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RESEARCH

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The mediating effect of social support and body appreciation between child abuse and disordered eating symptoms among Lebanese adolescents

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Abstract

Objective The current study examines the mediating effect of social support and body appreciation between child abuse and disordered eating symptoms among Lebanese adolescents.

Methods This study, involving 403 participants, was cross-sectional and conducted between August and September 2022. Lebanese adolescents from all of Lebanon's governorates were recruited through the "Snowball Sampling" method. The measuring instruments composing the questionnaire included the Eating Attitudes Test (EAT-7) which identifies the presence of risk for eating disorders based on eating-related attitudes, behaviors and feelings; the "Multidimensional Scale of Perceived Social Support (MSPSS)" which measures, from three separate sources, the extent of one's perception of social support; the "Body Appreciation Scale (BAS)" which assesses the care and respect one has for their own body, along with the acceptance and protection of one's body from unrealistic beauty ideals; and the "Child Abuse Self-Report Scale (CASRS-12)" which detects lifelong child abuse.

Results Participants' mean age was 16.63 ± 1.46 years with 57.3% of females. The results highlight the effect of mediation of social support and body appreciation in the association between all types of child abuse and disordered eating symptoms. Additionally, a significant association was indicated between more abuse and lower social support and body appreciation, whereas another was underscored between higher social support and body appreciation and more appropriate eating attitudes. Lastly, all types of child abuse were observed to be notably associated with further inappropriate eating attitudes.

Conclusion The current mediation findings preliminarily indicate that experiences of all forms of child abuse may have possibly triggered perceived lack of social support and low levels of body appreciation, which have in turn resulted in more severe disordered eating symptoms in predisposed adolescents. This cautiously suggests that both social support and body appreciation may be regarded as key targets for community-based prevention and intervention strategies aiming at reducing the risk of developing severe eating disorders in adolescents.

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Keywords Child abuse, Disordered eating symptoms, Social support, Body appreciation, Lebanese

Introduction

Eating disorders (EDs) refer to unhealthy relationship with food and body weight/shape, which interferes with physical-mental health and psychosocial functioning. EDs tend to develop during adolescence [1, 2], with 16% of individuals aged 14–20 years who present at the emergency department being positive screeners for an ED [3]. EDs symptoms, even at subclinical levels, are associated with severe, long-lasting detrimental consequences, including electrolytes disturbances, cardiovascular diseases, endocrine system dysfunction, anemia [4], obesity, substance use problems, depressive symptoms [5, 6], high suicidality [7], and high mortality rates [8]. EDs are also associated with increased hospital admission rates and duration, particularly in children and adolescents [9],and continue to often be undertreated. The high prevalence of EDs and their potential adverse health outcomes in this key developmental period makes them a public health concern. As such, understanding underlying factors that influence EDs is strongly needed for effective prevention and treatment. Although the etiology of EDs remains largely unclear [10], it seems to be multifactorial [11]; with genetic psychological, and environmental risk factors being involved in the development, persistence and change of the disease [12]. One of the environmental risk factors that has attracted extensive research attention is childhood trauma (CT).

The relationship between CT and EDs among adolescents

There is a growing evidence suggesting that CT represents a major contributing factor to EDs behaviors [13, 14]. Findings from longitudinal studies indicated that exposure to CT leads to increased risk of disordered eating (e.g., [15]). A meta-analysis by Caslini et al. [13] showed that individuals with a history of CT had more than three-fold odds of reporting an ED than those with no history of maltreatment. Another meta-analysis by Molendjik et al. [14] demonstrated that individuals with EDs have experienced CT twice to four times more frequently, and more severely compared to healthy controls. Individuals with EDs who have been exposed to CT were found to experience an early onset and severe pathology of the disease, poor treatment outcomes, as well as high dropout rates [14, 16–19]. This implies that the treatments available and recommended for individuals with EDs (e.g., [20]) may be less suitable for treating the complex clinical presentations of EDs combined with CT. There is therefore an urgent need to investigate and clarify the mechanisms underpinning this relationship to help inform tailored and effective preventive measures and treatment strategies [21]. One way through which researchers tried to elucidate why some maltreated adolescents develop EDs while others do not was to consider the possible mediating role of various factors in the relationship between CT experiences and EDs [22]. This approach was highly recommended as CT has been found to explain only partly EDs [22]. Some of the previously examined factors include neurobiological and psychological (e.g., dissociative experience, emotion dysregulation, impulsivity, anger) factors [23]. The present study focuses on the possible mediating effects of two factors, body appreciation and social support.

