


The role of parent-to-child maltreatment in the pathway of self-reported depressive symptoms in Pakistani adolescents

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Abstract

Background: Parent-to-child maltreatment has been demonstrated to drastically affect a child's mental well-being and plays a significant role in developing depressive symptoms. However, little is established about the effect of frequency of parent-to-child maltreatment on the development of depressive symptoms among Pakistani adolescents.

Methods: A longitudinal prospective study was conducted, from 2015 to 2017, with 800 adolescents aged 11–17 years old recruited from 32 systematically selected urban and peri-urban areas of Karachi. First, these adolescents were screened for parent-to-child maltreatment in 2015 in a cross-sectional survey. Children with diagnosed psychiatric conditions were excluded from the study. In the second phase, these individuals were followed for 2 years to investigate the symptoms of depressive disorder using a validated tool, “CES-D (Center for Epidemiological Studies) Depression scale.” The Cox proportional algorithm was used to examine the relationship between the frequency of parent-to-child maltreatment and depressive symptoms.

Results: Approximately 11% of frequently, 9% of occasionally parent-to-child, and 7% of negligibly maltreated adolescents reported depressive symptoms over 2 years. The other significant predictors of depressive symptoms were no formal education of the child (RR: 3.15, 95% CI: 1.35–7.34), presence of stressful home environment (RR: 2.19, 95% CI: 1.22–3.94), and having both uneducated parents (RR: 1.70, 95% CI: 0.90–3.21). The frequently maltreated females were found to have 4 times the higher risk compared to rarely maltreated males. In addition, frequently maltreated males were twice likely to develop depressive symptoms.

Conclusion: The results suggested that frequent parent-to-child maltreatment occurring during childhood leads to the development of depressive symptoms later in the adolescence period. Thus, there is a dire need for interventions to raise awareness among the society on the issue of parent-to-child mistreatment to minimize later mental health consequences.

Keywords

adolescents, depressive symptoms, mental health, Pakistan, parent-to-child maltreatment

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Introduction

Childhood maltreatment by parents has been considered a strong factor that results in adverse growth and development outcomes in children and has a detrimental impact on their psychological well-being (Jawaid, 2007; Mandelli et al., 2015). As per WHO, child maltreatment is defined as “physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation, which results in actual or potential harm to the child’s health, survival, development or dignity in the context of a relationship of responsibility, trust or power” (WHO, 2020). One of the most devastating repercussions of parent-to-child mistreatment is depression which is found to be an essential marker of impaired mental health (Nelson et al., 2017) characterized by persistent symptoms of low mood, lack of happiness, decreased energy, fatigue, poor confidence, poor concentration, irregular sleep, and appetite (National Academies of Sciences E and Medicine, 2015).

Parent-to-child maltreatment in childhood and adolescence has accounted for 54% of the risk of developing depressive symptoms (Khan et al., 2015). Moreover, it is anticipated that the occurrence of any kind of child maltreatment doubles the risk of depression among adolescents (Nanni et al., 2012; Nelson et al., 2017). A comprehensive systematic review of literature from 1990 to 2014 pointed out a significant relationship between parent-to-child maltreatment experienced during early childhood and the occurrence of depressive symptoms (Li et al., 2016). Another recent systematic review further revealed that the mean Cohen’s *d* effect size associated with depression across different research studies was found to be 0.93 for psychological parent-to-child maltreatment, 0.81 for physical parent-to-child maltreatment and neglect, suggesting a strong association between psychological and physical maltreatment and neglect with depression (Infurna et al., 2016). However, separate meta-analyses for each kind of parent-to-child maltreatment notified that psychological abuse and mistreatment were most significantly associated with depressive symptoms (Infurna et al., 2016). Another study conducted in Brazil assessed the different kinds of parent-to-child mistreatment and their effect on the occurrence of depressive symptoms. The occurrence of depressive symptoms (6.8%) was found to be significantly greater among females (10.0%) as compared to males (3.3%) (Gallo et al., 2017). Another study reported a risk of depressive symptoms of 28% among males and 26% among females exposed to multiple types of maltreatment (Nguyen et al., 2010). Regionally, a study conducted on 114 adolescents in India indicated that 9.5% of abused adolescents were at risk of major depressive disorder compared to 1.4% of non-abused adolescents (Pandey et al., 2020). Locally, in Pakistan, limited studies have determined the impact of child maltreatment on depressive symptoms in adolescents;

however, the impact on overall mental health has been explored. In a study conducted in Lahore, Pakistan, on 300 adolescents, it was found out that parental psychological abuse was significantly correlated with mental health problems in adolescents (Iram Rizvi & Najam, 2014). Another study conducted in Karachi, Pakistan, suggested that in adolescents with psychiatric problems, child maltreatment is a significant risk factor (Khan et al., 2021a).

