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Comparative Analysis of Aggression Levels among Vulnerable Adolescents: Substance Users versus Non-Users

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ABSTRACT

This study investigates the relationship between substance use and aggression among vulnerable adolescents aged 12–18 years. Participants were assessed using the Drug Abuse Screening Test (DAST-10) and the Buss-Perry Aggression Questionnaire (Short Form), and were categorised as drug users or non-users. The findings revealed that adolescents who used substances demonstrated significantly higher levels of aggression across all dimensions, i.e. physical aggression, verbal aggression, anger, and hostility, compared to non-users. Among substance users, polydrug users showed the highest levels of aggression, particularly in physical aggression and hostility, followed by marijuana and alcohol users. Tobacco users also exhibited moderate but notably higher aggression than their non-using peers. Furthermore, adolescents who were out of school reported higher aggression levels than those attending school. The study highlights a strong association between substance use and increased aggression in adolescents, emphasising the importance of early identification, as well as the implementation of school-based interventions, mental health support, and behavioural therapy programs to reduce associated risks.

INTRODUCTION

Adolescence is a critical period of development, which typically occurs between the ages of 10 and 19 years, and during which adolescents experience a rapid physical, cognitive, emotional, and social change that determines future behaviour and wellbeing. The abilities of abstract thinking, impulse control, and self-regulation develop over time, as young people grow to later stages of adolescence but tend to become more emotional and sensitive to peer and social judgment. A study indicated that the externalizing issues (such as aggression) are strongly related to deficits in cognitive, emotional, and

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behavioural regulation among adolescents within the age range of 10 18 years (White et al., 2013). The role of family dynamics is also strong: the adolescents in nuclear family relational systems are more likely to adopt more maladaptive types of cognitive emotion regulation (such as self-blame or catastrophizing), which are positively associated with greater verbal and physical aggression, than the adolescents in joint family systems.

The relationship between parent child relationships and physical aggression in Pakistani adolescents has been found to approach to near doubling in large school-based surveys, especially in males. The results highlight that adolescence is both a period of opportunity and maturity as well as an extremely vulnerable situation where the protective influences (healthy relationships with family members and positive self-regulation) are weak or absent (Dehne & Riedner, 2001). Aggression is widely described as an action that is aimed at hurting or injuring some other human being who is driven to avoid the hurting. It can be either physical or mental and may be expressed in the form of an action, affection, and/or thought. Buss and Perry (1992) consider aggression as a multi-dimensional trait, which consists of four types associated with each other, assessed using the Aggression Questionnaire (AQ) having Physical Aggression, Verbal Aggression, Anger and Hostility. Physical Aggression is the propensity to physically harm another person (e.g., hitting, pushing); Verbal Aggression is the propensity to harm by using words (threats, insults); Anger is the emotional element and is also referred to as a negative attitude towards other people; Hostility is the cognitive element (e.g., feeling of negativity, suspicion, resentment, etc.) (Buss & Perry, 1992).

In addition to learning, adolescents who use methamphetamines also have cognitive impairments in more broad domains and the cognitive impairment is negatively associated with the length of use and some biological variables (Çakır et al., 2025). The use of substance among young individuals is also associated with a violation in social and cognitive behaviour in a smaller territory. According to a study conducted in Multan, Pakistan, social issues (conflict, tension at home) as well as cognitive challenges among the youth undergoing treatment in rehabilitation centres were associated with adolescent drug abuse (Almas et al., 2022). Likewise, an executive function (e.g., the Wisconsin Card Sorting Test) displayed significantly poorer performance in adolescents with a substance use disorder in comparison to non-user controls in a Middle Eastern sample, which implies that substance abuse is linked to impairment of cognitive flexibility, planning, and decision making (Abdulaal et al., 2023).

