

Parenting Styles and Deliberate Self-Harm in Adolescents: A Cross-Cultural Path Model from Egypt

Samia Ibrahim Mabrouk Baraka⁽¹⁾, Enas Mahrous Abdelaziz⁽²⁾, Nadia Bassuoni Elsharkawy⁽³⁾,
Basma Mohamed Osman⁽⁴⁾, Eman Mahmoud Seif El-Nasr⁽⁵⁾

- (1) Lecturer of community health nursing, Faculty of Nursing, Tanta University, Tanta, Egypt. <https://orcid.org/0000-0002-9958-4661>
- (2) Assistant professor of psychiatric mental health nursing, faculty of nursing, Cairo university. Egypt, Assistant professor of psychiatric mental health nursing, College of nursing, jouf university. Saudi Arabia. <http://orcid.org/0000-0002-5748-6887>
- (3) Professor of Maternal and new born health nursing, faculty of nursing, Cairo university. Egypt
Assistant professor of Maternal and child health nursing, College of nursing, jouf university. Saudi Arabia. <http://orcid.org/0000-0002-3316-7312>.
- (4) Assistant professor of Community Health Nursing, Faculty of Nursing, Cairo University, Cairo 11562, Egypt. Email : Basma_3m@cu.edu.eg Orcid: <https://orcid.org/0000-0002-6820-9383>
- (5) Assistant professor of Community Health Nursing, Faculty of Nursing, Cairo University, Cairo 11562, Egypt. Assistant professor of Community Health Nursing, Misr University for Science and Technology, Giza, Egypt. emanseif@cu.edu.eg, <https://orcid.org/0009-0000-3382-3837>

Abstract

Background: Deliberate self-harm (DSH) in adolescence is a growing global concern, yet evidence from Middle Eastern contexts remains limited. This study estimated the prevalence of DSH and examined its associations with parenting styles among Egyptian secondary school students, taking into account socio-demographic factors and testing both direct and indirect pathways. **Methods:** A school-based cross-sectional study was conducted with 410 students aged 16–20 years selected via multistage stratified random sampling from governmental schools in Egypt. Participants completed a socio-demographic questionnaire, the Parental Treatment Styles Scale (authoritative, authoritarian, permissive, neglectful), and a validated Self-Harm Scale capturing four domains (physical, emotional, self-neglect, self-deprivation). Analyses comprised group comparisons, Pearson correlations, multivariable linear regression, and path analysis to estimate direct and indirect effects. **Results:** DSH prevalence was 28.3%. Authoritative parenting was most common, yet authoritarian and neglectful styles were significantly associated with higher overall DSH and multiple domain-specific harms, whereas authoritative parenting showed a protective association. In adjusted models, older age, male sex, and lower socioeconomic status predicted higher DSH scores. Path analysis indicated a significant direct effect of authoritarian parenting on DSH, with additional indirect effects operating through socio-demographic pathways; authoritative parenting demonstrated protective direct effects. **Conclusions:** Authoritarian and neglectful parenting styles are linked to higher risk of adolescent deliberate self-harm in Egypt, while authoritative parenting serves as a protective factor. The findings highlight the need for culturally sensitive prevention strategies that promote authoritative parenting and school-based coping programs, especially targeting boys, older adolescents, and socioeconomically disadvantaged youth

Keywords: Adolescence; Parenting styles; Deliberate self-harm; Coping strategies; Cross-cultural.

Introduction

Adolescence is a critical developmental period marked by rapid emotional, cognitive, and social changes. During this stage, young people face heightened vulnerability to psychological distress as they navigate identity formation, peer relationships, and increasing demands for autonomy (Burke et al., 2023). While many adolescents develop adaptive coping skills, others adopt maladaptive strategies, including deliberate self-harm (DSH), intentional self-inflicted injury

without suicidal intent. DSH is often used to regulate overwhelming emotions, communicate distress, or exert control in response to perceived stressors (Thompson et al., 2024).

Globally, between 10% and 15% of adolescents report engaging in DSH (Shum, Dockray, McMahon, 2024). However, rates vary widely depending on the cultural context, measurement methods, and population characteristics. In Egypt, earlier estimates

suggested a lower prevalence (3–5%) (**Kairys and Tripon, 2024**), yet emerging research indicates substantially higher rates in certain youth populations. Regardless of prevalence, DSH in adolescence is a significant public health concern due to its association with long-term mental health difficulties and potential progression to suicidal behavior (**Bagasra, 2021**).

Family relationships play a central role in adolescent well-being. As the primary environment for social and emotional learning, the family context shapes coping styles, emotional regulation, and resilience (**Elsayed, 20024**). Parenting style, a construct defined by patterns of warmth, control, and responsiveness, has been consistently linked to adolescent mental health outcomes (**Arora, 20223**). Authoritative parenting, characterized by high responsiveness and high demandingness, is generally protective, fostering emotional regulation, autonomy, and self-esteem (**Tehrani, Yamini and Vazsonyi, 2024**). In contrast, authoritarian parenting, high control but low warmth, has been associated with emotional dysregulation and heightened vulnerability to internalizing problems (**Chen, 2023**). Permissive parenting (high warmth, low control) may undermine self-discipline, while neglectful parenting (low warmth, low control) is strongly linked to poor psychological outcomes, including self-harm (**Tehrani, Yamini & Vazsonyi, 2023**).

In Egypt, parenting practices are deeply rooted in cultural norms that emphasize family cohesion, respect for authority, and adherence to traditional values (**Henry & Elwy, 2020**). The collectivist orientation, shaped by Islamic principles and historical traditions, prioritizes obedience, academic achievement, and conformity to social norms (**Bagasra, 2021**). These values, while protective in many respects, may contribute to a predominance of authoritarian approaches to parenting. Economic stressors, including high unemployment and limited access to mental health services, can exacerbate family tensions and influence parenting behavior (**Khachab, 2021**).

Community health nursing plays a vital preventive and therapeutic role in mitigating the impact of maladaptive parenting styles on adolescents' deliberate self-harm. Nurses, particularly those in school and community settings, are pivotal in early identification of at-

risk adolescents through culturally sensitive assessments that account for familial dynamics and emotional climate. In the Egyptian context, where authoritarian parenting often prevails, nurses are essential in promoting open communication and emotional support between parents and adolescents to foster resilience and positive coping strategies. Family-based interventions led by nurses can effectively reduce risk behaviors associated with neglectful or controlling parenting styles by integrating psychoeducation, counseling, and parental skill training. Moreover, collaboration with multidisciplinary teams ensures a holistic and culturally relevant approach to adolescent mental health promotion, underscoring the nurse's advocacy role in shaping family-centered mental health policies and interventions (**Ahmed, El-Shiekh, El-Sayed, & Abd-Elmaksoud, 2024**).

