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Investigation of the Prevalence of Child Abuse and Its Influencing Factors by Parents

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Abstract

Background: The prevalence of child abuse is increasing globally, and this form of abuse can lead to severe and long-term problems in adulthood. In Iran, child abuse ranks as the most common form of domestic violence.

Objectives: This study aimed to investigate the prevalence of abuse and its influencing factors among elementary school children.

Methods: This descriptive-analytical study was conducted in 2023 in the city of Abadan. A total of 378 students from grades two to six in seven schools were selected using cluster and random sampling methods. The research instruments included a demographic questionnaire and a standard child abuse questionnaire. Data were analyzed using SPSS21 software, with both descriptive and analytical statistics applied.

Results: The average age of the children was 10.43 years. The most common form of child abuse reported was parental neglect, with a prevalence of 75.53%. A significant relationship was found between physical abuse and factors such as the father's education (P = 0.001), parental illness (P = 0.001), parental addiction (P = 0.006), and parents' divorce (P = 0.03). Additionally, psychological abuse was significantly associated with the mother's education (P = 0.001), parental addiction (P = 0.002), loneliness at home (P = 0.002), and the child's grade (P = 0.001). Parental neglect showed a significant relationship with the child's grade (P = 0.014), birth order (P = 0.004), and place of living (P = 0.005).

Conclusions: The most common form of abuse among students was parental neglect. A lack of parental awareness regarding appropriate child-rearing behaviors can contribute to child abuse. Therefore, it is recommended that schools and other relevant institutions increase efforts to educate parents on preventing various forms of abuse.

Keywords: Physical Abuse, Psychological Abuse, Negligence, Child Abuse

1. Background

Child abuse is a widespread global issue with serious and lasting consequences for its victims (1), and it is one of the most significant preventable risk factors for mental disorders in adulthood (2). According to the World Health Organization (WHO), child abuse and maltreatment is defined as any form of physical or mental abuse, neglect, sexual abuse, or exposure to violent scenes involving children under the legal age, which may result in actual or potential harm to their physical or mental health. The WHO reports that nearly 3 out of 4 children or 300 million children aged 2 to 4

years regularly experience physical punishment or psychological violence from parents and caregivers (3). In the United States, over 600,000 children are subjected to abuse and neglect annually, and in 2021, around 1,820 children lost their lives due to such mistreatment, with 77% of verified cases involving parental abuse (4). In Iran, child abuse ranks as the leading form of domestic violence, with 20 to 25 cases of child abuse reported daily to social emergency services (5). A systematic review conducted in Iran found that around 2.58% to 4.5% of children reported physical abuse, 3.7% to 6.91% reported psychological abuse, and

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5.5% to 5.83% reported neglect. Several social and cultural factors influence the occurrence of child abuse (6).

2. Objectives

Given the importance of this issue, the high prevalence of child abuse, and its profound effects on the future of children, this study was conducted to investigate the prevalence of child abuse and the factors influencing it among parents of elementary school children in the city of Abadan.

3. Methods

3.1. Study Subjects

The current study is an analytical-descriptive study conducted in 2023. The study population consisted of elementary school students in Abadan county. Since the total number of boys in elementary schools in Abadan is approximately one-third that of girls, 7 schools were randomly selected, including 3 girls' schools and 4 boys' schools. A total of 378 male and female students were included in the study using the cluster sampling method. From each school, 54 students were randomly selected, with 9 students from each grade (second to sixth).

The inclusion criteria for the study were children from second to sixth grade who were willing to complete the questionnaires, while the exclusion criteria involved incomplete questionnaires. Children with at least one positive response to questions related to each domain of psychological abuse, physical abuse, or neglect were considered victims of that specific type of abuse.

3.2. Ethical Concerns

The Ethics in Research Committee of Kerman University of Medical Sciences approved the study protocol under the code IR.ABADANUMS.REC.1399.202.

3.3. Data Collection

The research instruments used in this study included a demographic information questionnaire and a standard child abuse questionnaire. The demographic questionnaire, based on a review of previous studies, contained questions such as the child's age, number of children in the family, child's gender, birth order, parents' addiction, divorce, parents' employment, the

amount of time the child stays at home, and the health status of the parents and other family members.