Adolescents suffering from depression can experience substantial hindrance in school execution, social networking, and neurobiological defects that worsen the overall well-being of adolescents and put them at greater risk for suicide (Wanklyn et al., 2012). Additionally, depressive symptoms were also noted to be one of the strongest factors of adolescent violence, as well as delinquent peer relations and antisocial personality traits (Ferguson et al., 2009). Furthermore, frequent parent-to-child maltreatment may result in a long-lasting and repetitive pattern that can undertake its roots in intergenerational transmission (Thornberry et al., 2012). Previous research has shown a strong link between parent-to-child mistreatment and the occurrence of depressive symptoms. Victims of parent-to-child mistreatment are more likely to develop negative cognitive processes (i.e., negative feelings, thoughts, and styles or maladaptive perceptions about others), leading to a negative understanding of their trauma that upsurges the risk of depression in upcoming life (Gibb et al., 2007; Wu et al., 2018). This association is also explained by neurobiological evidence regarding changes in brain development related to childhood parent-to-child maltreatment that is chronic or continuous abuse can cause decreased levels of central serotonin. This decreased serotonin availability results in reduced capacity of the nervous system to handle emotional reactions toward any external stress (Wanklyn et al., 2012).

Alarming, 90% of children and youth (0–29 years) reside in lower-middle-income nations, where there is a diminished community-based service for children and lack of mental healthcare facilities than in higher-income nations, resulting in later repercussions of parent-to-child maltreatment (Gallo et al., 2017). Moreover, there has been an increase in the yearly trend of child maltreatment due to family disruption, financial hardships, and impaired psychological health among parents (Shobana & Saravanan, 2014). Similarly, in Pakistani settings, the use of stringent measures by parents to reinforce discipline and obedience is considered a cultural norm (Malik, 2010). Therefore, the frequency of parent-to-child maltreatment keeps on perpetrating in different forms within families and societies, resulting in the co-occurrence of depressive symptoms. In the antecedent study, parent-to-child maltreatment was reported in 43% of the children, of which 57% faced parental neglect, 49% were physically maltreated, and 50% suffered from emotional maltreatment (Lakhdir et al., 2016). Such a high prevalence of

parent-to-child maltreatment necessitates that its repercussions on mental health should be studied so that they can be proactively and timely addressed before they culminate into established clinical mental disorders. Thus, this study aimed to determine the association between depressive symptoms and frequency of parent-to-child maltreatment among adolescents (11–17 years) of Karachi, Pakistan.

Methodology

Study procedure

This prospective longitudinal study measured the relationship between parent-to-child maltreatment and self-reported depressive symptoms over two years from 2015 to 2017 among adolescents living in different peri-urban areas of Karachi. A team of trained psychologists approached houses with child–parent dyads by multistage cluster sampling from 32 different areas. The detail regarding the sampling technique has been explained in the previous paper (Lakhdar et al., 2021). The team of trained psychologists has initially performed child screening; during this process, they determine each child's eligibility. In general, children aged 11–17 years were targeted. In addition, any child who was a permanent resident of Karachi and free from physical, mental, and medical illnesses was included.

Children with at least one alive biological parent were included in the study as the literature suggests that children living with guardians or non-biological parents are more likely to face maltreatment which might lead to over-estimation of exposure. Additionally, such children are likely to have amplified effects on mental health leading to over-estimation of the outcome; hence, they were excluded (Daly & Wilson, 1985). Furthermore, the research psychologist excluded all those children–parents dyads who were unable to communicate in the local language (Urdu) or had other reservations, such as consent refusal or unsure about their residence in the next two years. A total of 800 children, along with their parents, were recruited in 2015 and were assessed for parent-to-child maltreatment. The same cohort was reassessed after two years to evaluate the occurrence of depressive symptoms. During the follow-up stage, a total of 751 children were successfully contacted, while the data from 49 children were lost to follow-up.

