 2021. <https://www.statista.com/statistics/1013569/facebook-bullying-and-harassment-content-removal-quarter/>
11. Delgado P. Cyberbullying On the Rise During the Pandemic. 2020. <https://observatory.tec.mx/edu-news/cyberbullying-on-the-rise>
12. Micklea, Z. Increase in Cyberbullying During COVID-19. 2021. <https://www.mibluesperspectives.com/2020/10/12/increase-in-cyberbullying-during-covid-19/>
13. Malti T, Rubin KH. Aggression in childhood and adolescence: Definition, history, and theory. In: Tina M, Kenneth HR, editors. *Handbook of child and adolescent aggression*. The Guilford Press; 2018. pp. 3–19.

14. Allen JJ, Anderson CA. Aggression and violence: Definitions and distinctions. *The Wiley handbook of violence and aggression*, 2017: 1–14.
15. Gay P. Sigmund Freud. *Time*. 1999; 153(12):66–9.
16. Pinker S. *The better angels of our nature: Why violence has declined*. Penguin Books; 2012.
17. McClelland DC. *Human motivation*. Cambridge, UK: Cambridge University Press; 1987.
18. Dehue F. Cyberbullying research: New perspectives and alternative methodologies. Introduction to the special issue. *Journal of Community & Applied Social Psychology*. 2013; 23(1):1–6. <https://doi.org/10.1002/casp.2139>
19. Slonje R, Smith PK, Frisén A. The nature of cyberbullying, and strategies for prevention. *Computers in Human Behavior*. 2013; 29(1):26–32. <https://doi.org/10.1016/j.chb.2012.05.024>
20. Pastore N. The role of arbitrariness in the frustration-aggression hypothesis. *The Journal of Abnormal and Social Psychology*. 1952; 47(3):728–731. <https://doi.org/10.1037/h0060884> PMID: 12980780
21. Agnew R. Foundation for a general strain theory of crime and delinquency. *Criminology*. 1992; 30(1):47–88. <https://doi.org/10.1111/j.1745-9125.1992.tb01093.x>
22. Burkhart K, Keder RD. Bullying: the role of the clinician in prevention and intervention. In: Michele K. *Clinician's Toolkit for Children's Behavioral Health*: Academic Press; 2020. pp. 143–173.
23. Guo S. A meta-analysis of the predictors of cyberbullying perpetration and victimization. *Psychology in the Schools*. 2016; 53(4):432–453. <https://doi.org/10.1002/pits.21914>
24. Kowalski RM, Giumetti GW, Schroeder AN, Lattanner MR. Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. *Psychological Bulletin*. 2014; 140(4):1073–1137. <https://doi.org/10.1037/a0035618> PMID: 24512111
25. Bandura A, Evans RI, Huberman B. Albert Bandura; 1988.
26. Garandeanu CF, Cillessen AH. From indirect aggression to invisible aggression: A conceptual view on bullying and peer group manipulation. *Aggression and Violent Behavior*. 2006; 11(6):612–625. <https://doi.org/10.1016/j.avb.2005.08.005>
27. Salmivalli C. Bullying and the peer group: A review. *Aggression and violent behavior*. 2010; 15(2): 112–120. <https://doi.org/10.1016/j.avb.2009.08.007>
28. Dodge KA, Crick NR. Social information-processing bases of aggressive behavior in children. *Personality and Social Psychology Bulletin*. 1990; 16(1):8–22.