Body appreciation and social support as mediators

Body appreciation is characterized by positively perceiving, accepting and respecting one's body and bodily needs; regardless of body weight, shape, size, or other appearance-related attributes [24]. There is some evidence to support that greater body appreciation is linked to lower levels of disordered eating (e.g., [24]). Following the identity disruption model, CT which occurs in a sensitive developmental period disturbs normal identity development, thus leading to increased vulnerability to social pressures (e.g., beauty ideals and body-related social comparisons) and a heightened risk for body image disturbances [25]. In this line, patients with EDs reported body image disturbances following CT (e.g., [26]). There is also sufficient evidence that childhood maltreatment is associated with body disturbances in non-clinical populations (for review, see [27]). On the other hand, distorted body image and body dissatisfaction are regarded as significant risk factors for developing disordered eating symptoms, especially in adolescents [28]; and have thus been considered serious public health problems in this population [29]. Prospective findings highlighted that body dissatisfaction and disordered eating behaviors showed remaining significant associations during the six years follow-up period, which suggested body dissatisfaction as "the primary factor" associated with the development of EDs [30]. Due to its demonstrated link with both CT and EDs, body dissatisfaction has also been examined and confirmed as a mediating factor between CT and EDs in community adult women [31].

As for perceived social support, an extensive literature documented its determinant role as a psychosocial factor between exposure to CT and various mental health outcomes (e.g., [32–34]). Establishing active social networks

that are reliable and stable plays a major role for youth normal development [35], and is closely and directly associated with people's physical and mental health [36]; whereas perceiving poor social support from close networks predisposes to the development of diseases. For example, an integrative review of the literature provided evidence that individuals with EDs reported dysfunctional relationship patterns [37]. In maltreated individuals, social support has been demonstrated as a significant mediator explaining some effects of CT on mental health outcomes (e.g., [38–40]). In this regard, a prospective cohort study by Sperry and Widom [21] revealed that individuals with a history of CT reported lower levels of perceived social support in adulthood compared to those who were non-maltreated; and that social support mediated the association between CT and adulthood anxiety/depression. Social support is proposed to act as a buffer against negative early experiences (see [41] for a review), and help victimized young people develop abilities to cope with these stresses; thus protecting them from stress-induced pathology [42].

The present study

Through this study, we sought to bridge some research gaps and contribute to the available body of knowledge in this field in several ways. First, the vast majority of studies on the relationship CT-EDs have been performed in clinical samples [13], which limits the generalization of findings to the large group of people with EDs who do not seek care [12]. Second, there is a dearth of literature on the association of CT with EDs in the adolescent population [43]. This could substantially limit our ability to address the needs of individuals affected at this particular life stage. Third, while there is evidence that EDs are experienced by males and females [3], only a very limited research has included men [13]. Fourth, despite evidence that most victims of childhood maltreatment are often exposed to more than one type of abuse [44], the largest amount of research on CT and EDs has specifically focused on physical or sexual abuse, and scarce data is available on emotional abuse [45]. According to Caslini et al. [13], physical and emotional neglect may have patterns of correlations with EDs that are widely different from those of physical abuse. Finally, although it has been increasingly proven that CT [46] and EDs [47, 48] affect people who live in both developed and developing countries, only sparse studies have focused on the association between these constructs in non-Western, lower-to-middle income countries. It is thus unclear whether previous findings emerging from the Western world are applicable to the Arab unique sociocultural context. To address these identified limitations, we aimed to examine the direct and indirect effects of CT in its four dimensions (Psychological abuse, Neglect, Physical abuse, Sexual abuse) on disordered eating symptoms through body appreciation and social support using a community-based sample of Lebanese male and female adolescents.

Methods

Study design

This study was cross-sectional and undertaken between August and September of 2022, and involved a population of adolescents ages 15 to 18, currently residing within the governorates of Lebanon (Beirut, North, South, Mount Lebanon, and Bekaa). The "Snowball Sampling" method was utilized to assemble the sample. Individuals who did not wish to participate along with those who do not fit into the adolescent age category were excluded from this research project. Before taking part, individuals were provided with online instructions on the study's primary objectives and aims, as well as its questionnaire completion process. No credits were granted upon participation [49].