Exposure measurement

The primary exposure is parent-to-child maltreatment which is defined as any act of physical, emotional mistreatment, and neglect by parents for the purpose of disciplining their children. We have excluded sexual parent-to-child maltreatment because of socio-cultural sensitivity. All

adolescents aged 11–17 who were eligible were screened for parent-to-child maltreatment in 2015. The frequency of parent-to-child maltreatment was determined using the “ISPCAN Child Abuse Screening Tool for Child (ICAST-C Home).” This tool measures the frequency of various forms of victimization for the last year. The ICAST-C home scale is 38 items scale valid and reliable scale that measures the several types of domestic maltreatment, including physical, sexual, emotional, and psychological in children and adolescents (Zolotor et al., 2009). Thus, we used a modified version of the ICAST-C home scale. The modified version of the ICAST-C home scale consisted of 32 items, and like the original ICAST-C home, has reliability lies over 0.72. The overall score range from 32 to 128. The children were further classified based on the frequency of parent-to-child maltreatment as per their scores obtained from the ICAST-C home scale that is none-to-rare ($n = 479$), occasional ($n = 243$), and frequent parent-to-child maltreatment ($n = 78$). ISPCAN (ICAST-C) has been used in another study conducted on 274 Pakistani students to determine child maltreatment. There was an initial pilot testing done in the mentioned study to affirm the contextual and cultural validity of the tool (Abbas & Jabeen, 2020). Moreover, we also consulted multiple experts to ensure the contextual and cultural validity of the tool.

Outcome measurement

The symptoms of depressive disorder were assessed using the CES-D (Center for Epidemiological Studies) Depression scale. The CES-D depression scale is valid and reliable, having Cronbach alpha is 0.85–0.90 (Radloff, 1991). The CES-D depression scale has 20 items that assess depressive symptoms from the adolescent population experienced within the last 7 days, based on a predefined scoring system. The definite standard cutoff of CES-D for positive depressive symptoms was 16; adolescents score 16 or above were categorized as screened positive for depressive symptoms (Radloff, 1991). CES-D has been translated and validated for the Pakistani population (Salman et al., 2020) and has been used in various studies among Pakistani adolescents (Khan et al., 2021b). Depressive symptoms were just assessed at one point in time. The reference period of assessment of depressive symptoms after assessment of exposure was 2 years in 2017.

Identified confounders

Various a priori confounding variables as indicated by the literature were explored. These confounding variables were classified into three main levels: child level, parental level, and household level. At the child level, age, gender, birth order, number of siblings, education status, height, and weight were measured. At the parent's level, age, education,

marital status, history of domestic violence, substance abuse, and psychiatric illness were considered. However, at the household level, factors such as family size, employment status, income source, religion, and ethnicity were assessed.

Statistical analysis and follow-up sample size

Final analysis of this study was carried on 751 (93.8%) adolescents as 49 participants were lost to follow-up. The reasons for the loss to follow-up, along with the distribution of participants as per the status of primary exposure, are elaborated in Figure 1. Mean and the standard deviation were used for continuous variables, while frequency and percentages were used for categorical variables. The association of all the independent variables, including primary exposure, was assessed using the Cox proportional algorithm. Moreover, the multicollinearity of each categorical and continuous variable was checked using Cramer's and Pearson's coefficient correlation. Finally, multiple Cox regression was performed using cluster standard error for assessing the relationship of frequency of parent-to-child maltreatment with the occurrence of depressive symptoms. All the variables having a p value less than or equal to 0.05 were considered significant. Plausible interaction was also assessed between gender of child and frequency of parent-to-child maltreatment to see the combined effect on the

occurrence of depressive symptoms. All the analysis was performed through STATA software version 15.

Ethical considerations

A unique identifier number was assigned to each participant to ensure anonymity and confidentiality. Ethical approval was taken from the institutional ethics review committee.

Results

Of the 800 children in the original cohort, the proportion of children successfully followed up were 93.8% (751 of 800), of whom 232 (32%) were occasionally maltreated and 73 (10%) as frequently maltreated.