Significance of the study

Adolescence is a critical period in Egypt, marked by heightened vulnerability to emotional, behavioral, and cognitive challenges. The prevalence of mental distress and suicidal ideation among Egyptian youth is compounded by family dynamics, with negative parenting styles substantially elevating these risks. Authoritarian attitudes, which are common in the Egyptian cultural context, have been identified as significant contributors to depression and self-harm behaviors in adolescents, while supportive and authoritative parenting can serve as protective factors (**Hassan, Ali, Mahmoud, Hafez, & Ibrahim, 2025**).

Recent studies indicate that the prevalence of non-suicidal self-injury among Egyptian adolescents is approximately 26.5%, with the average age of onset around 14 years and a strong predominance among females (75.9%). Suicidal ideation is also a notable issue, affecting nearly 17.5% of Egyptian university youth, and attempted suicide is reported in about 7.1% of this group. Another study suggests that the twelve-month prevalence of suicidal ideation among Egyptian youth is as high as 23.7%. These alarming statistics illuminate the urgent need for targeted mental health interventions and culturally relevant research (**Abozaid, Ismail, & Sayed, 2022**).

Parenting styles are a crucial determinant of these mental health outcomes. In Egyptian society, authoritarian parenting is the most frequently reported style, especially among parents of adolescent boys, while authoritative style more protective against psychological distress is less common. Evidence demonstrates that adolescents raised in authoritarian households are at greater risk for depression, behavioral problems, and self-harm. The intersection of high rates of self-injury, suicide-related outcomes, and the prevalence of less supportive parenting styles underscores the necessity of research that clarifies the mechanisms through which parenting influences adolescent mental health in Egypt (Hassan et al., 2025).

Theoretical Framework

Although extensive research in Western contexts has explored the relationship between parenting styles and DSH, little is known about how these dynamics operate in Middle Eastern and North African settings. Egyptian adolescents experience a unique combination of cultural expectations, religious influences, and socioeconomic challenges that may intensify the psychological impact of non-supportive parenting styles. Existing studies in the region have rarely integrated these cultural dimensions into theoretical models, and most have relied on descriptive or clinical samples without examining broader developmental pathways. This represents a significant gap in understanding the socio-familial determinants of DSH in Egypt.

This study integrates three complementary frameworks: Baumrind's Parenting Styles Theory (Baumrind, 1967) (McKee, 2011), the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984) (Biggs, Brough, Drummond, 2017), and Attachment Theory (Bowlby, 1969) (Abrams, 2013) to conceptualize the relationship between parenting styles and DSH within the Egyptian cultural context. Baumrind's typology provides a lens for understanding how parental responsiveness and demandingness shape adolescent development. The Transactional Model highlights how adolescents appraise and cope with stress, proposing that maladaptive coping arises when perceived demands exceed coping resources. Attachment Theory emphasizes the role of secure parent-child bonds in fostering emotional security and adaptive coping.

The conceptual model (Figure 1) proposes that parenting styles influence adolescents' stress appraisal and coping responses, which, in turn, affect their attachment security. These processes collectively contribute to the risk of engaging in DSH. Cultural norms and socioeconomic conditions in Egypt are hypothesized to moderate these pathways, potentially amplifying the impact of authoritarian and neglectful parenting styles on maladaptive coping and self-harm.

The four parenting styles illustrated in Figure 1 influence how adolescents assess stress and engage in coping strategies, consistent with the Transactional Model of Stress and Coping. These stress responses subsequently affect the quality of attachment between parents and adolescents, as described in Attachment Theory. The interaction among stress appraisal, coping strategies, and attachment quality collectively shapes the risk of DSH behaviors. Additionally, cultural factors distinctive to Egypt, such as societal expectations and religious values, are embedded throughout the model, influencing each element of this pathway.

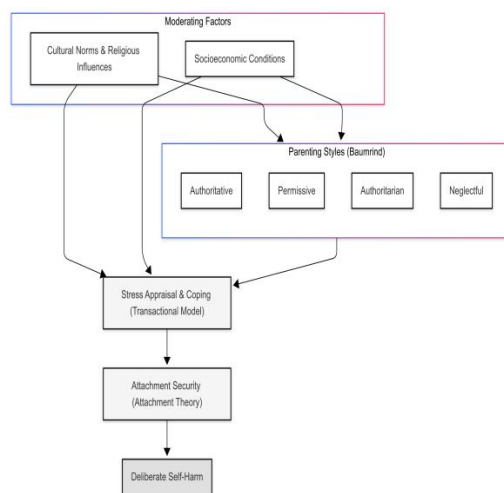


Figure (1): Conceptual framework of parenting styles, stress appraisal, and attachment in relation to deliberate self-harm

The primary aim of this study is to examine the prevalence and predictors of DSH among Egyptian secondary school students, with a specific focus on the role of parenting styles. The study seeks to:

1. Determine the prevalence of DSH among secondary school students in Egypt.

2. Identify the predominant parenting styles experienced by Egyptian adolescents.
3. Examine the association between parenting styles and the incidence of DSH.

Based on the integrated theoretical framework and existing evidence, these questions are formulated:

- What is the relationship between different parenting styles (authoritarian, authoritative, neglectful, permissive) and the frequency and severity of deliberate self-harm among Egyptian adolescents?
- Does authoritative parenting serve as a protective factor against deliberate self-harm in Egyptian adolescents compared to authoritarian, neglectful, or permissive styles?

By addressing this gap, the study aims to contribute a culturally specific, theory-driven understanding of how parenting styles influence DSH in Egyptian adolescents, informing culturally sensitive prevention and intervention strategies.

Operational definition

- Parenting styles are defined as the consistent patterns of parental responsiveness and demandingness specifically, authoritative, authoritarian, permissive, and neglectful approaches measured by standardized questionnaires reflecting warmth, structure, and control.
- Deliberate self-harm in adolescents is defined as intentional, self-inflicted, non-suicidal bodily harm (such as cutting or burning), quantified by self-report scales recording frequency and severity of behaviors within the past year.

Materials and Methods

Design:

This study employed a cross-sectional, descriptive correlational design to examine theoretically derived associations between parenting styles and deliberate self-harm (DSH) among Egyptian secondary school students. This design was selected to capture the current prevalence of DSH and the distribution of parenting styles within the population, while allowing for the simultaneous assessment of relationships among variables without experimental manipulation (Pérez-Guerrero, et

al., 2024). Grounded in Baumrind's Parenting Styles Theory, the Transactional Model of Stress and Coping, and Attachment Theory, the approach enabled the evaluation of hypothesized pathways linking parental behaviors to adolescent self-harm risk in a culturally specific context. Statistical analyses included descriptive measures, Pearson's or Spearman's correlations (based on data distribution), and multivariate linear regression to quantify the strength and direction of these associations while controlling for key demographic factors.

Setting:

The study was conducted in Tanta, the capital city of Gharbia Governorate in the Arab Republic of Egypt. The city's secondary education system is administratively divided into eastern and western sectors. For this investigation, the eastern sector was selected through simple random sampling to ensure unbiased representation. This sector comprises 12 governmental secondary schools serving both male and female students, providing a diverse cross-section of the adolescent population. The sampling frame encompassed all governmental secondary schools within this sector, ensuring coverage of diverse socioeconomic and academic contexts. Focusing on a single sector minimized geographic variability while preserving diversity in student backgrounds, thereby enhancing external validity and supporting the generalization of findings to similar urban settings in Egypt.