Participants

403 adolescents in total constituted the study's sample, with a mean age of 16.63 ± 1.46 years, out of which 57.3% were females. Table 1 provides additional characteristics.

Minimal sample size calculation

Based on the formula suggested by Fritz and MacKinnon [50] for sample size estimation, a minimal sample of 125 participants was considered essential:

"$n = \frac{L}{f^2} + k + 1$", where L = 7.85 for an α error of 5% and power β = 80%, f = 0.26 for an effect size of small to medium, and k = 8 variables to include into the model.

Table 1 Sociodemographic and other characteristics of the participants (*N* = 403)

Variable	N (%)
Sex	
Male	172 (42.7%)
Female	231 (57.3%)
	Mean ± SD
Age (in years)	16.63 ± 1.46
Household crowding index (persons/room)	1.15 ± 0.56
Body Mass Index (kg/m^2)	22.14 ± 4.14
Body appreciation	36.77 ± 10.31
Disordered eating symptoms	4.52 ± 5.43
Psychological abuse	1.54 ± 2.16
Neglect	3.79 ± 2.94
Physical abuse	1.39 ± 2.19
Sexual abuse	1.35 ± 2.21
Social support	57.14 ± 19.77

Questionnaire

A questionnaire developed in Arabic was shared via social media networks as a Google Forms link (a digital method developed to carry on with the data collection) and required 7 to 10 min to be filled. Its first part contained items on the participants' sociodemographic information, including gender, age, governorate of residence, present self-report height and weight. Consequently, the calculation of "Body Mass Index (BMI)" as per the "World Health Organization (WHO)" followed [51]. The household crowding index, indicating the family's socioeconomic status, determined by the ratio of individuals residing in the house over the number of available rooms, barring the bathrooms and kitchen, was also reckoned [52].

The following scales constituted the second part of the questionnaire:

"Eating Attitudes Test (EAT-7"). The EAT-7, which Arabic version is validated [53], was utilized to denote the presence of "eating disorder risk" derived from attitudes, behaviors and feelings tied to eating. This scale composed of 7 items assesses concerns and symptoms characteristic of Eating Disorder. Items are to be rated on a 6-point scale that ranges from 1 ("*never*") to 6 ("*always*"). Greater total scores indicate a higher degree of disordered EA. (Cronbach's alpha = 0.90).

"Multidimensional Scale of Perceived Social Support (MSPSS"). The MSPSS is composed of twelve items on social support divided into three of its major sources [54]: friends, family and others. The items of this used version of the MSPSS were to be rated on a Likert scale of 5 points that range from 0 ("*strongly disagree*") to 5 ("*strongly agree*"). More important scores reflect greater social support. This scale's Arabic translation, already validated in Lebanon [55], was included in this study's questionnaire. (Cronbach's alpha = 0.98).

"Body Appreciation Scale (BAS)". Validated in Arabic [56, 57], the BAS, employed in the current study to assess one of its mediating variable; body appreciation, is a measuring tool that gauges the care and respect for one's body, and the acceptance along with one's body protection from unattainable beauty ideals [58]. 10 items are to be rated on a 5-point scale ranging from "*never*" to "*always*". Greater scores reveal increased body appreciation (Cronbach's alpha = 0.97).

"Child Abuse Self-Report Scale (CASRS-12)". The use of this psychometric measure allowed for the detection of lifelong child abuse. This brief form, validated in Lebanon [59] and derived from the Arabic 38-item CASRS [60, 61], consists of 12 items that encompass four categories of abuse: psychological abuse, neglect, physical abuse and sexual abuse. Every item is graded on a 4-point scale Likert-type from 0 ("*never*") to 3 ("*always*"). In all subscales, greater scores imply an increased level of CA, noting that the neglect subscale scores reversely. Following are the Cronbach's alpha values: psychological abuse (0.88), neglect (0.86), physical abuse (0.91) and sexual abuse (0.93).

Statistical analysis

The statistical analysis was executed using the IBM SPSS software v.25. The distribution of eating attitudes score was deemed normal as its kurtosis and skewness values varied between ± 1.96. To make the comparison of two means, the Student t test was used, whereas the Pearson test correlated two continuous variables. To conduct the mediation analysis between each abuse score (considered as an independent variable), body appreciation and social support taken as mediators, and eating attitudes as the dependent variable, the PROCESS Macro v.3.4, Model 4 was employed. A mediation was deemed noteworthy if the bootstrap confidence interval did not contain the value 0. $P < 0.05$ was considered significant in all cases.