Adolescent aggression (as a victim, as perpetrators, or both) in form of bullying and physical fighting is a common problem throughout the world: a meta-analysis of 116 studies of over 600,000 children and adolescents showed that approximately 25% of them had experienced bullying, 16% had perpetrated it, and 16% had been both bullied and bullies, with related psychological problems such as anxiety, depression, and loneliness The other massive survey, involving 83 countries, indicated that 30.5 percent of adolescents aged 12 to 17 years had been a victim of bullying in the past 30 days; the Eastern Mediterranean region reported a higher prevalence (= 45.1) and Europe significantly lower, (= 8.4) (Ariani et al., 2025). The level of aggression by adolescents is also on the increase especially in the vulnerable and drug users. Research shows that the adolescents who use substances have higher levels of aggressive behaviours than their counterparts who do not use them. Indicatively, a survey in Colombia revealed that teens who used numerous drugs experienced much more aggression and victimization than those who used one drug or no drug (Scoppetta et al., 2025). On the same note, a study in Iran has emphasized that aggression predicts the disposition towards addiction in university students implying a reciprocal bond between aggression and substance abuse. Such results highlight the intricate interconnection between aggression, susceptibility, and substance use in adolescents.

Significance of the Study

The study is of great importance to other stakeholders such as psychologists, educators, parents as well as policymakers. The study will help psychologists and other mental health practitioners gain deeper insights into how teenage violence and substance use relate and therefore come up with better therapeutic interventions. The teachers can use the results to discover problematic students and apply the specific behavioural control interventions in schools. Parents will acquire knowledge on the pattern of behaviour related to the use of substances and this will help to identify and prevent early in life. The findings of the study can be used by policymakers to drive the development of evidence-based policies to

curb adolescent aggression and substance abuse to improve the health campaigns of the population. The study is important to this body of knowledge because it addresses a serious gap in the literature, which is the absence of comparative studies of adolescent drug users and non-users in terms of the degree of aggression. The study offers subtle research findings by analysing the disparate effects of substance use on aggression, and this can be used to develop specific intervention programs. Moreover, the investigation of the demographic factor makes the research more comprehensive and contributes to the explanation of how age, gender, and socioeconomic status lead to violent actions in adolescents. Taken together, these contributions provide useful information to improve current practices and policies and make them more sensitive to the intricacy of adolescent behaviour with regard to substance use.

LITERATURE REVIEW

Adolescent aggression can be defined as a type of behaviour which is aimed at harming others, which could be either a physical (e.g., hitting, pushing) or a verbal (e.g., insults, threats) or an emotional (e.g., hostility, anger) aggression. According to research, aggression is grouped into different categories including physical, verbal, anger and hostility. These actions usually manifest themselves based on frustration, provocation or a sense of being threatened and are also determined by the personal temperament and the prevailing environmental circumstances (Anderson & Bushman, 2002). The risk factors exposing adolescents to aggression are family violence or community violence, lack of parental control, peer influence, low socioeconomic status, and mental health problems including conduct disorder or emotional dysregulation (Farrington, 2005; Reijntjes et al., 2010).

It was found that neurodevelopmental factors, environmental and social factors interact in a complex way in terms of adolescent aggression. The neurodevelopmental research shows that the prefrontal cortex and amygdala structural alterations that occur during adolescence are closely associated with aggressive behaviours. The parenting styles are also a very important factor, where authoritative parenting and harsh or neglectful parenting are linked to less and more aggressive tendencies, respectively (Wang, 2019). What is more, the violent contents of media, such as television, video games, and music have been identified to increase aggression and desensitize youth to violence (Anderson & Bushman, 2018). The socioeconomic and family environments (parental discord, the male gender, & peer instigation) have also been found to predict aggressive behaviours among adolescents. Moreover, school bullying has been closely linked to psychological distress and violent consequences in young people and is associated with the high urgency of effective anti-bullying interventions (Wang et al., 2012). Physical activity has been found to have potential in decreasing hostility and aggression against the adolescent. Lastly, studies also indicate the adverse effects of early smartphone usage on the mental state of the individuals, and there are increased levels of aggression and even hallucinating among young teenagers (Fekih-Romdhane et al., 2022).