29. Tedeschi JT, Felson RB. Violence, aggression, and coercive actions. *American Psychological Association*; 1994. <https://doi.org/10.1037/10160-000>
30. Anderson CA, Bushman BJ. Human aggression. *Annual Review of Psychology*. 2002; 53(1):27–51. <https://doi.org/10.1146/annurev.psych.53.100901.135231> PMID: 11752478
31. Ferrer-Cascales R, Albaladejo-Blázquez N, Sánchez-SanSegundo M, Portilla-Tamarit I, Lordan O, Ruiz-Robledillo N. Effectiveness of the TEI program for bullying and cyberbullying reduction and school climate improvement. *International Journal of Environmental Research and Public Health*. 2019; 16(4):580. <https://doi.org/10.3390/ijerph16040580> PMID: 30781543
32. Waasdorp TE, Pas ET, Zablotsky B, Bradshaw CP. Ten-year trends in bullying and related attitudes among 4th-to 12th-graders. *Pediatrics*. 2017; 139(6): e20162615. <https://doi.org/10.1542/peds.2016-2615> PMID: 28562260
33. Moore SE, Norman RE, Suetani S, Thomas HJ, Sly PD, Scott JG. Consequences of bullying victimization in childhood and adolescence: A systematic review and meta-analysis. *World Journal of Psychiatry*. 2017; 7(1):60–76. <https://doi.org/10.5498/wjp.v7.i1.60> PMID: 28401049
34. Naveed S, Waqas A, Shah Z, Ahmad W, Wasim M, Rasheed J, et al. Trends in bullying and emotional and behavioral difficulties among Pakistani schoolchildren: A cross-sectional survey of seven cities. *Frontiers in Psychiatry*. 2020; 10:976. <https://doi.org/10.3389/fpsy.2019.00976> PMID: 32009998
35. Saleem S, Khan NF, Zafar S. Prevalence of cyberbullying victimization among Pakistani Youth. *Technology in Society*. 2021; 65:101577. <https://doi.org/10.1016/j.techsoc.2021.101577>
36. Musharraf S, Anis-ul-Haque M. Cyberbullying in different participant roles: Exploring differences in psychopathology and well-being in university students. *Pakistan Journal of Medical Research*. 2018; 57(1):33–39
37. Mirza M, Azmat S, Malik S. A comparative study of cyber bullying among online and conventional students of higher education institutions in Pakistan. *Journal of Educational Sciences & Research*. 2020; 7(2):87–100.
38. Rafi MS. Cyberbullying in Pakistan: Positioning the aggressor, victim, and bystander. *Pakistan Journal of Psychological Research*. 2019; 34(3):601–620. <https://doi.org/10.2139/ssrn.3827661>

39. Antoniadou N, Kokkinos CM, Markos A. Possible common correlates between bullying and cyber-bullying among adolescents. *Psicologia Educativa*. 2016; 22(1):27–38. <https://doi.org/10.1016/j.pse.2016.01.003>
40. Baldry AC, Farrington DP, Sorrentino A. Cyberbullying in youth: A pattern of disruptive behaviour. *Psicologia Educativa*. 2016; 22(1):19–26. <https://doi.org/10.1016/j.pse.2016.02.001>
41. Magsi H, Agha N, Magsi I. Understanding cyber bullying in Pakistani context: Causes and effects on young female university students in Sindh province. *New Horizons (1992–4399)*. 2017; 11(1):103–110.
42. Naveed S, Waqas A, Aedma KK, Afzaal T, Majeed MH. Association of bullying experiences with depressive symptoms and psychosocial functioning among school going children and adolescents. *BMC Research Notes*. 2019; 12(1):1–4. <https://doi.org/10.1186/s13104-019-4236-x> PMID: 30940177
43. McFarlane J, Karmaliani R, Khuwaja HM, Gulzar S, Somani R, Ali TS, et al. Preventing peer violence against children: Methods and baseline data of a cluster randomized controlled trial in Pakistan. *Global Health: Science and Practice*. 2017; 5(1):115–37. <https://doi.org/10.9745/GHSP-D-16-00215> PMID: 28351880
44. Khawaja S, Khoja A, Motwani K. Abuse among school going adolescents in three major cities of Pakistan: Is it associated with school performances and mood disorders?. *JPMA. The Journal of the Pakistan Medical Association*. 2015; 65(2):142. PMID: 25842547
45. Inamullah HM, Irshadullah M, Shah J. An investigation to the causes and effects of bullying in secondary schools of Khyber Pakhtunkhwa. *The Sindh University Journal of Education-SUJE*. 2016; 45(1):67–86.
46. Asif A. Relationship between Bullying and Behavior Problems (Anxiety, Depression, Stress) among Adolescence: Impact on Academic Performance. Edmond: MedCrave Group LLC. 2016.