The child abuse questionnaire was developed by Hossein Khani et al. and consists of 26 items across three domains. It uses a three-point Likert Scale, ranging from "never" to "always" (scored from 1 to 3). The questionnaire includes 10 questions each for physical abuse and psychological abuse, and 6 questions for neglect, all designed in simple language based on the child's understanding. The content validity of the questionnaire was confirmed by experts in the field, and the reliability was assessed using Cronbach's alpha for the domains of physical abuse (0.98), psychological abuse (0.96), and neglect (0.83), with an overall reliability score of 0.97 for the entire questionnaire. The mean clarity and relevance of the questionnaire were 80.36% and 92.5%, respectively, with the relevance of questions ranging from 90.14% to 97.2% (7).

For second- and third-grade students, the questionnaires were completed confidentially through verbal questions asked by the teacher at school. Fourthto sixth-grade students completed the questionnaires using a self-reporting method.

3.4. Data Analysis

After the completion of all questionnaires, the collected data were analyzed using SPSS software version 21. Descriptive statistical methods, including frequency, percentage, mean, and standard deviation, were employed to summarize the data. Additionally, inferential statistical tests, such as the independent *t*-test, chi-square test, ANOVA, and covariance analysis.

4. Results

The 378 students participating in the study were aged between 7 and 13 years, with an average age of 10.43 years and a standard deviation of 1.37. Of the participants, 51.4% were boys, and the remaining were girls. Parental neglect was the most commonly reported form of abuse, affecting 75.53% of the children, followed by psychological abuse at 38.68% and physical abuse at 35.78%. Table 1 presents the prevalence of different types of abuse among elementary school children.

In examining factors associated with child abuse by parents, the results showed that girls reported higher rates of physical abuse (46.2%), while boys reported higher rates of psychological abuse (55.6%) and parental

Table 1. Prevalence of Abuse Types in Elementary School Children				
Types of Abuse	Frequency (%)	Mean ± SD		
Negligence	287 (75.53)	14.91 ± 2.23		
Psychological abuse	147 (38.68)	11.78 ± 2.75		
Physical abuse	136 (35.78)	11.21 ± 2.64		

neglect (99.4%). Additionally, children whose parents had only a diploma education experienced higher rates of all forms of abuse.

Children whose parents were suffering from a disease (86.6%), had an addiction (91.8%), or were divorced (95.7%) reported higher rates of parental neglect. The study also found that first-born children and those from two-child families experienced the highest levels of child abuse.

Pearson's correlation coefficient was used to assess the relationships between physical and psychological abuse and parental neglect. The results indicated a statistically significant correlation between psychological abuse (r = 0.733) and parental neglect (r = 0.871) with physical abuse. Furthermore, there was a significant relationship between psychological abuse and parental neglect, with a correlation coefficient of (r = 0.796). Table 2 outlines the factors related to physical, psychological abuse, and parental neglect in elementary school children.

5. Discussion

The current research aimed to investigate the prevalence of child abuse and its influencing factors by parents in elementary school children in Abadan in 2023. The most common type of abuse reported in this study was parental neglect, with a prevalence of 75.53%. Regarding factors related to neglect, the most common issues were failing to provide books and school supplies, neglecting meals, and the child's perception of family affection. Neglect has been recognized as the most common form of child abuse (8, 9), with meal preparation being one of the most prevalent forms of physical neglect by parents (10). In a meta-analysis, emotional neglect was identified as the most common form of neglect (11), which aligns with the results of this study. Additionally, the most frequent type of psychological abuse reported in this study was arguing with the child and comparing them to other children.

Research has shown that children who experience psychological abuse are more likely to develop depression, anxiety, and stress in adulthood compared to those who have experienced physical or sexual abuse alone, or both physical and sexual abuse (12). This highlights the need to increase parental awareness in this area. The most common form of physical abuse reported in the present study was pinching, followed by ear twisting. Similarly, in a study by Farnia et al., slapping and pinching were identified as the most common forms of physical abuse among boys and girls (13). Other studies have also found that physical abuse is the most common form of child abuse after neglect (9, 14), with soft tissue injuries being the most frequent physical finding in child abuse cases (15, 16).