The fact that adolescents experience an ongoing change in cognitive, emotional, and social abilities makes them developmentally vulnerable. The protective structures like family, school, peer networks, etc. are weak or dysfunctional, resulting in vulnerability (Fergus & Zimmerman, 2005). The social risk factors are exposure to poverty, discrimination or social exclusion. It is also caused by economic stress and unavailability of education or jobs. On the psychological front, traumatized, depressed, anxious, or lack of coping skills make adolescents vulnerable into indulging themselves in vices such as aggression and substance abuse (Ungar, 2011).

Studies about the vulnerability of adolescents point out to the complex association of psychological, social, and environmental factors that predisposes to the poor mental health and substance use. As an example, a longitudinal study that followed more than 4,000 young people discovered that compulsive social media and video game use constitute addictive behaviours that highly predicted the risk of suicidal ideation and emotional issues regardless of total screen time (Thorisdottir et al., 2020). Socioeconomic and family issues are also crucial; one study in Switzerland found that teenagers with family dysfunction, low school achievement and low socioeconomic status were more likely to use cannabis and engage in other risky behaviours (Cascone et al., 2011). Likewise, a massive Chinese study on over 95,000 students demonstrated that the victims of school bullying were much more likely to develop anxiety, depression, and behavioural problems, and the degree of bullying was directly associated with the degree of mental problems (Zhang et al., 2019).

Physical health conditions are also chronic and are also a contributing factor to vulnerability since a prospective cohort study showed that adolescents with chronic pain and comorbid depression or poor sleep quality were more likely to use substances during young adulthood (Rogers et al., 2025). Finally, the COVID-19 pandemic increased the weaknesses in young populations worldwide, and a scoping review found that feelings of anxiety, depression, and behavioural issues among young people were predetermined by social isolation, existing mental health issues, and parental distress. Adolescent substance use involves the use of tobacco, alcohol, cannabis, opioids, inhalants, and other illicit drugs. The drugs and their abuse among young people are dependent on the region, but the tendencies in the world population show that the use of cannabis and misuse of prescription drugs are increasing. The most prevalent factors that are related to adolescent drug use are family dysfunction, academic failure, and mental health issues (Gmel et al., 2011).

An accumulating literature indicates that substance use is strongly linked to aggressive behaviour among the adolescents. Use of drugs may reduce inhibition and augment aggressiveness, thus making aggressive responses easy (White et al., 1999). On the other hand, violent teenagers might resort to drugs as a self-medicinal option or deviant behaviour among peer groups. Comparative research also reveals that adolescent drug users have been found to exhibit much more aggression compared to non-users such as physical and verbal aggression, not to mention hostility. Various researches indicate that there is a close links between aggression and substance use among adolescents. As an illustrative example, longitudinal studies have demonstrated that a child who shows aggressive behaviour at the age of 9 has a high chance of beginning to use cigarettes and marijuana in their mid-teen, and risks have been greater by more than twice in case of cigarette use (Satybaldiyeva et al., 2024). Cohort study data also show that adolescents involved in peer aggression are more likely to become the victims of adverse alcohol consumption and depression during late adolescence, which proves the complexity of interactions between aggressive behaviour, mental health, and substance use.

Research in South Asian setting especially in Pakistan has established that a large number of people start using substances when they are in adolescence stage. The most popular drugs include heroin, cannabis, alcohol, and methamphetamine, or ice (Mansoori et al., 2018). Although several global literatures have incorporated the relationship between adolescent aggression and substance use, there is a gap of extensive research done to understand this relationship in the local context. The available literature on these subjects in Pakistan and South Asia either concentrates on the proportions of teenagers who are taking drugs or a general issue on adolescents' behaviour, with no detailed comparisons of the aggressiveness levels between the users and non-users.

There is little research that compares the level of aggression between vulnerable adolescents who use and do not use drugs and especially those in high-risk communities or marginalized groups in Pakistan. Furthermore, much focus has not been put on the relationship existing between various forms of aggression (e.g., verbal aggression, physical aggression, hostility, anger, etc.) and particular socio-demographic variables and substance use trends. This restriction restricts our knowledge concerning the subtle behavioural and psychological portraits of drug-taking teenagers, and it is hard to create specific prevention and intervention programs. Thus, the research proposed to fill this gap is the investigation of the differences in the levels of aggression among drug-using and non-drug-using vulnerable adolescents in the local environment.