47. Murshid NS. Bullying victimization and mental health outcomes of adolescents in Myanmar, Pakistan, and Sri Lanka. *Children and Youth Services Review*. 2017; 76:163–169. <https://doi.org/10.1016/j.childyouth.2017.03.003>
48. Musharraf S, Anis-ul-Haque M. Impact of cyber aggression and cyber victimization on mental health and well-being of Pakistani young adults: The moderating role of gender. *Journal of Aggression, Mal-treatment & Trauma*. 2018; 27(9):942–958. <https://doi.org/10.1080/10926771.2017.1422838>
49. Somani R, Corboz J, Karmaliani R, Chirwa ED, McFarlane J, Khuwaja HM, et al. Peer victimization and experiences of violence at school and at home among school age children with disabilities in Pakistan and Afghanistan. *Global Health Action*. 2021; 14(1):1857084. <https://doi.org/10.1080/16549716.2020.1857084> PMID: 33357165
50. Ullah A, Ashraf M, Ashraf S, Ahmed S. Challenges of online learning during the COVID-19 pandemic encountered by students in Pakistan. *Journal of Pedagogical Sociology and Psychology*. 2021; 3(1):36–44. <https://doi.org/10.33902/JPSP.2021167264>
51. Dollard J, Miller NE, Doob LW, Mowrer OH, Sears RR. Frustration and aggression. 1939.
52. Denson TF, Pedersen WC, Miller N. The displaced aggression questionnaire. *Journal of Personality and Social Psychology*. 2006; 90(6):1032–1051. <https://doi.org/10.1037/0022-3514.90.6.1032> PMID: 16784350
53. Patchin JW, Hinduja S. Traditional and nontraditional bullying among youth: A test of general strain theory. *Youth & Society*. 2011; 43(2):727–751. <https://doi.org/10.1177/0044118X10366951>
54. Husain I. Pakistan: The economy of an elitist state. OUP Catalogue:2000.
55. Arslan M, Zaman R. Unemployment and its determinants: A study of Pakistan economy (1999–2010). *Journal of Economics and Sustainable development*. 2014; 5(13):20–4.
56. Rehman A, Jingdong L, Hussain I. The province-wise literacy rate in Pakistan and its impact on the economy. *Pacific Science Review B: Humanities and Social Sciences*. 2015; 1(3):140–144. <https://doi.org/10.1016/j.psrb.2016.09.001>
57. Singh S, Tanvir Hassan SM, Hassan M, Bharti N. Urbanisation and water insecurity in the Hindu Kush Himalaya: Insights from Bangladesh, India, Nepal and Pakistan. *Water Policy*. 2020; 22(S1):9–32. <https://doi.org/10.2166/wp.2019.215>
58. Khan MA, Akhtar Ali Shah S. Food insecurity in Pakistan: Causes and policy response. *Journal of Agricultural and Environmental Ethics*. 2011; 24(5):493–509. <https://doi.org/10.1007/s10806-010-9274-2>
59. Asad N, Karmaliani R, McFarlane J, Bhamani SS, Somani Y, Chirwa E, et al. The intersection of adolescent depression and peer violence: Baseline results from a randomized controlled trial of 1752 youth in Pakistan. *Child and Adolescent Mental Health*. 2017; 22(4):232–41. <https://doi.org/10.1111/camh.12249> PMID: 32680419
60. Karmaliani R, Mcfarlane J, Somani R, Khuwaja HM, Bhamani SS, Ali TS, et al. Peer violence perpetration and victimization: Prevalence, associated factors and pathways among 1752 sixth grade boys and

- girls in schools in Pakistan. *PLoS One*. 2017; 12(8):e0180833. <https://doi.org/10.1371/journal.pone.0180833> PMID: 28817565
61. Murshid NS. Poor hygiene and bullying victimization in Pakistan. *Children and Youth Services Review*. 2018; 88:197–204. <https://doi.org/10.1016/j.childyouth.2018.03.016>
 62. Malik A, Abdullah NA. Level of aggression among college teachers and students in Pakistan: An analysis. *Pakistan Journal of Social Sciences*. 2017; 37(2):343–53.