Sample

The study targeted Egyptian secondary school students aged 16–20 years enrolled in governmental schools within the eastern sector of Tanta Governorate. This age range reflects the structure of the Egyptian education system, where late school entry and grade repetition can extend secondary education beyond age 18. A multistage stratified random sampling technique was employed to ensure proportional representation across schools and grade levels. The total student population in the sector was 12,268, representing all 12 governmental secondary schools. Using the Raosoft sample size calculator (Raosoft, 2004) with a 95% confidence level, a 5% margin of error, and a 50% response distribution, the minimum required sample was 373 students. Based on

previous Egyptian school-based surveys reporting non-response rates of 8–12%, the target was increased by 10% to 410 students.

Sampling occurred in three stages: (1) inclusion of all 12 schools in the sampling frame, (2) stratification by grade level (first, second, and third years), and (3) random selection of classes within each grade. All students in the selected classes who met the inclusion criteria, aged 16–20 years, enrolled in any secondary grade, and provided informed consent, were invited to participate. Exclusion criteria included diagnosed neuropsychiatric disorders, severe chronic medical conditions, or physical disabilities that could impede participation. These criteria were applied to focus on the general adolescent population and minimize confounding effects related to clinical treatment or disability-related limitations.

All 410 invited students consented to participate and returned fully completed questionnaires, yielding a final analytic sample of 410 students (100% of those invited). Data collection took place during the second term of the 2023–2024 academic year to maximize availability and minimize academic disruption. The stratified random approach ensured proportional representation by grade level, minimized selection bias, and enhanced external validity, supporting the generalizability of findings to similar urban adolescent populations in Egypt.

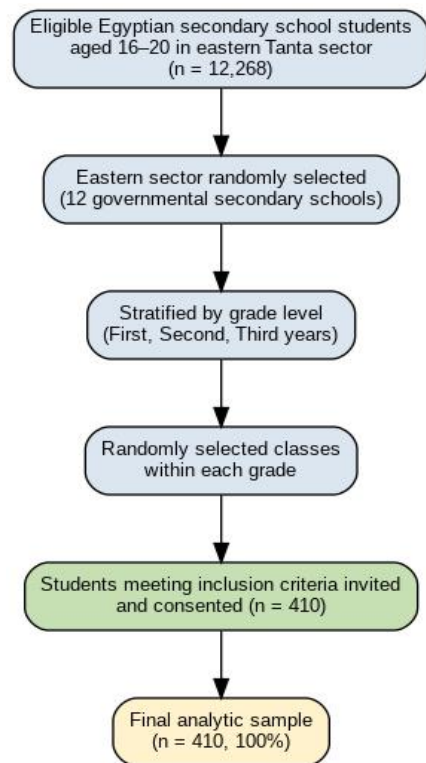


Figure (2): Participant recruitment and retention flow

Figure 2. Participant recruitment flow for the study on parenting styles and deliberate self-harm among Egyptian adolescents. Blue boxes represent inclusion and sampling stages; yellow indicates the final analytic sample.

Data Collection Tools:

Socio-Demographic Data Sheet

A socio-demographic questionnaire, developed by the research team and self-report method used to collect data. This sheet includes 4 questions participants' age, gender, socioeconomic status, and academic level, with items adjusted to match internationally accepted adolescent health standards and tailored to Egyptian cultural context. Expert review by five specialists in adolescent psychology and education established content validity, and their suggestions improved clarity, cultural appropriateness, and comprehensive coverage of each construct (Ermis-Demirtas, 2018).

Self-Harm Scale

Self-harm behaviors were assessed using the Self-Harm Scale developed for Egyptian adolescents by **Shokair (2015)**. This 52-item instrument contains four subscales: Physical Self-Harm (non-suicidal self-injury), Mental and Affective Self-Harm, Self-Neglect, and Self-Deprivation. Responses are rated on a 4-point Likert scale (0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Always). Consistent with the original validation, “sometimes” and “always” responses were combined to calculate total and subscale scores, providing a more stable indicator of clinically relevant self-harm behaviors. Previous research has demonstrated the robustness of construct and content validity for this instrument in Egyptian adolescent populations. In the present study, internal consistency was high (Cronbach's $\alpha = 0.839$). A pilot with 30 students confirmed clarity and relevance, leading to minor linguistic refinements.

Parental Treatment Styles Scale

Parenting styles were measured using the Parental Treatment Styles Scale (**Kiki, 1991**), which includes 25 situational items assessing four styles: authoritative, permissive, authoritarian, and neglectful. Each style is operationalized according to responsiveness and demandingness dimensions (**Baumrind, 1967**). Situational descriptions enhance ecological validity by capturing realistic parent-child interactions in the Egyptian context. Participants' responses were summed within each style to produce subscale scores. In this study, Cronbach's α coefficients indicated good reliability for the following categories: authoritative ($\alpha = 0.812$), permissive ($\alpha = 0.794$), authoritarian ($\alpha = 0.829$), and neglectful ($\alpha = 0.803$). Construct validity was previously established, and in the current study, content validity was reconfirmed through a review by five experts in developmental psychology and family studies. A pilot with 30 participants ensured cultural and linguistic clarity, resulting in minor modifications.

Ethical approval

This study adhered to the ethical principles for research involving human participants outlined in the Declaration of Helsinki. Ethical approval was obtained from the Ethical Committee of the

Faculty of Nursing, Tanta University, Egypt (Approval Code: 393-2-2024). Official permissions were secured from the directors of all participating schools. Informed consent procedures were age-appropriate and culturally sensitive. All participants received clear and comprehensible information about the study's aims, procedures, potential risks, and benefits, with an explicit emphasis on voluntary participation and the right to withdraw at any time without consequence.

Written informed consent was obtained from participants aged 18 years or older, and both written parental/guardian consent and adolescent assent were obtained for minors. Confidentiality and anonymity were safeguarded through the assignment of unique identification codes and secure, password-protected storage of all data. No identifying information was included in the analysis or reporting. The study design minimized potential risks, and a referral protocol to qualified school-based counselors or local mental health services was in place for participants disclosing distress or self-harm. This ethical framework ensured the protection of participants' rights, dignity, and welfare, in alignment with best practices for educational and psychological research with adolescent populations.

Procedure

Data collection was implemented over a three-month span (March to May 2024) utilizing a standardized protocol to uphold methodological rigor and ensure ethical compliance. Ethical approval was granted by the Ethical Committee of the Faculty of Nursing, Tanta University (Approval Code: 393-2-2024), with official permissions obtained from the Educational Directorate and the Eastern Sector Educational Department. To minimize disruption to academic activities, data were gathered twice weekly, between 9:00 AM and 12:00 PM. All sessions took place in quiet, private rooms within the participating schools, providing a confidential setting and reducing environmental distractions.