Research Question

- Does substance use predict higher levels of aggression (physical aggression, verbal aggression, anger, and hostility) among adolescents in Pakistan?

Hypothesis

Adolescents who use drugs exhibit significantly higher levels of aggression including physical aggression, verbal aggression, anger, and hostility compared to non-drug-using adolescents.

METHODOLOGY

A quantitative research design was used to understand the rate of aggression in vulnerable adolescents who were drug users and those who were not in underserved communities in Karachi. The data were

gathered with the help of structured questionnaires that were conducted at different places of the people like community centres, parks, and informal settlements. Simple random sampling was used to collect data. The informed consent procedures were in place to approach the participants who were between 12 and 18 years. This design allowed the gathering of standard and measurable data to evaluate the level of aggression, to guarantee focus and representativeness in the sample. This study focused on vulnerable adolescents including both male and female who lived in underserved communities in Karachi. The sample size was 600 people, including 452 males and 148 females. Out of the entire participants, 322 adolescents were found to be drug users and 278 were non-drug users. The participants were chosen by using simple random sampling and various places in the community centres, parks, and informal neighbourhoods. The participants were ranging between 12 and 18 years. Such a diverse and representative sample provided an opportunity to thoroughly analyse the level of aggression among adolescents who use substances and those who do not among marginalized urban communities.

Measures

The questionnaire was accompanied with a consent form to explain to the participants about the nature and the purpose of the study. The participants were also assured that their answers would be subjected to utmost confidentiality and would only be used in the study of academic research. It was also made clear to them that they had the right to quit the study at any time without any justification and no consequences. The explanation of the study was given in easy and age-related terms to make sure that all the participants including the minor participants completely understood the goals and processes. In situations where the participants were below 18 years of age, the informed consent was taken and the written consent of their parents or guardians was taken as well.

Demographics

The demographic form contained simple details concerning the age, sex, academic level, marital status, socioeconomic standing, the place of residence and the status of the drug user or non-user. These variables were measured to gain a better insight into both the personal and social background of the participants and to elaborate potential links with the degree of aggression among the adolescents in disadvantaged communities.

Buss–Perry Aggression Questionnaire

One of the most widely used self-report measures, which attempt to define aggression as a multidimensional construct was the Buss-Perry Aggression Questionnaire (BPAQ) created by Buss and Perry (1992). The questionnaire was divided into 29 items and these items are divided into four different subscales: Physical Aggression, which aided in assessing the tendency of engaging in physical acts of aggression; Verbal Aggression which aids in assessing aggressive verbal behaviour; Anger, which aids in assessing the emotional aspect of aggression including physiological arousal and frustration; and Hostility, which gauges the cognitive aspect of aggression, such as feelings of resentment and suspicion towards others. The respondents are asked to answer every item on a 5-point Likert scale, which goes from "extremely uncharacteristic of me" to "extremely characteristic of me," thus giving the opportunity to measure the aggression levels in a subtle manner. The BPAQ has been tested and has shown great psychometric qualities with high levels of internal consistency with Cronbach alpha values ranging between 0.72-0.89 across the subscales showing reliable measurements. Also, there has been a good test-retest reliability in the scale implying that the aggression scores remain stable over time. Construct validity is enhanced by the fact that it has strong correlations with other related psychological characteristics like impulsivity, irritability and antisocial behaviour. The BPAQ is an effective instrument because it is a multidimensional measure of aggression, therefore, it is particularly applicable to both clinical and non-clinical groups. As a part of this study, BPAQ was used to check the level of aggression among vulnerable adolescents within the context of underserved communities within Karachi, both drug and non-drug users. It is also a perfect instrument in the investigation of the complicated interactions among substance use and aggressive behaviours in this high-risk group due to its well-established reliability and validity and ability to measure various aspects of aggression.