 63. Authority PT. Telecom Indicators. 2019. Available from: <https://www.pta.gov.pk/en/telecom-indicators/1>
 64. Stats IL. Internet Users by Country (2016). 2019. <https://www.internetlivestats.com/internet-users-by-country/>
 65. Chaudhari B, Menon P, Saldanha D, Tewari A, Bhattacharya L. Internet addiction and its determinants among medical students. *Industrial Psychiatry Journal*. 2015; 24(2):158–162. <https://doi.org/10.4103/0972-6748.181729> PMID: 27212820
 66. Pakwired. TECHNOLOGY10% of Pakistanis Connected to the Internet; 50% of Those are on Mobiles. 2019. <https://pakwired.com/internet-users-in-pakistan/>
 67. Livingstone S, Haddon L, Görzig A, Ólafsson K. Risks and safety on the internet: the perspective of European children: full findings and policy implications from the EU Kids Online survey of 9–16 year olds and their parents in 25 countries. EU Kids Online, Deliverable D4. EU Kids Online Network, London, UK; 2011.
 68. Campbell M, Spears B, Slee P, Butler D, Kift S. Victims' perceptions of traditional and cyberbullying, and the psychosocial correlates of their victimisation. *Emotional and Behavioural Difficulties*. 2012; 17(3–4):389–401. <https://doi.org/10.1080/13632752.2012.704316>
 69. Christian Elledge L, Williford A, Boulton AJ, DePaolis KJ, Little TD, Salmivalli C. Individual and contextual predictors of cyberbullying: The influence of children's provictim attitudes and teachers' ability to intervene. *Journal of Youth and Adolescence*. 2013; 42(5):698–710. <https://doi.org/10.1007/s10964-013-9920-x> PMID: 23371005
 70. Shakeel Q. Cybercrime reports hit a record high in 2018: FIA. 2018. <https://www.dawn.com/news/1440854>
 71. Karmaliani R, McFarlane J, Khuwaja HM, Somani Y, Bhamani SS, Saeed Ali T, et al. Right To Play's intervention to reduce peer violence among children in public schools in Pakistan: A cluster-randomized controlled trial. *Global Health Action*. 2020; 13(1):1836604. <https://doi.org/10.1080/16549716.2020.1836604> PMID: 33138740
 72. Maryam U, Ijaz, T. Efficacy of a school based intervention plan for victims of bullying. *e—Academia*. 2019;8 (Special Issue GraCe): 206–216.
 73. Roerden LP, Yarrow P, Lazar F. Don't laugh at me: Creating a ridicule-free classroom. New York, NY: Operation Respect. Inc. and Educators for Social Responsibility. 2000.
 74. Hakim F, Shah SA. Investigation of bullying controlling strategies by primary school teachers at district Haripur. *Peshawar Journal of Psychology and Behavioral Sciences (PJPBS)*. 2017; 3(2):165–74. <https://doi.org/10.32879/pjpbs.2017.3.2.165-174>
 75. Jaffar A, Ming X, Anwer M, Ali FA, Ali N. The effects of work pleasure on faculty members job satisfaction in ideal environment: A case study of Gomal University, Dera Ismail Khan, Pakistan. *Journal for Studies in Management and Planning*, 2015; 1(2): 278–292.
 76. Shah SS, Ali N, Anwer M, Jaffar A. Nurturing sustainable teachers' leadership culture: Possibilities, challenges, stakeholders' behavior analysis in the context of Pakistan. *International Journal of Research (IJR)*, 2015; 2(3): 593–600.
 77. Strohmeier D, Hoffmann C, Schiller EM, Stefanek E, Spiel C. ViSC social competence program. *New Directions for Youth Development*. 2012; 2012(133):71–84. <https://doi.org/10.1002/yd.20008> PMID: 22504792
 78. Schultze-Krumbholz A, Scheithauer H. The Berlin Cyberbullying-Cybervictimization Questionnaire (BCyQ). Unpublished questionnaire. Berlin, Germany: Freie Universität Berlin.[Google Scholar]. 2011.
 79. Doğruer N. Bullying Scale Development for Higher Education Students: North Cyprus Case (Doctoral dissertation, Eastern Mediterranean University (EMU)-Doğu Akdeniz Üniversitesi (DAÜ)). 2015.