The research team administered three self-report tools: a socio-demographic data sheet, the Self-Harm Scale, and the Parental Treatment Styles Scale. Each session included small groups of 10–15 students, under the supervision of

researchers who clarified any questionnaire items and monitored participation. Completing all instruments typically required 30 to 45 minutes. On average, two groups (20–30 students total) were recruited and surveyed per day. Immediately following completion, questionnaires were reviewed for missing or unclear responses, allowing students to make corrections before final submission—enhancing data quality and completeness.

Collected questionnaires were assigned unique codes to maintain anonymity. Physical copies were secured in locked cabinets, and digital data were double-entered into a password-protected database, accessible only to the research team. Any data discrepancies or anomalies noted during preliminary analysis were cross-checked against the original forms to ensure accuracy. The research team closely monitored participants' emotional well-being, referring any student who showed distress or disclosed severe self-harm behaviors to either the school counselor or a mental health professional, in alignment with a predetermined referral protocol. This systematic and ethically robust process ensured the acquisition of high-quality, reliable data, prioritizing the safety, comfort, and rights of all participants.

Statistical analysis

The Data were analyzed using IBM SPSS Statistics version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics (frequencies, percentages, means, and standard deviations) summarized socio-demographic characteristics, prevalence of self-harm behaviors, and distribution of parenting styles. Bivariate analyses examined associations between key variables. Pearson's correlation coefficients were calculated to assess relationships between parenting style scores and self-harm behaviors. One-way analysis of variance (ANOVA) compared mean self-harm scores across parenting style categories, with Tukey's HSD post-hoc tests applied to explore pairwise differences. Independent-samples t-tests assessed differences in self-harm scores by dichotomous variables (e.g., gender), and one-way ANOVA was used for categorical variables with more than two levels (e.g., grade level, socioeconomic status).

A multivariate linear regression model identified significant predictors of self-harm, including socio-demographic variables and parenting style scores as independent variables, and overall self-harm score as the dependent variable. Standardized beta coefficients were reported to indicate the relative importance of predictors. To explore hypothesized direct and indirect pathways, a path analysis was conducted in AMOS (version 26.0) with socio-demographic factors as mediators between parenting styles and self-harm behaviors. Model fit was evaluated using multiple indices: chi-square (χ^2), comparative fit index ($CFI \geq 0.90$), and root mean square error of approximation ($RMSEA \leq 0.08$). Statistical significance was set at $p < 0.05$. Assumptions of normality, linearity, homoscedasticity, and absence of multicollinearity were assessed prior to conducting parametric tests. Where violations were detected, appropriate non-parametric alternatives were applied.

Results

The results of this study provide a comprehensive analysis of the relationship between deliberate self-harm (DSH) behaviors and parenting styles among secondary school students in Tanta, Egypt. Data were collected from 410 participants using validated instruments to assess self-harm behaviors and parenting styles. The findings offer critical insights into the prevalence of self-harm among Egyptian adolescents and highlight the significant influence of parenting styles, socio-demographic factors, and cultural dynamics on these behaviors.

Socio-demographic Characteristics of Participants

The socio-demographic characteristics of the 410 participating secondary school students are presented in Table 1. The sample comprised 246 males (60.0%) and 164 females (40.0%). Participants' ages ranged from 16 to 19 years, with a mean of 16.3 years ($SD = 1.2$). The majority (72.2%) were aged 16–<18 years, and 27.3% were aged 18–<20 years. Distribution across grade levels was balanced, with 36.1% in the first grade, 35.6% in the second grade, and 28.3% in the third grade. Regarding self-reported socioeconomic status, 49.0% indicated that their resources were insufficient to meet basic needs, 33.4% reported having adequate resources without

savings, and 17.6% reported having sufficient resources with the ability to save. These socio-demographic characteristics provide a representative cross-section of adolescents in urban governmental secondary schools within Tanta Governorate.

Prevalence of Self-Harm Behaviors

The overall prevalence of deliberate self-harm among participants was 28.3% ($n = 116$). Among those, self-deprivation (50.5%, $n = 59$), followed by mental and affective self-harm (30.0%, $n = 35$), and physical self-harm (non-suicidal self-injury; 17.3%, $n = 20$). Categories are not mutually exclusive, as participants could report multiple forms of self-harm.

Predominant Parenting Styles

As shown in Table 2, the authoritative style was most prevalent (38.2%), with a mean score of 17.70 ($SD = 7.67$). The authoritarian style was followed (29.1%; mean = 13.39, $SD = 6.13$), then the permissive style (21.5%; mean = 12.22, $SD = 11.37$). The neglectful style was least common (11.2%; mean = 9.70, $SD = 4.81$). Prevalence was calculated as the proportion of students for whom a given style had the highest score among the four categories.

Relationship between Parenting Styles and Self-harm

Table 3 presents the mean scores of self-harm dimensions across the four identified parenting styles. Adolescents reporting neglectful or authoritarian parenting exhibited the highest overall self-harm scores (30.45 ± 12.18 and 29.87 ± 11.56 , respectively), indicating greater engagement in harmful behaviors compared to peers perceiving authoritative (26.13 ± 9.74) or permissive (27.89 ± 10.32) parenting. This pattern was consistent across individual self-harm dimensions, with neglectful parenting associated with the highest mean scores in physical harm, emotional/mental harm, self-neglect, and self-deprivation.

Pearson's correlation analysis (Table 4) further demonstrated that neglectful parenting was significantly and positively correlated with overall self-harm ($r = 0.167$, $p = 0.001$), emotional/mental harm ($r = 0.145$, $p = 0.003$), and self-deprivation ($r = 0.128$, $p = 0.009$). Authoritarian parenting

was also significantly correlated with overall self-harm ($r = 0.166$, $p = 0.001$), physical harm ($r = 0.198$, $p < 0.001$), and emotional/mental harm ($r = 0.117$, $p = 0.018$). Authoritative parenting showed a modest but significant correlation with physical harm ($r = 0.121$, $p = 0.019$), whereas permissive parenting demonstrated no statistically significant correlations with any self-harm dimensions.

These findings suggest that parenting styles characterized by low responsiveness, low demandingness, or excessive control, such as neglectful and authoritarian, are more strongly associated with higher self-harm engagement in adolescents. In contrast, authoritative parenting, which combines high responsiveness with appropriate demands, appears to be associated with lower self-harm scores, supporting the protective role of this style in adolescent psychosocial development.