Results

In total, 403 adolescents took part in this study; with a mean age of 16.63 ± 1.46 years, and 57.3% of females. A summary of further characteristics is included in Table 1.

Bivariate analysis

Table 2 contains a summary of the bivariate analysis' findings. Higher body mass index, more neglect, physical, sexual and psychological abuse were notably associated with greater EAT, whereas increased social support and body appreciation were notably associated with lesser EAT. No notable distinction was observed in terms of EAT between males and females (4.97 ± 5.67 vs 4.18 ± 5.24; $p = 0.145$; Cohen's d = 0.145).

Mediation analysis

The mediation analyses' results were adjusted over sex, age, and BMI. Body appreciation and social support mediated the association between all types of child abuse and disordered eating symptoms (Table 3). Higher psychological abuse (Beta = -3.73) was significantly associated with lower social support. Higher social support (Beta = -0.10) was significantly associated with less EAT scores (greater disordered eating symptoms). Higher psychological abuse (Beta = 0.45) was associated with higher EAT scores (greater disordered eating symptoms) (Fig. 1).

Table 2 Correlation of continuous variables with EAT

	EAT	Age	Body Mass Index	Household crowding index	Psychological abuse	Neglect	Physical abuse	Sexual abuse	Social support
EAT	1								
Age	.07	1							
Body Mass Index	.17**	.20***	1						
Household crowding index	-.02	.04	-.08	1					
Psychological abuse	.33***	-.04	.06	-.02	1				
Neglect	.14**	-.02	-.01	.11*	.12*	1			
Physical abuse	.35***	-.03	.10	-.03	.76***	.11*	1		
Sexual abuse	.31***	-.01	.13**	-.07	.74***	.10*	.88***	1	
Social support	-.43***	-.07	-.10*	-.07	-.42***	-.29***	-.40***	-.40***	1
Body appreciation	-.42***	-.04	-.19***	.01	-.40***	-.22***	-.41***	-.41***	.43***

EAT Eating Attitude Test

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 3 Mediation analysis

	Direct effect			Indirect effect		
	Beta	SE (B)	*p*	Beta	SE (B)	BCa CI
Model 1: Social support as the mediator						
Psychological abuse	.45	.12	< .001	.36	.08	.22; .52[a]
Neglect	.04	.09	.610	.21	.05	.12; .32[a]
Physical abuse	.53	.12	< .001	.32	.07	.20; .47[a]
Sexual abuse	.39	.12	.001	.34	.07	.22; .48[a]
Model 2: Body appreciation as the mediator						
Psychological abuse	.49	.12	< .001	.32	.07	.19; .46[a]
Neglect	.10	.09	.246	.16	.05	.07; .25[a]
Physical abuse	.55	.12	< .001	.30	.07	.17; .45[a]
Sexual abuse	.41	.12	< .001	.32	.07	.19; .46[a]

[a] indicates significant mediation. Direct effect refers to the direct association from the independent variable (child abuse) to the dependent variable (disordered eating symptoms) without the effect of the mediator (social support/ body appreciation). Indirect effect refers to the same association through the effect of the mediator (social support/ body appreciation)

Higher neglect (Beta = -1.85) was significantly associated with lower social support. Higher social support (Beta = -0.11) was significantly associated with less EAT scores. Neglect was not significantly associated with EAT scores (Fig. 2).

Higher physical abuse (Beta = -3.46) was significantly associated with lower social support. Higher social support (Beta = -0.09) was significantly associated with less EAT scores. Higher physical abuse (Beta = 0.53) was associated with higher EAT scores (Fig. 3).

Higher sexual abuse (Beta = -3.42) was significantly associated with lower social support. Higher social support (Beta = -0.10) was significantly associated with less EAT scores. Higher sexual abuse (Beta = 0.39) was associated with higher EAT scores (Fig. 4).

Higher psychological abuse (Beta = -1.84) was significantly associated with lower body appreciation. Higher body appreciation (Beta = -0.17) was significantly associated with less EAT scores. Higher psychological abuse (Beta = 0.49) was associated with higher EAT scores (Fig. 5).