Of the 751 children, 52.8% were males and 47.2% were females. The parents of the sampled children had the following characteristics: 25.57% had a history of psychiatric illness, 32.76% had a history of substance abuse, 5.0% were unemployed, and 56.7% were illiterate or had no level of education. The baseline characteristics of children as per the degree of childhood parent-to-child maltreatment are displayed in Table 1. The mean age of children in this study was 13.13 years which remain the same among all level of exposure. In the none-to-rare, occasional, and frequent child maltreatment group, 38.8%, 53%, and 63% were middle children, respectively. Furthermore, 100 (13.3%) maltreated

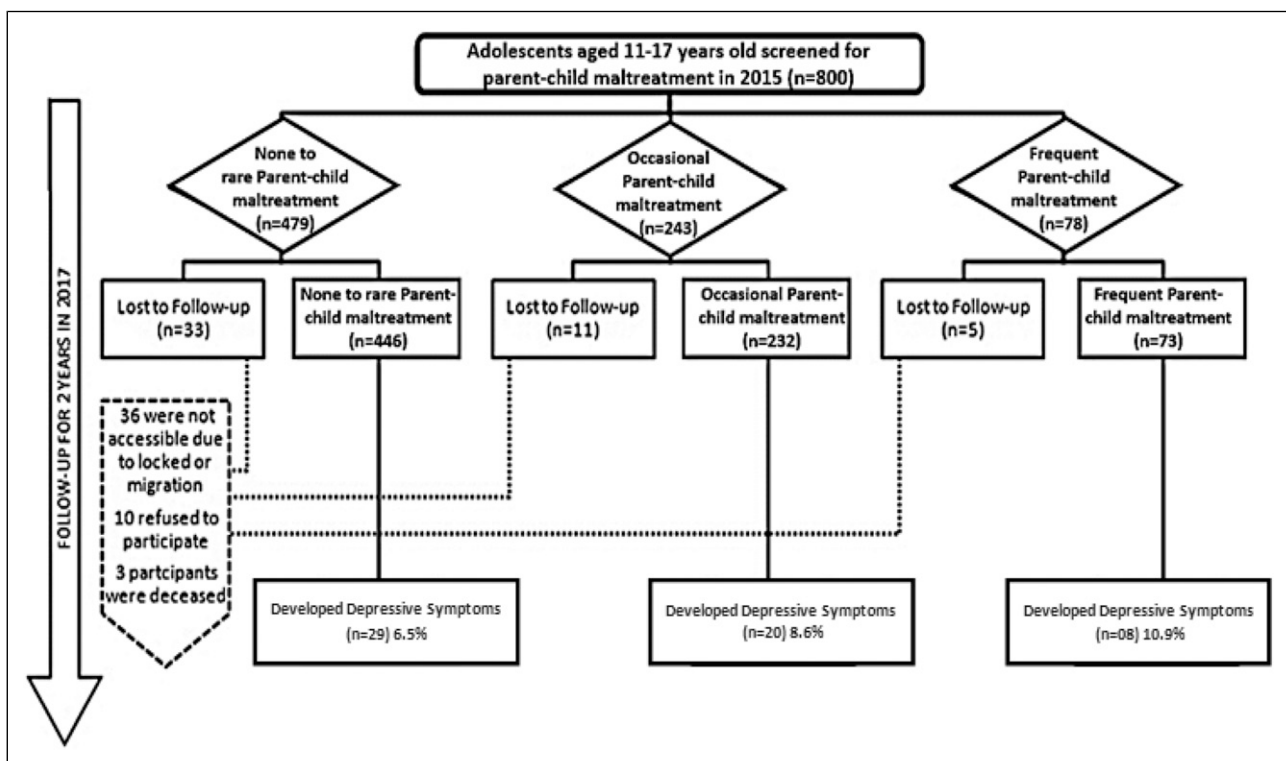


Figure 1. Flowchart of participants in the cohort study.

Table 1. Baseline characteristics of key indicators as per frequency of parent-to-child maltreatment status.