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Drug Abuse Screening Tool

Drug Abuse Screening Test (DAST-10) was first invented by Skinner (1982), as a multi-purpose tool used in screening drug abuse and its effects. The DAST-10 is a scaled down and shortened edition of the original 28-item scale which consists of 10 items intended to give a quick but effective means of screening the intensity of drug use problems. Each item will have a yes or no answer, where yes will be marked as 1 and no will be marked as 0 with a maximum total of 0 to 10. This succinctness makes the DAST-10 complete within a short period of less than eight minutes, which is very convenient in a clinical and research context. The scale was developed to effectively evaluate the results of the treatment as well as to determine the severity of drug use. The interpretation of the scores is well outlined: 0- no evidence of the drug-related problem was identified, 1-2- low level of drug problem that may require attention, 3-5- moderate level of drug problem that may require advanced assessment and intervention, 6-8- severe level of drug problem that may require deep intervention and assessment, and 9-10- extremely severe drug problem that may demand intense treatment and scrutiny.

DAST-10 has proven to have good psychometric qualities in different populations. Research indicates a high level of internal consistency, with Cronbach alpha coefficients usually being 0.74-0.92 indicating a high level of reliability in the measure of drug use severity. Test-retest reliability of the scale is also good with the stability coefficients of about 0.80 indicating that the results remain constant over time. Regarding the validity, DAST-10 has yielded reliable results in distinguishing clinical and non-clinical groups, has been associated with other existing measures of substance use and related issues, and therefore, it demonstrates convergent validity. Also, the DAST-10 has a high predictive validity with regards to identifying people who might need treatment. Because of its conciseness, simplicity of use, and strong psychometric description, the DAST-10 is commonly practiced in other countries as a valid screening measure of the severity of drug use and hence would make it an ideal assessment tool in the current study to determine substance use in a vulnerable group of adolescents.

Procedure

There were 452 males and 148 females from different areas in Karachi who completed the form to meet the requirements of the study. The age of the participants was between 12 and 18 years. After their confirmation that their information would remain confidential and would only be utilized in the research, the participants were clearly served with the purpose of the study. The questionnaires were explained and described to them briefly at the first page and orally. The researcher assisted each participant in interpreting the questions that they had problems with interpreting. Participants took about 15 to 20 minutes to complete the questionnaire.

Ethical Consideration

This research was performed in high regard on the ethical standards to achieve the protection, dignity and rights of all the participants. Ethical approval was sought before collecting data which is to be taken by the departmental ethical review board (ERB) to make sure that the research is conducted following the set out are ethical guidelines. The study involved all the participants but informed consent was taken. As adolescents (12 years old to 18 years old) took part in the research, informed consent was obtained with the adolescents themselves, and written consent was provided by parents or legal guardians. The participants were informed comprehensively on the aim of the research, their right to volunteer in the research, and their right to withdraw anytime without penalty or loss of any benefits. All participants had their confidentiality and anonymity ensured during the research. No personal identifiers were taken, and all the data were well secured and available to the research team only. The survey tools and methods were created in a way that limited the possible psychological distress. The participants were assured that their answers would be kept confidential and that they would be utilized in further academic studies. Proper support and referral information was availed to the participants who could be discomforted or in need of help due to the sensitive nature of the discussed topics such as substance use and aggression. The issues of cultural sensitivity and respect to the communities were paid special attention, and the data collection methods were chosen to be adequate and respectful of the local traditions. All the ethical concerns were put to make sure that the integrity of the research was observed and that the welfare of this vulnerable group was not compromised.

RESULTS & FINDINGS

Table 1

Frequency Distributions for Demographic and Behavioural Variables (N = 600)

Variable	Category	n	%
Age	12-15 years	223	37.16
	16-18 years	377	62.83
Gender	Male	452	75.33
	Female	148	24.66
Education	Pre-Matric to inter	372	62.00
	Out of School	228	38.00
Birth Order	First	81	13.50
	Second	211	35.16
	Third	208	34.66
	Fourth or higher	100	16.66
Parents Alive	Both	512	85.33
	Father only	28	4.66
	Mother only	60	10.00
Family System	Nuclear	376	62.66
	Joint	224	37.33
Monthly Income	PKR 26,000–30,000	256	42.66
	PKR > 30,000	344	57.33

Demographic profile of the respondents shows that most of them (62.83) were aged 16-18 years with males representing 75.33 of the total sample. Educational status showed that 38.00% were not in school indicating that there was a potentially vulnerable population. The second-born children (35.16) were the largest in terms of birth order, then the third (34.66), and then the fourth and above (16.66) respectively. Majority of the respondents (85.33) reported the existence of both parents, with only slightly more than half (62.66) of them having nuclear family structures. In terms of social economic status, 42.66 percent of the respondents claimed having a monthly household income exceeding PKR 30,000.