This study also revealed significant differences between boys' and girls' perspectives on mental and physical abuse, with girls reporting more physical abuse and boys more psychological abuse. In a systematic review by Moody et al. on the prevalence of child abuse by type and gender, results showed that in Europe and America, boys reported higher rates of physical abuse, while in Asia, boys reported higher rates of psychological abuse (33.2%) compared to girls (26.9%) (17). According to Rafei et al., the number of boys experiencing abuse was significantly higher than girls (18), while Hashemi et al. found that girls reported higher levels of abuse compared to boys (19). Some studies suggest that girls are more vulnerable to sexual and psychological abuse, while boys are more susceptible to neglect (20, 21). Differences in findings across studies may be attributed to variations in the definition of abuse and the assessment instruments used.

Parental addiction in this study had a significant impact on child abuse. The results align with the findings of Dye, which indicated a statistically significant relationship between physical and emotional child abuse and parental addiction (12). Similarly, in a study by Farnia et al., it was reported that

/ariables	Physical Abuse	P-Value	Psychological Abuse	P-Value	Parental Negligence	P-Value
Gender		0.001		0.005		0.085
Female	85 (46.2)		84 (45.6)		177 (96.1)	
Male	51 (27.7)		109 (55.6)		195 (99.4)	
Grade		0.183		0.001		0.014
Second	62 (83.8)		23 (30.3)		64 (85.3)	
Third	41 (54.5)		28 (37.0)		72 (96.3)	
Forth	32 (42.5)		40 (53.3)		69 (92.0)	
Fifth	31 (41.3)		36 (48.1)		61(81.4)	
Sixth	48 (64.6)		70 (90.3)		71 (93.2)	
lumber of children		0.384		0.577		0.170
1	22 (37.2)		30 (50.8)		58 (98.3)	
2	63 (48.8)		92 (47.9)		183 (95.3)	
3	33 (36.2)		49 (53.8)		86 (94.5)	
4	15 (48.4)		18 (58.0)		30 (96.8)	
5	3 (42.8)		4 (75.0)		7(100.0)	
irth order	3(42.0)	0.650	4(75.0)	0.827	7(100.0)	0.004
1	60/266\	0.030	08 (53.0)	0.027	195 (06 3)	0.004
2	68 (36.6) 55 (35.4)		98 (52.0) 77 (51.3)		185 (96.3) 142 (94.6)	
3	8 (28.5)		12 (42.8)		28 (100.0)	
4	4 (0.50)		5 (62.5)		7 (87.5)	
5	0 (0.00)		1(50.0)		2 (100.0)	
oneliness at home		0.417		0.002		0.148
0	84 (33.8)		116 (46.7)		237 (95.5)	
1	29 (46.0)		42 (66.6)		60 (95.2)	
2	9 (29.0)		17 (58.6)		28 (96.5)	
3	4 (28.6)		4 (28.6)		14 (100.0)	
4	3 (50.0)		4 (66.6)		6 (100.0)	
5	6 (35.3)		9 (52.9)		16 (94.1)	
6	1(33.3)		3 (50.0)		3 (100.0)	
ather's education		0.001		0.840		0.996
Illiterate	1(100.0)		1 (100.0)		1(50.0)	
Under diploma	29 (46.7)		35 (56.4)		58 (93.5)	
Diploma	67 (35.8)		93 (49.7)		179 (95.7)	
Bachelor	31 (30.1)		50 (48.5)		100 (97.1)	
Postgraduate	8 (36.3)		13 (59.0)		21 (95.4)	
Doctorate	0 (0.00)		1(25.0)		4 (100.0)	
lother's education		0.349		0.001		0.607
Illiterate	2 (100.0)		2 (100.0)		2 (100.0)	
Under diploma	25 (33.8)		39 (52.7)		69 (93.2)	
Diploma	75 (37.7)		99 (49.7)		190 (95.4)	
Bachelor	26 (35.9)		41 (48.8)		82 (97.6)	
Postgraduate	7 (38.8)		10 (55.5)		18 (100.0)	
Doctorate	1(33.3)		2(66.6)		3(100.0)	
lace of living		0.718	· ·	0.986	· /	0.053
Landlord	100 (28.2)		180 (50.7)		339 (95.5)	
Renting	16 (64.0)		13 (52.0)		25 (100.0)	
arental illness	10(04.0)	0.001	(32.0)	0.184	25 (100.0)	0.425
Yes	129 (46.6)	0.001	182 (73.3)	0.184	351 (86.6)	0.425
	129 (40.0)	0.000	102 (75.5)	0.000	331 (80.0)	0.000
arental addiction		0.006	(-)	0.029		0.329
Yes	24 (49.0)		32 (65.3)		45 (91.8)	
arental divorce		0.03		0.851		0.709

^a Values are expressed as No. (%).

the likelihood of child abuse in families where both parents were addicted was 2.66 times higher than in families where only the father was addicted (13). This can be attributed to the financial, health, and emotional

challenges that arise from addiction, which may contribute to abusive behavior toward children.