Baseline characteristics	Total, N = 751	None-to-rare parent-to-child maltreatment 446 (59%)	Occasional parent-to-child maltreatment 232 (31%)	Frequent parent-to-child maltreatment 73 (10%)
Age*	13.13 (1.84)*	13.29 (0.09)*	12.90 (0.11)*	12.84 (0.21)*
Gender				
•Male	397 (52.86)	206 (46.19)	144 (62)	47 (64.38)
•Female	354 (47.14)	240 (53.81)	88 (37.93)	26 (35.62)
Family system				
•Extended family system	325 (43.38)	184 (41.26)	111 (47.84)	30 (41.10)
•Nuclear family system	426 (56.72)	262 (58.74)	121 (52.16)	43 (58.90)
Physical abuse within family				
•Yes	117 (15.58)	40 (8.97)	48 (20.69)	29 (39.73)
•No	634 (84.42)	406 (91.03)	184 (79.31)	44 (60.27)
Verbal abuse/quarrel within family				
•Yes	425 (56.59)	206 (46.19)	157 (67.67)	62 (84.93)
•No	326 (43.41)	240 (53.81)	75 (32.33)	11 (15.07)
Bullying and mistreating by siblings				
•Yes	376 (50)	162 (36.32)	152 (65.52)	62 (84.93)
•No	375 (49.93)	284 (63.68)	80 (34.48)	11 (15.07)
BMI (categorical)				
•Overweight/obese	195 (26)	137 (30.72)	44 (18.97)	14 (19.18)
•Normal weight	556 (75.0)	309 (69.3)	188 (81.0)	59 (80.8)
Total family members*	8.74 (4.84)*	8.23 (0.20)*	9.07 (0.32)*	10.78 (0.81)*
Parental use of substance abuse				
•Yes	246 (32.76)	126 (28.75)	88 (37.93)	32 (44)
•No	505 (67.24)	320 (71.75)	144 (62.07)	41 (56.16)
Intergenerational abuse				
•Yes	367 (48.87)	242 (54.26)	94 (40.42)	31 (42.27)
•No	384 (51.13)	204 (45.74)	138 (59.48)	42 (57.53)
History of parental psychiatric illness				
•Yes	192 (25.57)	103 (23.09)	63 (27.16)	26 (35.62)
•No	559 (74.43)	343 (76.91)	169 (72.84)	47 (64.38)
Stressful home environment perceived by parents				
•Yes	287 (38.22)	148 (33.18)	95 (40.95)	44 (60.27)
•No	464 (61.78)	298 (66.82)	137 (59.05)	29 (39.73)
Satisfied with family life				
•No	658 (87.62)	402 (90.13)	200 (86.21)	56 (76.71)
•Yes	93 (12.38)	44 (9.87)	32 (13.79)	17 (23.29)
Familial support				
•No	655 (87.22)	391 (87.67)	203 (87.50)	61 (83.56)
•Yes	96 (12.78)	55 (12.33)	29 (12.50)	12 (16.44)
Birth order				
•First child	246 (32.76)	167 (37.44)	64 (27.59)	15 (20.55)
•Middle child	342 (45.54)	173 (38.79)	123 (53.02)	46 (63)
•Last child	163 (21.70)	106 (23.77)	45 (19.40)	12 (16.44)
Maternal history of domestic violence				
•Yes	244 (32.49)	118 (26.46)	93 (40.09)	33 (45.21)
•No	507 (67.51)	328 (73.54)	159 (59.91)	40 (54.79)
Maternal employment status				
•Housewife	654 (87.32)	381 (85.81)	209 (90.09)	64 (87.67)
•Professional/employed	95 (12.68)	63 (14.19)	23 (9.91)	9 (12.33)
Paternal employment status				

(continued)

Table 1. (continued)

Baseline characteristics	Total, N = 751	None-to-rare parent-to-child maltreatment 446 (59%)	Occasional parent-to-child maltreatment 232 (31%)	Frequent parent-to-child maltreatment 73 (10%)
•Unemployed	35 (5%)	17 (4.16)	12 (5.45)	6 (8.45)
•Employed	665 (95)	392 (95.84)	208 (94.55)	65 (91.55)
Parental education status				
•Both parents are educated	105 (13.98)	51 (11.43)	30 (12.93)	24 (32.88)
•Either parent is educated	220 (29.29)	122 (27.35)	77 (33.19)	21 (28.77)
•Both parents are not educated	426 (56.72)	273 (61.21)	125 (53.88)	28 (38.36)
Child education status				
•No formal education	45 (5.99)	18 (4.04)	15 (6.47)	12 (16.44)
•Formal education	706 (94.21)	428 (95.96)	217 (93.53)	61 (83)
Socioeconomic status (composite wealth index)				
•Low	100 (13.32)	55 (12.33)	31 (13.36)	14 (19.18)
•Middle	542 (72.17)	310 (69.51)	179 (77.16)	53 (72.60)
•High	109 (14.51)	81 (18.16)	22 (9.48)	6 (8.22)