Socio-demographic Factors and Self-Harm

Table 5 summarizes the associations between socio-demographic characteristics and self-harm dimensions. Several socio-demographic variables demonstrated statistically significant relationships with overall self-harm and specific self-harm dimensions. In terms of age, younger adolescents (16–<18 years) reported significantly higher physical harm ($t = 3.798$, $p < 0.001$), emotional/mental harm ($t = 2.924$, $p = 0.004$), and overall self-harm ($t = 2.071$, $p = 0.039$) compared to older adolescents (18–<20 years). Educational level was also a significant factor. First-grade students reported the highest mean scores across all self-harm dimensions, with statistically significant differences for physical harm ($F = 9.070$, $p < 0.001$), emotional/mental harm ($F = 10.009$, $p < 0.001$), self-neglect ($F = 5.895$, $p = 0.003$), self-deprivation ($F = 3.126$, $p = 0.045$), and overall self-harm ($F = 8.897$, $p < 0.001$).

Regarding socioeconomic status, students from families reporting insufficient resources had significantly higher mean scores for emotional/mental harm ($F = 3.943$, $p = 0.020$), self-neglect ($F = 5.285$, $p = 0.005$), self-deprivation ($F = 11.669$, $p = 0.001$), and overall self-harm ($F = 9.679$, $p = 0.001$) compared to peers from more financially stable backgrounds. Gender differences were minimal, with the only significant difference observed in physical harm,

where males scored higher than females ($t = 2.330$, $p = 0.020$).

These findings indicate that self-harm behaviors are not evenly distributed across socio-demographic groups. Younger age, being in the first grade, and lower socioeconomic status emerged as potential risk factors for higher self-harm engagement, underscoring the need for targeted interventions addressing these vulnerable subgroups.

Subgroup Analysis of Parenting Styles and Self-Harm

Table 6 presents a subgroup analysis examining mean overall self-harm scores across the four parenting styles, stratified by gender, age group, and socioeconomic status. Consistent with the main analysis (Section 3.4), neglectful and authoritarian parenting styles were associated with higher self-harm scores across all subgroups. Gender-stratified results indicate that while the pattern of association was similar for males and females, females tended to report slightly higher mean self-harm scores within authoritarian and neglectful parenting contexts (30.18 ± 11.78 and 30.78 ± 12.44 , respectively) compared to males (29.56 ± 11.34 and 30.12 ± 11.92). Age-stratified analysis revealed stronger associations for younger adolescents (16–18 years), who reported higher mean self-harm scores in both neglectful (31.02 ± 12.56) and authoritarian (30.34 ± 11.87) parenting contexts than older adolescents (18–20 years) (29.88 ± 11.80 and 29.40 ± 11.25 , respectively).

Socioeconomic status emerged as an important moderator. Students from families with insufficient resources reported the highest mean self-harm scores under neglectful (31.89 ± 12.94) and authoritarian (31.23 ± 12.21) parenting styles, exceeding those from “enough” and “enough and save” households. These subgroup findings reinforce the broader pattern that authoritarian and neglectful parenting styles are linked to higher self-harm engagement, with effects particularly pronounced among younger adolescents and those from economically disadvantaged backgrounds.

Predictors of Self-Harm

A multivariate linear regression analysis was conducted to identify significant predictors of self-

harm (Table 7). The model explained 31.5% of the variance in self-harm scores ($R^2 = 0.315$, $p < 0.001$). Significant predictors included grade level ($\beta = -0.245$, $p = 0.004$), socioeconomic status ($\beta = -0.156$, $p = 0.001$), and authoritarian parenting style ($\beta = 0.123$, $p = 0.019$). Lower grade levels, lower socioeconomic status, and higher levels of authoritarian parenting were associated with increased self-harm behaviors.

Direct and Indirect Effects of Parenting Styles on Self-Harm

Table 8 presents the direct and indirect effects of parenting styles on self-harm, mediated by socio-demographic factors. After controlling for age, grade level, and economic status, authoritarian parenting style emerged as the most powerful predictor of self-harm (Direct effect = 0.218, $p = 0.018$). Age, grade level, and socioeconomic status also showed significant direct effects on self-harm ($p < 0.05$).

The results indicate that authoritarian parenting style has both direct and indirect effects on self-harm behaviors. The direct effect (0.218) suggests that authoritarian parenting directly contributes to increased self-harm behaviors. The indirect effect (0.031), while smaller, indicates that authoritarian parenting also influences self-harm through its impact on other factors, such as the student's grade level or socioeconomic status. Age showed a significant negative direct effect on self-harm (-2.856 , $p = 0.013$), suggesting that as students get older, they are less likely to engage in self-harm behaviors. Grade level also demonstrated a significant negative direct effect (-3.325 , $p < 0.001$), indicating that students in higher grades are less prone to self-harm. Socioeconomic level had a significant negative direct effect on self-harm (-2.253 , $p < 0.001$), implying that students from higher socioeconomic backgrounds are less likely to engage in self-harm behaviors. While negligent parenting showed a trend toward significance ($p = 0.052$), it did not reach statistical significance in this model. Permissive and authoritative parenting styles did not show significant direct or indirect effects on self-harm behaviors in this analysis.

Path Analysis of Parenting Styles, Socio-demographic Factors, and Self-Harm

To depict the complex interplay between parenting styles, socio-demographic factors, and self-harm behaviors, a path analysis was performed. Figure 3 presents the standardized direct and indirect effects derived from the model. Solid lines indicate statistically significant direct paths (* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$), with positive coefficients shown in blue and negative coefficients in red. Dashed lines denote non-significant direct paths (grey), and dotted lines represent indirect effects, suggesting potential

mediation. Standardized beta coefficients (β) and p-values are displayed for each path to facilitate precise interpretation and understanding. This visual representation enables a clear understanding of the relative contributions and interconnections between family dynamics, socio-demographic variables, and adolescent self-harm behaviors, highlighting significant pathways that may inform targeted prevention and intervention strategies.

Table (1). Distribution of participants according to socio-demographic characteristics (n = 410)

Characteristic	n	%
Gender		
Male	246	60.0
Female	164	40.0
Age (years)		
16–<18	298	72.2
18–<20	112	27.3
Mean $\pm$ SD (range)	16.3 $\pm$ 1.2 (16–19)	
Grade level		
First grade	148	36.1
Second grade	146	35.6
Third grade	116	28.3
Socio-economic status¹		
Not enough	201	49.0
Enough	137	33.4
Enough and save	72	17.6

¹ Self-reported economic status based on household resources relative to expenses.