Higher neglect (Beta = -0.75) was significantly associated with lower body appreciation. Higher body appreciation (Beta = -0.21) was significantly associated with less EAT scores. Neglect was associated with EAT scores (Fig. 6).

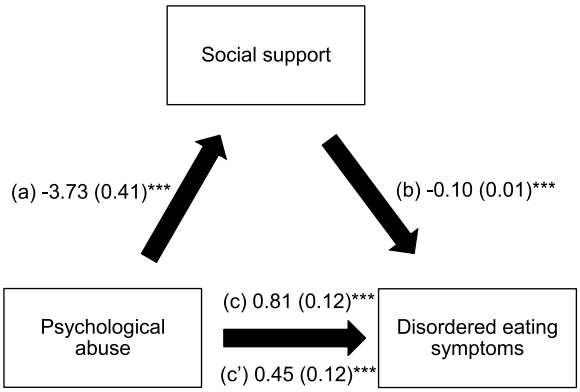

Fig. 1 (a) Relation between psychological abuse and social support (R^2 = .200); (b) Relation between social support and disordered eating symptoms (R^2 = .228); (c') Direct effect of psychological abuse on disordered eating symptoms; (c) Total effect of psychological abuse on disordered eating symptoms ($R.^2$ = .131). Regression coefficients (standard error) are illustrated as the displayed numeric values. ***$p < 0.001$

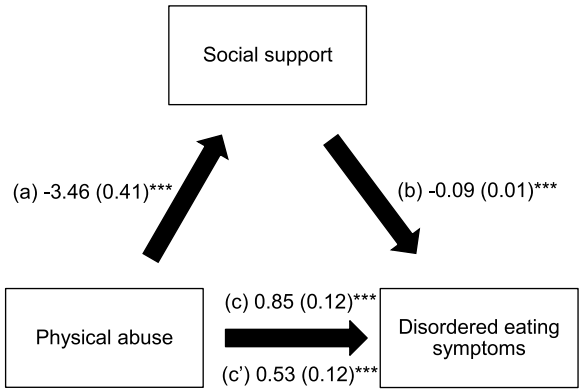

Fig. 3 (a) Relation between physical abuse and social support (R^2 = .180); (b) Relation between social support and disordered eating symptoms (R^2 = .240); (c') Direct effect of physical abuse on disordered eating symptoms; (c) Total effect of physical abuse on disordered eating symptoms ($R.^2$ = .145). Regression coefficients (standard error) are illustrated as the displayed numeric values. ***$p < 0.001$

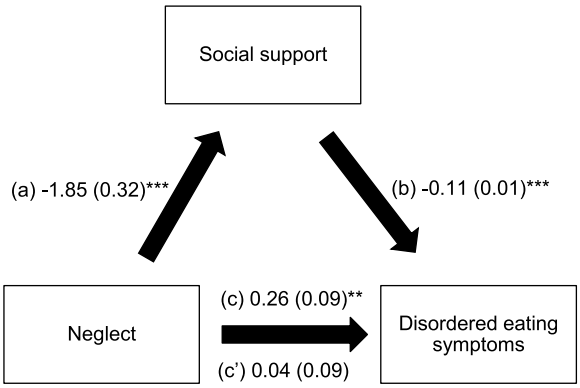

Fig. 2 (a) Relation between neglect and social support (R^2 = .110); (b) Relation between social support and disordered eating symptoms (R^2 = .203); (c') Direct effect of neglect on disordered eating symptoms; (c) Total effect of neglect on disordered eating symptoms ($R.^2$ = .048). Regression coefficients (standard error) are illustrated as the displayed numeric values. ***$p < 0.001$ **$p < 0.01$

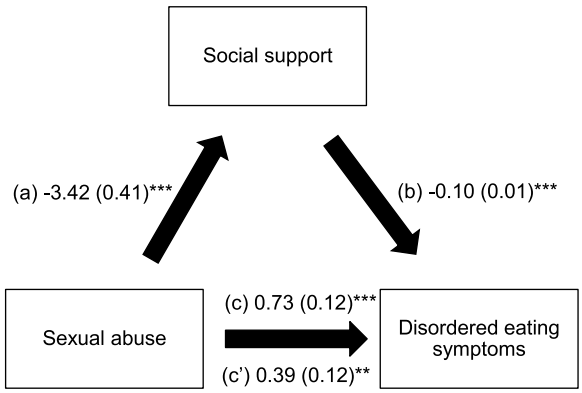

Fig. 4 (a) Relation between sexual abuse and social support (R^2 = .179); (b) Relation between social support and disordered eating symptoms (R^2 = .223); (c') Direct effect of sexual abuse on disordered eating symptoms; (c) Total effect of sexual abuse on disordered eating symptoms ($R.^2$ = .115). Regression coefficients (standard error) are illustrated as the displayed numeric values. ***$p < 0.001$; **$p < 0.01$