*Indicates mean along with standard deviation.

children belonged to low socioeconomic status, of which 55 were negligibly maltreated, 31 were occasionally maltreated, and 14 had frequently been exposed to parent-to-child mistreatment. Additionally, specific familial characteristics were strongly associated with frequent parent-to-child maltreatment, including belonging to extended family (41%), no familial support (83.5%), presence of physical (39.73%), and verbal (84.93%) abuse between family members, maternal history of domestic violence (45.2) and stressful home environment (60.2%).

Table 2 shows the number of children who reported the occurrence of depressive symptoms according to the frequency of parent-to-child maltreatment exposure. The results indicated that among frequently parent-to-child maltreated children 10.9% reported occurrence of depressive symptoms. Approximately 8.6% of occasionally maltreated children reported depressive symptoms and 6.5% of none-to-rare maltreated children screened positive for depressive symptoms.

Using the multivariable Cox proportional algorithm, the association between depressive symptoms with the frequency of parent-to-child maltreatment and other predictors are given in Table 3. The risk of depressive symptoms was 1.70 times higher among children with both uneducated parents than both educated parents (RR: 1.70, 95% CI: 0.90–3.21). Likewise, children whose parents perceived the home environment as stressful had an approximately two-fold increased risk of developing depression (RR: 2.19, 95% CI: 1.22–3.94). Children with no formal education also had a higher risk of developing depression than children with formal education (RR: 3.15, 95% CI: 1.35–7.34). In the final model, an interaction was found to be significant between a child's gender and

parent-to-child maltreatment, indicating that the female child exposed to frequent parent-to-child maltreatment had a 4.17 times higher risk (95% CI: 1.64–10.59) of developing depressive symptoms. A male child exposed to frequent parent-to-child maltreatment had approximately 2 times the risk (95% CI: 0.74–4.96) of the depressive symptoms compared to a male child with none-to-rare parent-to-child maltreatment. Moreover, a female child with none-to-rare parent-to-child maltreatment had three times higher risk (95% CI: 1.44–6.69) to develop depressive symptoms than a male child with none-to-rare parent-to-child maltreatment (Figure 2).

Discussion

This first prospective longitudinal investigation of the risk of depressive symptoms in parent-to-child maltreated Pakistani adolescents adds to previous knowledge in multiple ways. Current findings suggest that 10.96% of frequently maltreated and 8.6% of occasionally maltreated adolescents developed depressive symptoms. A similar prospective longitudinal study conducted on more than 3000 maltreated Brazilian adolescents reported a 6.8% incidence of depressive symptoms (Gallo et al., 2017). The possible reason for the increase in the risk of depressive symptoms in parent-to-child abused adolescents in our study might be the highly harsh disciplinary measures practiced by parents, various cultural norms and restrictions, and limited socialization. Moreover, interrupted emotional growth due to parent-to-child maltreatment leading to neurobiochemical changes and psychological morbidities might be the biologically plausible explanation for this association (Teicher & Samson, 2013). 6.5% incidence of

Table 2. Incidence of depressive symptoms after 2 years of self-reported parent-to-child maltreatment.

Baseline characteristics	Total, N = 751	None-to-rare parent-to-child maltreatment 446 (59%)	Occasional parent-to-child maltreatment 232 (31%)	Frequent parent-to-child maltreatment 73 (10%)
Depressive symptoms				
Yes	57 (7.59)	29 (6.50)	20 (8.62)	8 (10.96)
No	694 (92.41)	417 (93.50)	212 (91.38)	65 (89.04)

Table 3. Cox proportional algorithm reporting crude and adjusted risk ratio along with 95% confidence interval for covariates associated with depressive symptoms in adolescents in Karachi, Pakistan.