Table (2). Mean scores and prevalence of parenting styles among participants (n = 410)

Parenting style	Mean	SD	Prevalence (%)
Authoritative	17.70	7.67	38.2
Authoritarian	13.39	6.13	29.1
Permissive	12.22	11.37	21.5
Neglectful	9.70	4.81	11.2

Table (3): Mean scores of self-harm dimensions across parenting styles (n= 410)

Self-harm dimension	Authoritative	Permissive	Authoritarian	Neglectful
Physical harm	20.14 $\pm$ 12.65	22.37 $\pm$ 13.81	24.91 $\pm$ 14.78	25.63 $\pm$ 15.22
Emotional mental harm	25.76 $\pm$ 15.93	26.54 $\pm$ 16.72	28.89 $\pm$ 17.45	29.67 $\pm$ 18.21
Self-neglect harm	25.43 $\pm$ 12.87	26.78 $\pm$ 13.54	27.65 $\pm$ 14.23	28.12 $\pm$ 14.76
Self-deprivation	33.18 $\pm$ 15.84	35.87 $\pm$ 16.93	38.04 $\pm$ 17.56	38.39 $\pm$ 18.12
Overall self-harm	26.13 $\pm$ 9.74	27.89 $\pm$ 10.32	29.87 $\pm$ 11.56	30.45 $\pm$ 12.18

Table (4): Pearson correlation coefficient between Self-harm and Parent styles (n= 410)

Self-harm dimension	Neglectful	Permissive	Authoritative	Authoritarian
Physical harm	0.328	0.059	0.121*	0.198**
Emotional mental harm	0.145**	0.130	0.094	0.117*
Self-neglect harm	0.096	0.002	0.063	0.112
Self-deprivation	0.128**	0.078	0.012	0.052
Overall self-harm	0.167**	0.174	0.103	0.166**

p < 0.05, ** p < 0.01

Table (5): Relation between Socio-demographic data and Self-harm scale (n= 410)

Socio-demographic data	Physical harm	Emotional, mental harm	Self-neglect harm	Self-deprivation	Overall self-harm
Gender					
Male	21.59±14.37	27.62±18.04	26.95±14.78	36.85±18.70	28.25±11.74
Female	24.91±13.78	26.89±15.00	26.91±12.13	37.21±14.61	28.98±9.41
t(p)	2.330* (0.020*)	0.429 (0.668)	0.034 (0.973)	0.221 (0.825)	0.693 (0.489)
Age (years)					
16 < 18years	24.52±14.35	28.66±17.70	27.21±13.98	36.21±17.05	29.15±11.46
18 < 20 years	18.64±12.95	23.79±13.91	26.21±13.22	39.08±17.38	26.93±8.91
t(p)	3.798* (<0.001*)	2.924* (0.004*)	0.651 (0.516)	1.499 (0.135)	2.071* (0.039*)
Educational level					
First grade	25.16±17.29	32.07±19.97	29.99±16.25	38.65±18.89	31.47±13.22
Second grade	24.32±10.54	25.54±14.54	24.96±10.36	34.16±14.69	27.24±8.69
Third grade	18.28±12.87	23.54±13.74	25.53±13.49	38.44±17.43	26.45±9.13
F(p)	9.070* (<0.001*)	10.009* (<0.001*)	5.895* (0.003*)	3.126* (0.045*)	8.897* (<0.001*)
Socio-Economic Level					
Not enough	23.63±15.82	29.67±20.80	28.75±16.10	40.97±18.79	30.76±12.74
Enough	21.49±11.56	24.72±11.31	23.90±10.22	32.32±13.27	25.61±7.50
Enough and save	23.65±14.0	25.75±12.07	27.64±11.56	34.76±16.52	27.95±9.17
F(p)	1.039 (0.355)	3.943* (0.020*)	5.285* (0.005*)	11.669* (0.001*)	9.679* (0.001*)

*p < 0.05

Table (6): Subgroup analysis of parenting styles and overall self-harm (n= 410)

Subgroup	Authoritative	Permissive	Authoritarian	Neglectful
Gender				
Male	25.87 ± 9.56	27.43 ± 10.18	29.56 ± 11.34	30.12 ± 11.92
Female	26.39 ± 9.92	28.35 ± 10.46	30.18 ± 11.78	30.78 ± 12.44
Age				
16-18 years	26.54 ± 9.88	28.21 ± 10.45	30.34 ± 11.87	31.02 ± 12.56
18-20 years	25.72 ± 9.60	27.57 ± 10.19	29.40 ± 11.25	29.88 ± 11.80
Socio-Economic				
Not enough	27.18 ± 10.12	28.96 ± 10.78	31.23 ± 12.21	31.89 ± 12.94
Enough	25.09 ± 9.36	26.82 ± 9.86	28.51 ± 10.91	29.01 ± 11.42
Enough and save	24.63 ± 9.18	26.40 ± 9.68	27.98 ± 10.72	28.46 ± 11.21

Table (7): Multivariate linear regression analysis for factors affecting Self-harm scale (n= 410)

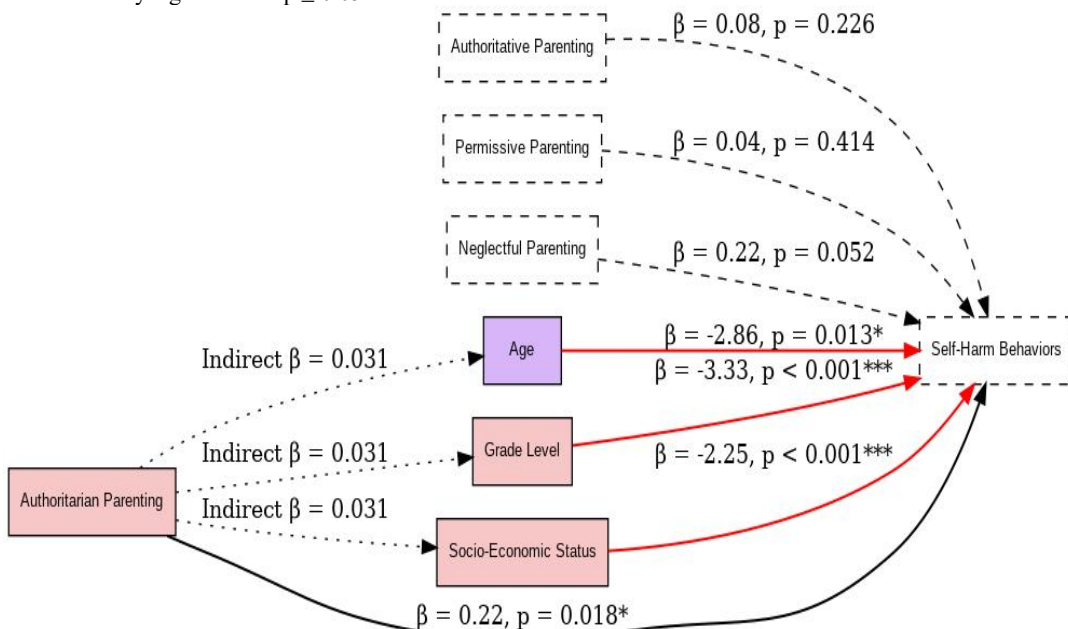
Variables	B	Beta	t	p	95% CI
Age (years)	2.856	0.117	1.376	0.170	-1.225 to 6.938
Grade levels	-3.325	-0.245	-2.873*	0.004*	-5.601 to -1.050
Socio-Economic Level	-2.253	-0.156	-3.266*	0.001*	-3.609 to -0.897
Negligence	0.223	0.098	1.923	0.055	-0.005 to 0.450
Permissiveness	0.038	0.040	0.810	0.418	-0.055 to 0.132
Authoritative	0.083	0.059	1.197	0.232	-0.053 to 0.220
Authoritarian	0.218	0.123	2.353*	0.019*	0.036 to 0.400
R² = 0.315, Adjusted R² = 0.309, F=6.308, p<0.001*					