Higher physical abuse (Beta = -1.82) was significantly associated with lower body appreciation. Higher body appreciation (Beta = -0.17) was significantly associated with less EAT scores. Higher physical abuse (Beta = 0.55) was associated with higher EAT scores (Fig. 7).

Higher sexual abuse (Beta = -1.77) was significantly associated with lower body appreciation. Higher body appreciation (Beta = -0.18) was significantly associated with less EAT scores. Higher physical abuse (Beta = 0.41) was associated with higher EAT scores (Fig. 8).

Discussion

Yet, our knowledge of the mechanisms underlying EDs is still largely deficient. We sought to add to the body of research on this topic by examining the mediators that link CT to EDs in the under-researched population of adolescents from an Arab, Middle East country, Lebanon. Findings showed that participants who had experienced more severe CT, and reported lower social support and less body appreciation, were significantly more likely to report more severe disordered eating symptoms. More particularly, the current results indicate that adolescents with lower levels of body appreciation and those reporting poorer perceived social support from family, friends

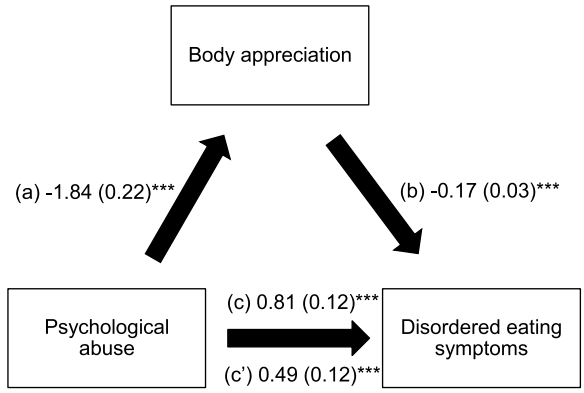

Fig. 5 (a) Relation between psychological abuse and body appreciation (R^2 = .195); (b) Relation between body appreciation and disordered eating symptoms (R^2 = .217); (c') Direct effect of psychological abuse on disordered eating symptoms; (c) Total effect of psychological abuse on disordered eating symptoms ($R.^2$ = .131). Regression coefficients (standard error) are illustrated as the displayed numeric values. ***$p < 0.001$

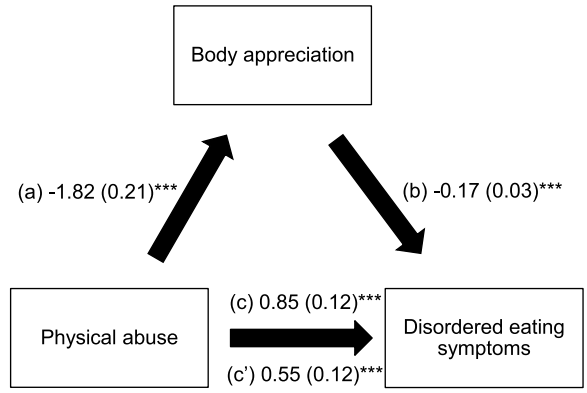

Fig. 7 (a) Relation between physical abuse and body appreciation (R^2 = .194); (b) Relation between body appreciation and disordered eating symptoms (R^2 = .225); (c') Direct effect of physical abuse on disordered eating symptoms; (c) Total effect of physical abuse on disordered eating symptoms ($R.^2$ = .145). Regression coefficients (standard error) are illustrated as the displayed numeric values. ***$p < 0.001$