Characteristics	Crude risk ratio (95% CI)	Adjusted risk ratio (95% CI)
Child maltreatment		
•Occasional parent-to-child maltreatment	1.32 (0.71–2.44)	-
•Frequent parent-to-child maltreatment	1.68 (0.96–2.94)	-
Gender—female	2.83 (1.54–5.35)	-
No formal education of child	2.94 (1.24–6.94)	3.15 (1.35–7.34)
Presence of stressful home environment	2.57 (1.45–4.53)	2.19 (1.22–3.94)
Parent education status		
•Either parent educated	1.5 (0.74–3.03)	2.06 (1.05–4.05)
•Both uneducated parents	0.98 (0.46–2.09)	1.70 (0.90–3.21)
Male		
•None-to-rare parent-to-child maltreatment	—	-
•Occasional parent-to-child maltreatment	—	1.21 (0.35–4.16)
•Frequent parent-to-child maltreatment	—	1.92 (0.74–4.96)
Female		
•None-to-rare parent-to-child maltreatment	—	3.10 (1.44–6.69)
•Occasional parent-to-child maltreatment	—	4.57 (1.85–11.24)
•Frequent parent-to-child maltreatment	—	4.17 (1.64–10.59)

depression in none-to-rare maltreated adolescents in Pakistani settings can be explained by multiple factors which can act as stressors, including socioeconomic status, parental conflicts, sibling rivalry, peer pressure, pubertal changes, and parental unemployment (Afzal et al., 2008; Parpio et al., 2012).

The child's educational status was also one of the potential risk factors associated with the incidence of depression. Adolescents who received no formal education had an increased risk of depression. Literature shows an agreement with this finding as a study conducted in India reported that non-school-going adolescents or adolescents who dropped out of school at an early age had higher levels of stress and depressive symptoms (Singh et al., 2015). This association's probable reason might be a lack of interaction and socialization with peers that acts as a stress neutralizer (Singh et al., 2015; Colman et al., 2014). Moreover, lower self-esteem, confidence, coping, and awareness due to inadequate education might also explain this association (Colman et al., 2014). However, literature is conflicted

whether no formal education is a risk factor for depression or depression results in low motivation leading to school dropouts (Quiroga et al., 2013).

In this study, a stressful home environment perceived by parents was another factor influencing depression status in adolescents. Multiple studies evidenced this finding and reported that a stressful home environment due to parental conflicts, domestic violence, and non-intact family is associated with depression in adolescents (Saidah, 2018; Yu et al., 2015). One possible justification of this association might be that adolescents with stressful home environments perceive less support from their family and are unable to communicate or vent out their feelings leading to depressive tendencies (Yu et al., 2015).

Another predictor of depression evidenced in this study was parental education status. Parental illiteracy was associated with an increased risk of depression in adolescents. Ample studies aligned with this finding and reported that having parents, especially mothers with no formal education, is a risk factor for developing depressive symptoms in

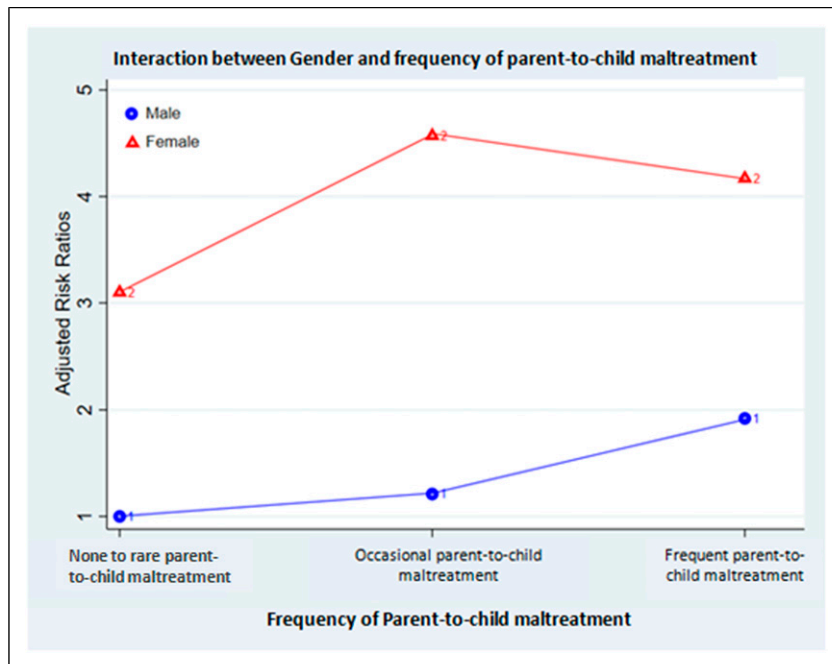


Figure 2. Frequency of parent-to-child maltreatment.

adolescents (Arroyo-Borrell et al., 2017; Wirback et al., 2014). Inadequate parenting skills leading to a lack of communication and a conflicted parent-child relationship might be the plausible explanations of this finding. However, contrasting results were reported in another study that depicted that adolescents with highly educated parents have greater depressive tendencies (Shukla et al., 2019).