 80. Xiu Y, Wang Q, Wang T. Exploring motives and types of bullying in young adults: Cases from China. *Asian Education Studies*. 2021; 6(1):1–11. <https://doi.org/10.20849/aes.v6i1.894>
 81. González-Cabrera J, Sánchez-Álvarez N, Calvete E, León-Mejía A, Orue I, Machimbarrena JM. Psychometric properties of the triangulated version of the European Bullying Intervention Project Questionnaire: Prevalence across seven roles. *Psychology in the Schools*. 2020; 57(1):78–90. <https://doi.org/10.1002/pits.22320>

82. Demaray MK, Summers KH, Jenkins LN, Becker LD. Bullying Participant Behaviors Questionnaire (BPBQ): Establishing a reliable and valid measure. *Journal of School Violence*. 2016; 15(2):158–88. <https://doi.org/10.1080/15388220.2014.964801>
83. Cohen L, Manion L, Morrison K. *Research Methods in Education* (5th ed.). London and New York: Routledge, Taylor and Francis Group; 2002.
84. de Winter JC, Dodou DI, Wieringa PA. Exploratory factor analysis with small sample sizes. *Multivariate Behavioral Research*. 2009; 44(2):147–81. <https://doi.org/10.1080/00273170902794206> PMID: 26754265
85. Kaiser HF, Rice J. Little jiffy, mark IV. *Educational and Psychological Measurement*. 1974; 34(1):111–117. <https://doi.org/10.1177/001316447403400115>
86. Leech NL, Barrett K, Morgan G. *SPSS for intermediate statistics; use and interpretation* Lawrence Erlbaum associates. New Jersey London, England: Publishers Mahwah. 2005.
87. Hair JF, Black WC, Babin BJ, Anderson RE, Tatham RL. *Multivariate data analysis* 6th ed. Upper Saddle River: Pearson Prentice Hall; 2006.
88. Bartlett MS. Tests of significance in factor analysis. *British Journal of Mathematical and Statistical Psychology*. 1950; 3(2): 77–85
89. Cronbach LJ. Coefficient alpha and the internal structure of tests. *Psychometrika*. 1951; 16(3):297–334. <https://doi.org/10.1007/BF02310555>
90. Hair JF, Black WC, Babin BJ, Anderson RE. *Confirmatory factor analysis*. *Multivariate Data Analysis*, 7th ed.; Pearson Education, Inc.: Upper Saddle River, NJ, USA. 2010:600–38.
91. Siddiqui S, Arif I, Hinduja P. Technostress: A catalyst to leave the teaching profession-A survey designed to measure technostress among teachers in Pakistan during COVID-19 pandemic. *E-Learning and Digital Media*. 2022:20427530221107506. <https://doi.org/10.1177/20427530221107506>
92. Zych I, Ttöfi MM, Llorent VJ, Farrington DP, Ribeaud D, Eisner MP. A longitudinal study on stability and transitions among bullying roles. *Child Development*. 2020; 91(2):527–545. <https://doi.org/10.1111/cdev.13195> PMID: 30566232
93. Bjereld Y. The challenging process of disclosing bullying victimization: A grounded theory study from the victim's point of view. *Journal of Health Psychology*. 2018; 23(8):1110–1118. <https://doi.org/10.1177/1359105316644973> PMID: 27153857
94. Gordon S. Reasons Why Bystanders Do Not Speak Up. 2019. <https://www.verywellfamily.com/reasons-why-bystanders-remain-silent-460741>
95. Hosseinmardi H, Rafiq RI, Han R, Lv Q, Mishra S. Prediction of cyberbullying incidents in a media-based social network. In 2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) 2016 Aug 18 (pp. 186–192). IEEE.
96. Alotaibi M, Alotaibi B, Razaque A. A multichannel deep learning framework for cyberbullying detection on social media. *Electronics*. 2021; 10(21):2664. <https://doi.org/10.3390/electronics10212664>
97. Silva YN, Rich C, Chon J, Tsosie LM. BullyBlocker: An app to identify cyberbullying in Facebook. In 2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) 2016 Aug 18 (pp. 1401–1405). IEEE.