Table 2

Independent Samples t-Tests Comparing Dimensions of Aggression between Drug Users and Non–Drug Users (N = 600)

Variables	Group	n	M	SD	t (600)	p	95% CI [LL, UL]	Cohen's d
Physical Aggression	Drug Users	322	26.31	6.50	7.11	.001	[3.51, 4.85]	0.71
	Non–Drug Users	278	22.69	6.58				
Verbal Aggression	Drug Users	322	19.70	3.41	7.36	.001	[3.00, 5.00]	0.65
	Non–Drug Users	278	16.32	3.65				
Anger	Drug Users	322	16.12	3.82	7.98	.001	[3.11, 4.50]	0.73
	Non–Drug Users	278	12.82	3.58				
Hostility	Drug Users	322	16.00	3.56	6.22	.001	[3.00, 4.51]	0.68
	Non–Drug Users	278	13.87	4.00				

Note: *Higher scores indicate greater aggression within each dimension. M = mean; SD = standard deviation; CI = confidence interval; LL = lower limit; UL = upper limit.*

The independent samples t-tests were used to compare the aggression differences of drug-using adolescents (n = 322) and non-drug-using adolescents (n = 278) in four dimensions of aggression such as physical aggression, verbal aggression, anger, and hostility. The findings showed that the drug users rated higher on all the dimensions of aggression as opposed to the non-users. In the case of physical aggression, the mean score of the drug users was 26.31 (SD = 6.50) and the non-users had a mean in 22.69 (SD = 6.58). This was statistically significant, t (600) = 7.11, p <.001, [3.51, 4.85] was the confidence interval, and the effect size was large (Cohen d = 0.71). It means that there is a significant tendency of drug-using adolescents towards physically aggressive behaviours. On the same note, in the case of verbal

aggression, drug users scored higher (M = 19.70, SD = 3.41) compared to non-users (M = 16.32, SD = 3.65), t (600) = 7.36, p <. 001, 95% CI [3.00, 5.00], a moderate-large difference in the disposition to use words to communicate a feeling of hostility or conflict. In the anger dimension, drug users once more scored significantly higher (M = 16.12, SD = 3.82) than non-users (M = 12.82, SD = 3.58), t (600) = 7.98, p =.001, 95% CI = 3.11, 4.50 which means that drug using adolescents are more likely to be emotionally aroused and irritated. Finally, there were also higher hostility scores between drug users (M = 16.00, SD = 3.56) and non-drug users (M = 13.87, SD = 4.00), t (600) = 6.22, p < .001, 95% CI [3.00, 4.51], implying that there are more chronic negative attitudes or resentment towards the non-drug users.

Discussion

The purpose of the current study was to investigate the rates of aggression amongst drug using adolescents as opposed to those who are not using drugs. The results have shown that drug adolescents were rated much more aggressive on all dimensions of aggression measured physical, verbal, anger, and hostility- than non-drug adolescents. In particular, there were mean scores of physical aggressions (M = 26.31 vs. 22.69), verbal aggression (M = 19.70 vs. 16.32), anger (M = 16.12 vs. 12.82), and hostility (M = 16.00 vs. 13.87), which proved an evident tendency to aggression among adolescents who were substance-users. Independent samples t-tests did indeed establish that all the differences were statistically significant (p <.001), with moderate to large effect sizes (d = 0.65 -0.73), which meant that not only the differences were statistically significant, but they also showed the presence of meaningful differences in practice between groups. These findings have been in line with other studies that have associated drug use amongst adolescents with increased aggression. Indicatively, McCrystal et al. (2006) observed that the behaviours of adolescents participating in drug use were characterized by more and severe aggressive behaviours such as verbal and physical aggression than the non-participants. Equally, Serafini et al. (2016) identified substance-using adolescents to be more likely to experience emotional dysregulation that is reflected in heightened hostility and anger. These findings, which the current study supports and adds to a group of vulnerable adolescents in Pakistan, indicate that the association between substance use and aggression does not have a cultural or regional specificity.