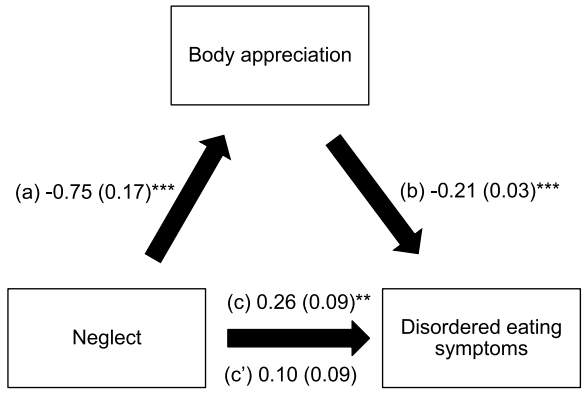

Fig. 6 (a) Relation between neglect and body appreciation (R^2 = .093); (b) Relation between disordered eating symptoms and body appreciation (R^2 = .188); (c') Direct effect of neglect on disordered eating symptoms; (c) Total effect of neglect on disordered eating symptoms ($R.^2$ = .048). Regression coefficients (standard error) are illustrated as the displayed numeric values. ***$p < 0.001$; **$p < 0.01$

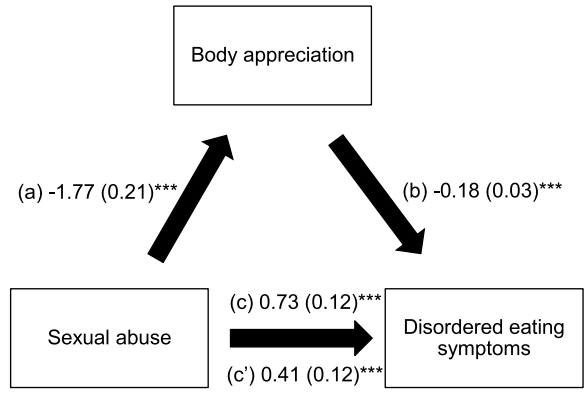

Fig. 8 (a) Relation between sexual abuse and body appreciation (R^2 = .189); (b) Relation between disordered eating symptoms and body appreciation (R^2 = .208); (c') Direct effect of sexual abuse on disordered eating symptoms; (c) Total effect of sexual abuse on disordered eating symptoms ($R.^2$ = .115). Regression coefficients (standard error) are illustrated as the displayed numeric values. ***$p < 0.001$

and significant others have an increased likelihood of experiencing disordered eating. In addition, findings also demonstrated that indirect paths from CT to disordered eating through body appreciation and social support were both significant, thus confirming the hypothesized mediating role of these variables.

As for the direct effects, the current findings revealed that there is a significant link between CT and self-reported symptoms/concerns of EDs. These results corroborate those of previous international longitudinal studies evidencing an increased risk of developing later EDs among maltreated individuals [6, 15, 62]. A meta-analysis encompassing 32 studies and 14,169 participants based on both clinical and community samples from nine Western countries concluded for a positive and consistent association between any child abuse and EDs [13]. Another systematic review and meta-analysis highlighted that experiencing a CT, regardless of type (physical, emotional, or sexual), was closely related to the presence of a lifetime diagnosis of an ED; and that patients with EDs reported having been exposed four times more frequently (and more severely) to CT than healthy controls

[14]. Although a direct/causal link is yet to be established through future longitudinal studies, all these strong data suggest that disordered eating pathology in adolescents with a history of maltreatment needs specific attention from school counselors, clinicians, and researchers, given that early identification of CT or EDs symptoms could potentially prevent the development of more severe psychopathology during adulthood.

In terms of indirect effects, our hypothesis was partly confirmed, with results showing that both social support and body appreciation partially mediated the relationship between all types of CT and disordered eating symptoms. We were not aware of any published research that explored the mediating effect of social support in the association between CT and EDs. Also, no previous studies have examined the effect of body appreciation in this relationship among adolescents in general, and those from an Arab background in particular, to the best of our knowledge. These findings are in agreement with existing literature that has consistently reported a positive association between exposure to CT and both poor perceived support from social relationships [21] and body image disturbances [27]. Findings also support prior assumptions that both low social support [37] and body image issues [30] may contribute to EDs. In sum, findings are broadly in line with, and further reinforce, the findings from the previous studies which have shown that body dissatisfaction mediated the relationship between CT and EDs in community adult women [31]; and that social support mediated the relationship between CT and a wide range of psychopathology [21, 34, 39, 40]. Our findings, along with previous literature, suggest that people exposed to CT may have limited access to the resources or necessary supportive social networks to buffer the negative impact of stressful events, thus resulting in a higher frequency of mental health problems [63, 64]. Additionally, people may develop body image concerns after experiencing childhood adversities; which leads, in turn, to an increased likelihood for developing disordered eating problems.