98. Vaterlaus JM, Winter M. TikTok: An exploratory study of young adults' uses and gratifications. *The Social Science Journal*. 2021:1–20. <https://doi.org/10.1080/03623319.2021.1969882>
99. Aizenkot D, Kashy-Rosenbaum G. Cyberbullying victimization in WhatsApp classmate groups among Israeli elementary, middle, and high school students. *Journal of Interpersonal Violence*. 2021; 36(15–16): 1–22. <https://doi.org/10.1177/0886260519842860> PMID: 31006326
100. Byrne E, Vessey JA, Pfeifer L. Cyberbullying and social media: Information and interventions for school nurses working with victims, students, and families. *The Journal of School Nursing*. 2018; 34(1):38–50. <https://doi.org/10.1177/1059840517740191> PMID: 29103352
101. Kyriacou C, Zuin A. Cyberbullying of teachers by students on YouTube: challenging the image of teacher authority in the digital age. *Research Papers in Education*. 2016; 31(3):255–73. <https://doi.org/10.1080/02671522.2015.1037337>
102. Sheikh MK, Chaudahry N, Ghogare A. Depression in teachers due to cyberbullying who are working in covid-19 pandemic: A cross-sectional study. *International Journal of Current Research and Review*. 2020; 12(20):98–102. <https://doi.org/10.31782/IJCRR.2020.12201>
103. Cotler JL, Fryling M, Rivituso J. Causes of cyberbullying in multi-player online gaming environments: Gamer perceptions. *Journal of Information Systems Applied Research*. 2017; 10(1):4–14.
104. Tayyaba S. Rural-urban gaps in academic achievement, schooling conditions, student, and teachers' characteristics in Pakistan. *International Journal of Educational Management*. 2012; 26(1):6–26. <https://doi.org/10.1108/09513541211194356>

105. Murray E. Web-based interventions for behavior change and self-management: potential, pitfalls, and progress. *Medicine* 2.0. 2012; 1(2):e3, 1–12. <https://doi.org/10.2196/med20.1741> PMID: 25075231
106. Adnan M, Anwar K. Online Learning amid the COVID-19 Pandemic: Students' Perspectives. *Online Submission*. 2020; 2(1):45–51. <https://doi.org/10.33902/JPSP.2020261309>
107. Mukhtar K, Javed K, Arooj M, Sethi A. Advantages, limitations and recommendations for online learning during COVID-19 pandemic era. *Pakistan Journal of Medical Sciences*. 2020; 36(COVID19-S4): S27–S31. <https://doi.org/10.12669/pjms.36.COVID19-S4.2785> PMID: 32582310
108. Tabassum F, Akram N, Moazzam M. Online learning system in higher education institutions in Pakistan: Investigating problems faced by students during the COVID-19 pandemic. *International Journal of Web-Based Learning and Teaching Technologies (IJWLTT)*. 2022; 17(2):1–15. <https://doi.org/10.4018/IJWLTT.20220301.oa1>
109. Amarah A, Daimin G, Norhayatie I, Kadir AZ, Wnidayu T. Cyberbullying campaign review for new implementation and prevention. *International Journal of Advanced Trends in Computer Science and Engineering*. 2020; 9(1.3): 395–40. <https://doi.org/10.30534/ijatcse/2020/6291.32020>
110. Liao AK, Park Y, Gentile DA, Katna DP, Tan CH, Khoo A. iZ HERO adventure: Evaluating the effectiveness of a peer-mentoring and transmedia cyberwellness program for children. *Psychology of Popular Media Culture*. 2017; 6(4):326337. <https://doi.org/10.1037/ppm0000094>
111. Maddison A. *Class structure and economic growth: India and Pakistan since the Moghuls*. Routledge; 2013.
112. Chandra-Mouli V, Plesons M, Hadi S, Baig Q, Lang I. Building support for adolescent sexuality and reproductive health education and responding to resistance in conservative contexts: Cases from Pakistan. *Global Health: Science and Practice*. 2018; 6(1):128–36. <https://doi.org/10.9745/GHSP-D-17-00285> PMID: 29444802
113. Ashraf E. *A Statistical Study of Parents Views about Co-Education (Doctoral dissertation)*. 2019.
114. Perrin RD. Religiosity and honesty: Continuing the search for the consequential dimension. *Review of Religious Research*. 2000; 41(4):534–544. <https://doi.org/10.2307/3512319>
115. Nucci LP, editor. *Moral development and character education: A dialogue*. McCutchan Publishing Corporation; 1989.
116. Ali N Anwer M, Jaffar A. Impact of peer tutoring on learning of students. *Journal for Studies in Management and Planning*. 2015; 1(2): 61–66.