These results can be explained by means of disinhibition theory and emotional control models. Psychoactive drugs, including alcohol and illicit drugs can alter cognitive control and lower the chances to control impulses, which translate to increased reactive aggression (Maneiro et al., 2017). Emotional dysregulation can also be aggravated by chronic substance-use and make one more vulnerable to anger and hostility when responding to daily stressors (Koşar, 2021). The differences in verbal aggression observed could be because of the social and interpersonal challenges that substance-using adolescents experience such as becoming more conflictual with peers and family members. Physical aggression, in its turn, could reflect more serious behavioural danger, which could result in participation in delinquency or violent interactions. Such findings have both theoretical and practical implications. The high correlation between substance usage and aggression would further prove the need to incorporate behavioural and substance-use interventions in adolescence. The prevention programs of aggression in drug-using adolescents should be aimed at improving emotional intelligence level, anger management, impulse control, and conflict resolution skills. In addition, offensive behaviours which are related to substance use and aggressive behaviours can be moderated by family-based interventions that reinforce supervision and communication, as well as parental support.

The results also emphasize that interventions in Pakistan need to be culturally and socially context-specific and adolescents may respond to the environment and access to substances through cultural and social norms. Because the consequences of aggression may be severe socially and legally, it is important to identify high-risk teenagers at an early stage and provide them with customized preventive measures. Prospective studies are needed to address longitudinal correlations between aggression and substance use to identify cause-and-effect relations as well as to test whether peer influence, stress, and socio-economic factors are mediators. Also, further investigation of gender disparities in aggression between drug-using adolescents may be of finer use in the development of interventions.

CONCLUSION

The study shows that teenage drug use is closely linked with increased aggression in various aspects,

physical aggression, verbal aggression, anger, and hostility. Adolescents who used the drug had elevated levels of aggression than their non-using counterparts with moderate to large effect sizes suggesting the presence of significant behavioural differences. These results present a serious concern about the importance of individualized interventions that would focus on substance use and aggression in vulnerable youth populations. The use of emotional regulation, anger management, and impulse control should be used as preventive measures, and the family and community support mechanism may also mitigate the adverse behavioural consequences of substance use. In general, this paper has highlighted the need to ensure that early identification and culturally sensitive intervention programs are implemented to minimize aggression and ensure a healthier psychosocial development among adolescents.

Recommendations and Limitations

According to the results of the present study, schools, families, and communities are advised to establish specific prevention and intervention measures in order to mitigate the number of adolescents using substances and acting violently. Anger management, emotional regulation, and training on coping skills should be included in such programs in order to tackle physical aggression, verbal aggression, anger, and hostility which were reported to be high among substance-using adolescents. The family should also be involved in it, and supportive parenting, supervision, and open communication are important, and stakeholders can be educated on the dangers of substance use through awareness campaigns in the community and at schools. Youth-based prevention policies, screening programs, and culturally-sensitive policies should also be addressed by policymakers in order to reduce cases of behavioural problems associated with substances. Irrespective of these recommendations, the study is limited in a number of ways. The cross-sectional nature does not allow making causal inferences about the association of substance use and aggression and the use of self-reported measures can lead to social desirability and reporting bias. Also, the sample consisted of a selected area, which indicates that it cannot be generalized to other populations in Pakistan. Other psychological or environmental variables including, but not limited to, peer influence, family environment, or exposure to violence were also not considered in the study which could confound the observed associations. However, the results have important information about the behavioural dangers of teenage substance use and the significance of the all-inclusive, culturally responsive interventions on both substance use and violence.

Competing Interests

The authors declared no competing interests.

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