Interaction between child's gender and parent-to-child maltreatment was the key finding of this study, suggesting that females with occasional to frequent parent-to-child maltreatment were more vulnerable to developing depressive symptoms. Multiple studies were in cohesion with this finding, suggesting that females who underwent any form of abuse were four times more likely to develop depressive symptoms (Gallo et al., 2017; Gerke et al., 2018). A plausible explanation of this association might be that cultural norms restrict females to be socially less active and more homebound. As a result, they are more exposed to parent-to-child maltreatment, ultimately leading to the development of depressive symptoms. Moreover, it is also speculated that females react differently to stressful situations than males. Females are more likely to develop internalizing symptoms to traumas, including symptoms of depression and anxiety. In contrast, males are more likely to externalize their reactions to stress in the form of aggression (Gallo et al., 2017).

This study has multiple strengths, a large sample size with negligible loss to follow-up to ensure rigor and adequate study power. The prospective longitudinal design of this study also warrants the establishment of

temporality. Furthermore, multicenter data collection catering to diverse populations allows generalizability/external validity of the study. A few of the major limitations of this study include the subjectivity of the outcome variable and the lack of concrete definitions of certain variables that were conceptualized based on operational definitions. In addition, depressive symptoms were screened just once; hence, there might be under-reporting of depressive symptoms. Therefore, we recommend a time trend analysis for further exploration of the relationship between parent-to-child maltreatment and depression. Moreover, there was no uniform procedure of identification of covariates for the final multivariable model.

Implications

The current study demonstrates that maltreatment is linked with depressive symptoms. Uneducated females and adolescents having a stressful home environment are more prone to depressive symptoms. Therefore, there is a dire need for the government to make education compulsory for children to build resilience, coping mechanisms for stressful situations, and develop social support that buffers against long-term consequences of maltreatment. Furthermore, policies should be curated against parents who are involved in maltreatment practices. Positive parenting training and stress management techniques to prevent child maltreatment and its consequences are also necessary to stop such vicious practices.

Conclusion

This study found that maltreated female adolescents are at an increased risk of developing symptoms of depression. Therefore, gender-specific therapies, along with parental counseling and interventions, should be considered to prevent psychological morbidities. Moreover, awareness should be imparted to parents about how to discipline their children without resorting to harsh disciplinary measures. Policies should also be curated to discourage parent-to-child maltreatment as it has detrimental long-term consequences. Parents and siblings should also be counseled so that a healthy and conducive home environment can be established as a stressful home environment was one of the significant predictors of depressive symptoms. Customized awareness programs should also be curated for uneducated parents to easily understand the repercussions of parent-to-child maltreatment. Last, psychologists should also be enlightened about child maltreatment as a strong risk factor for depressive symptoms as it might aid them in providing the appropriate treatment.

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Author contributions

Conception or design of the work: MPL, NA, AK; data collection: MPL, AA, SF; data analysis and interpretation: MPL, GP, NA; drafting the article: GP, NA, SF, AK; table formulation: GP, MA, figures and illustration: GP; critical revision of the article: AA, SIA; final approval of the version to be published: MPL, GP, AA, SF, NA, SIA, AK. All authors read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests. The authors report no conflict of interest.

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Ethics approval and consent to participate

Ethical approval was taken from The Aga Khan University Ethical Review Committee (4816-CHS-ERC-17). All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional committee.

Informed consent

Before data collection, the parents of all adolescents wishing to participate were asked to sign a written form of consent for their children to be included. The children of non-consenting parents did not participate in data collection. Informed assent was also obtained from all individual participants under age of 18 years included in the study.

Consent for publication

The authors consent for publication of this paper. All authors have read and approved the final manuscript. This manuscript has not been published and is not under consideration for publication elsewhere.

Availability of data and materials

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to information that could compromise the privacy of research participants.

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