Clinical and research implications

The current findings emphasize the importance to routinely evaluate the presence of a history of CT in adolescents presenting with disordered eating problems, especially as it has been suggested that the link between CT and EDs is likely to be underestimated because of non-disclosure [65]. It is also important to systematically assess and take into account potential mediators (such as a lack of social support and disturbed body image) that may indirectly influence the future development of EDs [22]. Our mediation analyses were significant, suggesting that experiences of all forms of CT have likely triggered perceived lack of social support and low levels of body appreciation, which have in turn resulted in more severe disordered eating symptoms in predisposed adolescents. In other words, exposure to CT may have led adolescents to experience EDs manifestations due to poor social support and decreased body appreciation. These findings suggest that both social support and body appreciation may be regarded as key targets for community-based prevention and intervention strategies aiming at reducing the risk of developing severe EDs in adolescents. Sperry and Widom [21] suggested that individuals who have been exposed to maltreatment (abuse and/or neglect) during their childhood may possibly be more likely to engage in certain negative behaviors that make others unwilling to provide them with necessary support, or less likely to develop the skills required to cultivate interpersonal support. Based on these assumptions, we highlight a clear need for fostering social support and body appreciation reported in adolescents who have been exposed to maltreatment which may, in turn, help prevent the development or maintenance of disordered eating problems they experience. In addition to targeting the mediator variables, which represent very promising avenues for the management of EDs in maltreated youth, additional attention and experimental research efforts still need to be dedicated to dealing with EDs combined with a history of childhood trauma. Surprisingly, such research is still lacking [66], and the appropriate therapies to treat EDs on a background of CT are yet to be empirically tested [16].

Study limitations

Some limitations to this study need to be considered. The main limitations lie to its cross-sectional design and self-report nature. The current findings do not permit us to establish causal relations between the variables. It remains, for example, unknown whether the reported lack of social support preceded or followed exposure to CT. Future longitudinal studies should allow for a better understanding of these temporal relationships. The fact that CT experiences have been self-reported by participants makes them subject to recall bias. This is all the more important given that discrepancies have been observed between results with subjective (retrospective) reports and objective (documented) cases of CT [67]. However, self-reported CT experiences seem to be more relevant clinically; with the risk of psychopathology being related to retrospective self-reports of CT and the person's subjective emotional experience, rather than to the documented experience itself [68, 69]. In addition, the convenience online sampling using social media may limit the representativeness of our sample. Finally, other variables might have influenced the relationship between

CT and EDs (e.g., posttraumatic stress disorder symptoms), and are to be explored in future studies.

Conclusion

The main goal of the present study was to examine the direct and indirect effects of CT on EDs through perceived social support and body appreciation; which may have potential clinical implications for prevention and intervention in the trauma and EDs fields among adolescents. Our results confirmed the partial mediating effects of both social support and body appreciation between CT and EDs, preliminarily suggesting these mediators as promising modifiable factors for reducing the risk for developing EDs among the vulnerable adolescent population. This suggests that, when intervening in response to disordered eating in victimized individuals, it may be beneficial to consider the social network system in which they reside, and the way they perceive their body image. Further longitudinal studies in larger samples of adolescents from different countries and settings are still strongly needed to confirm our findings and draw firm causal conclusions.

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Authors' contributions
The study was designed by SO and SH; the data was collected by DM and MD; the manuscript was drafted by GK; the analysis was carried out by SH; the results were interpreted by SH; the paper was reviewed by SO and FFR for intellectual content; the final manuscript was reviewed by all authors and all gave their consent.

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Availability of data and materials
The entirety of the data generated or analyzed during this study are not publicly accessible due to the restrictions imposed by the ethics committee. The dataset supporting the conclusions can be obtained upon a reasonable request to the corresponding author (S.H.).

Declarations

Ethics approval and consent to participate
This study's protocol was approved by the Lebanese International University's Ethics and Research Committee (2022RC-050-LIUSOP). Parents of all children participants provided informed consent. Submitting the form online was deemed in equivalence to obtaining a written informed consent. All methods were performed in adherence to the relevant guidelines and regulations.

Consent for publication
Not applicable.

Competing interests
The authors have nothing to disclose.

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