F, p: f and p values for the model / R²: Coefficient of determination / B: Unstandardized Coefficients / Beta: Standardized Coefficients / t: t-test of significance / CI: Confidence interval / *: Statistically significant at p ≤ 0.05

Table (8): Direct and indirect effect of parents' styles on self-harm mediated by socio-demographics (n= 410)

Dependent	Independent	Direct effect	Indirect effect	t	p
Self-harm	← Age	-2.856		-2.488	0.013*
Self-harm	← Grade levels	-3.325		-5.196*	<0.001*
Self-harm	← Socio-Economic Level	-2.253		-3.303*	<0.001*
Self-harm	← Negligence	0.223	0.035	1.946	0.052
Self-harm	← Permissiveness	0.038	0.001	0.816	0.414
Self-harm	← Authoritative	0.083	0.003	1.211	0.226
Self-harm	← Authoritarian	0.218	0.031	2.371*	0.018*

*: Statistically significant at p ≤ 0.05

**Figure (3):** Path analysis diagram of parenting styles, socio-demographic factors, and self-harm behaviors.

Discussion

This study explored the complex relationship between DSH behaviors and parenting styles among secondary school students in Tanta, Egypt. The findings reveal intricate interactions between parenting approaches, socio-demographic factors,

and self-harm behaviors, highlighting the unique cultural context of Egypt. This discussion critically analyzes the results, situates them within existing literature and theoretical frameworks, and explores their implications for practice and future research.

Prevalence and Patterns of Self-Harm Behaviors

The prevalence of self-harm among the participants in this study was above quarter, which is notably higher than previous estimates in Egypt (3–5%) and exceeds global averages (10–15%) (Farkas, Takacs, Kollárovics & Balázs, 2023). Several factors may account for this discrepancy, emphasizing the need for further investigation: The use of the comprehensive Self-Harm Scale in this study likely captured a broader spectrum of self-harm behaviors compared to more limited instruments used in earlier research. This inclusivity may have increased the observed prevalence by identifying less visible or subtler forms of self-harm, such as emotional harm and self-deprivation (Miller, Redley & Wilkinson, 2021). The rapid societal shifts in Egypt, including increased academic pressures, economic challenges, and evolving social norms, may be contributing to heightened psychological distress among adolescents. These stressors are likely exacerbating internal conflicts, which manifest in self-harm behaviors (Ibrahim, 2021). A growing awareness and recognition of mental health issues in Egypt may have facilitated more open self-reporting of self-harm behaviors. Adolescents who were previously reluctant to disclose such behaviors may now feel more comfortable acknowledging them in research settings (Elshamy, Hamadeh, Billings, & Alyafei, 2023).

Focusing on Tanta may reveal regional patterns of self-harm that are not necessarily representative of national trends. Additional studies in other Egyptian cities and rural regions are needed to determine whether these findings can be generalized. The predominance of self-deprivation (affecting half of the sample) and emotional harm (impacting about one third), compared to physical self-harm (reported by just over one fifth), highlights the varied ways adolescents in this population engage in self-harm. This pattern suggests that cultural norms discouraging overt displays of distress may drive adolescents toward more internalized coping mechanisms. Although these internalized behaviors are often less visible, they can be just as detrimental. Consequently, comprehensive assessment tools that capture a broad spectrum of

self-harm behaviors including those that are not immediately apparent are essential for accurate identification and intervention (Ajayi, Chantler & Radford, 2021).

Parenting Styles and Their Impact on Self-Harm

The distribution of parenting styles in this study indicated that more than one third of parents were authoritative, just over one quarter were authoritarian, about one quarter were permissive, and nearly one fifth were neglectful. These findings reveal notable shifts in Egyptian parenting practices compared to traditional norms. While authoritarian parenting has historically predominated in collectivist societies like Egypt (Delvecchio, Germani, Raspa, Lis, & Mazzeschi, 2020), the rise in authoritative parenting suggests a transformation potentially driven by globalization, increased parental education, and exposure to diverse cultural influences. Authoritarian and neglectful parenting styles were strongly associated with higher levels of self-harm, aligning with both our hypotheses and prior studies (Romero-Acosta, Gómez-De-Regil, Lowe, Lipps, & Gibson, 2021).

Authoritarian parenting, characterized by high control and low warmth, can lead adolescents to suppress their emotions, fostering maladaptive coping strategies such as self-harm. The strict and emotionally distant nature of authoritarian parents limits opportunities for healthy emotional expression (Goagoses et al., 2023). Additionally, the critical and punitive environment created by authoritarian parenting can undermine adolescents' self-esteem, thereby increasing their vulnerability to self-harm as a way to cope with internal feelings of inadequacy and frustration (Kou, 2022). Neglectful parenting, defined by emotional and physical absence, leaves adolescents feeling unsupported and isolated, which exacerbates emotional distress and further raises the likelihood of engaging in harmful coping behaviors (Zimmer-Gembeck et al., 2023). In contrast, authoritative parenting which combines high warmth with consistent structure serves as a protective factor against self-harm, as demonstrated by lower self-harm scores. This finding aligns with previous research documenting the positive outcomes associated with authoritative parenting, such as greater

emotional resilience and improved psychological health. While permissive parenting did not show a significant correlation with self-harm, it likely fails to provide the guidance and structure necessary for optimal adolescent emotional development (Cheong, Zhu, Wang, Patel, & Ye, 2023).

Socio-Demographic Factors and Self-Harm

The study revealed significant associations between socio-demographic factors and self-harm behaviors, highlighting the complex interplay of individual, familial, and societal influences on adolescent mental health. Younger adolescents (16–18 years) and those in lower grade levels reported higher levels of self-harm, reflecting the developmental vulnerabilities associated with early adolescence (Azzopardi, et al., 2019). This period is marked by significant physical, emotional, and social changes, which may overwhelm adolescents with limited coping capacities (Povey et al., 2022). The transition to secondary school presents additional stressors, further increasing the risk of self-harm among younger students (Mesman, Vreeker, & Hillegers, 2021).

Adolescents from lower socioeconomic backgrounds reported higher levels of emotional and mental harm, emphasizing the profound impact of financial instability on mental health (Maurer, et al., 2023). Families facing economic stress may be less able to provide emotional support, leaving adolescents particularly vulnerable to harmful coping mechanisms (Zhao, et al., 2021). This finding underscores the need for interventions that address both family dynamics and broader societal inequalities contributing to adolescent mental health disparities (Gale, 2021). The absence of significant gender differences in self-harm scores contrasts with international research that often finds higher rates among females (Diggins, 2024). This warrants further investigation into how Egyptian cultural norms might influence the expression and reporting of emotional distress across genders (Gómez-Chica, 2024). Gender roles in Egypt may shape coping strategies in ways that differ from other contexts, and future research should explore whether cultural stigmas or societal expectations lead to the underreporting

of distress by one or both genders (Phillips, et al., 2024).

Theoretical Implications

The study's findings align with and extend several established theoretical frameworks, providing valuable insights into their applicability within the Egyptian cultural context. The association between authoritarian and neglectful parenting with increased self-harm underscores the relevance of Baumrind's framework in non-Western contexts (Mckee, 2011). The study highlights the universal importance of balancing parental responsiveness with appropriate control to foster adolescent well-being. However, the findings also suggest that cultural nuances may moderate the expression and impact of different parenting styles. Lazarus and Folkman's (1984) model offer a useful lens for interpreting the study's results (Biggs, et al., 2017). Adolescents raised in authoritarian or neglectful households may appraise stressors as more threatening, given their lack of emotional resources and support. This heightened stress response, coupled with inadequate coping skills, likely contributes to self-harm as a maladaptive coping mechanism. Bowlby's (1969) Attachment Theory (Abrams, et al., 2013). finds strong support in the study, particularly in the association between disrupted emotional bonds (resulting from authoritarian or neglectful parenting) and increased vulnerability to self-harm. Secure attachments are critical for emotional regulation, and the absence of these bonds may lead to emotional dysregulation, as evidenced by the high self-harm rates among adolescents in authoritarian or neglectful households.

Cultural Considerations

The study's findings must be interpreted in light of the unique cultural context of Egypt where traditional values and evolving societal norms create a complex environment for adolescent development. Authoritarian parenting, despite its association with negative psychological outcomes, remains deeply embedded in cultural expectations of obedience, respect for authority, and adherence to social norms (Younis, Shalaby & Abdo, 2023). Rapid social change, exposure to global influences, and shifting generational values may contribute to a

growing cultural dissonance between traditional parenting practices and adolescents' evolving psychological needs (Kavanagh, Lightfoot & Lilley, 2021). This dissonance likely exacerbates psychological distress, leading to increased self-harm behaviors as a means of coping with internal conflict. The predominance of self-deprivation and emotional/mental harm over physical self-harm suggests that Egyptian cultural norms discourage overt expressions of distress, pushing adolescents toward internalized coping strategies (Madi, Abu-Dahab, Hamaideh & Jarrar, 2024). These behaviors may be less visible but equally harmful, highlighting the need for culturally sensitive assessments and interventions that can detect and address these more subtle forms of self-harm.

Limitations

Several limitations should be considered when interpreting the results of this study:

The cross-sectional nature of the study limits the ability to establish causal relationships between parenting styles and self-harm. Longitudinal studies are necessary to clarify the temporal dynamics of these associations and understand how parenting styles and self-harm behaviors evolve over time. Relying on self-reported data introduces potential biases, such as social desirability and recall inaccuracies. Future research should incorporate multiple informants or observational measures to provide a more comprehensive assessment of parenting styles and self-harm behaviors. While the study provides valuable insights into the Egyptian context, its findings may not be directly generalizable to other cultural settings. Further research is needed to explore how parenting styles and self-harm manifest in different cultural environments. Important confounding variables such as peer influence, media exposure, and individual psychological traits were not assessed. Future research should examine these factors to provide a more holistic understanding of the determinants of self-harm.

Implications for Practice

The findings have significant implications for adolescent mental health interventions, education, and family support within Egypt. Culturally sensitive interventions should promote

authoritative parenting, combining emotional support with clear expectations and discipline. These programs should respect traditional values while integrating strategies that meet the evolving psychological needs of adolescents. Incorporating religious and cultural perspectives can enhance their acceptance and impact. Schools should implement programs focusing on stress management, emotional regulation, and coping strategies, particularly for younger adolescents during the transition to secondary school. These programs should address challenges specific to Egyptian adolescents, such as academic pressures and societal expectations.

Policymakers should work to alleviate socioeconomic stress by providing mental health services, community support, and educational resources to economically disadvantaged families. These efforts could reduce the mental health burden on vulnerable adolescents. Given Egypt's collectivist society, interventions should focus on improving family communication, enhancing parental support, and resolving intergenerational conflicts. Collaborative approaches involving schools, families, and mental health professionals are crucial for creating supportive environments. Mental health professionals, educators, and school counselors must receive training in cultural competence and gender sensitivity to effectively address self-harm and mental health issues within the Egyptian context.

Future Research Directions

This study opens several avenues for future research to deepen the understanding of self-harm among Egyptian adolescents and improve intervention strategies. Future research should use longitudinal designs to explore the long-term effects of parenting styles, socio-demographic factors, and self-harm behaviors, providing a clearer picture of causal relationships. Incorporating qualitative research would provide richer insights into adolescents' experiences, particularly regarding how cultural factors influence self-harm. Exploring protective factors, such as social support, resilience, and religious beliefs, will inform comprehensive prevention and intervention programs. Future studies should adapt evidence-based interventions to the Egyptian context and assess their cultural acceptability and effectiveness in addressing

adolescent mental health. Comparative studies across different cultures would help generalize findings on parenting and self-harm, enhancing universal theories of adolescent mental health. Investigating how factors like emotion regulation, self-esteem, and social support mediate the relationship between parenting styles and self-harm will clarify how to best target interventions. Research on the impact of technology and social media on adolescent mental health is crucial, especially in rapidly evolving societies like Egypt.

Conclusions

This study offers essential insights into the complex relationships among parenting styles, socio-demographic factors, and deliberate self-harm behaviors in Egyptian adolescents. The observed high prevalence of self-harm underscores an urgent need for targeted interventions and support systems. Findings highlight the protective impact of authoritative parenting and the increased risks associated with authoritarian and neglectful styles in Egypt's distinctive cultural context. By situating these results within established theoretical frameworks and considering Egyptian cultural nuances, the research advances understanding of adolescent mental health in non-Western settings. It emphasizes the importance of culturally sensitive research and interventions, recognizing that self-harm is shaped by individual, familial, and societal factors. Future efforts should prioritize culturally relevant, family-centered approaches that balance tradition with the evolving needs of Egyptian youth. By addressing the interplay of parenting practices, socio-economic status, and cultural influences, stakeholders can promote more supportive environments that foster adolescent well-being and diminish self-harm risk. This work lays the groundwork for continued investigation, highlighting the vital need for ongoing research and intervention to support the mental health of Egyptian adolescents.

Research consistently demonstrates that parenting styles are closely linked to both the frequency and severity of self-harm in Egyptian adolescents. Authoritarian and neglectful approaches marked by high control with low warmth, or by emotional and physical absence are strongly tied to higher rates and greater severity of self-harm. These styles limit emotional

expression and support, heightening vulnerability to maladaptive coping, such as self-injury. Conversely, authoritative parenting which blends warmth with structure is correlated with lower self-harm rates and increased emotional resilience. Permissive parenting, though less strongly linked to self-harm, may lack sufficient guidance and boundaries for healthy emotional development but is not as harmful as authoritarian or neglectful approaches.

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