The current study also found that parental illness significantly influenced physical abuse. A meta-analysis

conducted by Azam Azad indicated that physical or mental health issues in parents, with a prevalence of 44.5%, were among the most influential factors contributing to child abuse (22), consistent with our study's findings.

In this study, students whose parents had a diplomalevel education reported higher instances of child abuse. In a qualitative study conducted by Ansari et al., the level of awareness of physical abuse among parents with and without academic education was found to be the same. However, parents with academic education had a greater awareness of psychological abuse (23). Ghorbani et al. also reported that 64% of abuse cases in their study were related to parents with only elementary education or who were illiterate (24). Based on these results, it seems that in addition to education level influencing parents' awareness of different types of abuse, parents with higher education levels may display increased sensitivity toward their children, which can lead to psychological abuse from the children's perspective in this study.

Furthermore, students whose parents were divorced reported higher rates of child abuse. This is consistent with findings by Hashemi et al., who identified unstable family dynamics and single parenting as factors contributing to child abuse (19). However, Gross-Manos et al. suggested that drug abuse, alcohol consumption, and parental mental health problems were the most significant factors in parental abuse, with divorce being less impactful (25). This discrepancy may be due to differences in data collection methods while the current study relied on self-reported questionnaires completed by children, the Manus study used reports from children's caregivers. It is possible that women view "divorce" and "unemployment" as less important factors for child abuse compared to men (25).

Finally, research shows that teachers with a history of psychological abuse in childhood are more likely to report a higher number of suspected cases of child abuse (26). This suggests that personal experience of abuse may influence teachers' sensitivity to detecting child abuse in their students.

In this study, homeownership also showed a significant difference in relation to parental psychological abuse. The results align with a review study by Aziznejad Roshan and Shaker Zavardee, which identified poor economic status and renting as

influential factors in child abuse (27). It's important to recognize that society's perspective on the factors contributing to child abuse evolves over time and may be shaped by individuals' socio-economic status and cultural background (25). Child abuse arises from the interplay of various risk factors present in parents, children, and the living environment (28).

Given the varying definitions of child abuse, it is unsurprising that estimates of its prevalence may differ. These discrepancies are likely due to differences in how child abuse is defined or perceived, as well as the characteristics of the samples studied. In the current research, children's self-reporting was used to fill out the questionnaires. It should be noted that factors such as shame, fear, or feelings of loyalty towards parents (29) may have influenced the results. Despite these challenges, providing supportive and educational interventions for parents and caregivers can help prevent child abuse.

It is recommended that future studies compare the levels of abuse reported by children, teachers, and school counselors to gain a more comprehensive understanding of the issue.

Footnotes

Authors' Contribution: Study concept and design: S. S.; acquisition of data, analysis and interpretation of data: Z. K.; drafting of the manuscript, critical revision of the manuscript for important intellectual content, study supervision: A. A.

Conflict of Interests Statement: The authors have no conflict of interest.

Data Availability: The data presented in this study are uploaded during submission as a supplementary file and are openly available for readers upon request.

Ethical Approval: IR.ABADANUMS.REC.1399.202.

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Informed Consent: Written informed consent was obtained from the participant.

References

- Vial A, van der Put C, Stams G, Kossakowski J, Assink M. Exploring the interrelatedness of risk factors for child maltreatment: A network approach. *Child Abuse Negl*. 2020;107:104622. [PubMed ID: 32663718]. https://doi.org/10.1016/j.chiabu.2020.104622.
- Teicher MH, Gordon JB, Nemeroff CB. Recognizing the importance of childhood maltreatment as a critical factor in psychiatric diagnoses, treatment, research, prevention, and education. *Mol Psychiatry*. 2022;27(3):1331-8. https://doi.org/10.1038/s41380-021-01367-9.
- 3. Massullo C, De Rossi E, Carbone GA, Imperatori C, Ardito RB, Adenzato M, et al. Child Maltreatment, Abuse, and Neglect: An Umbrella Review of Their Prevalence and Definitions. Clin Neuropsychiatry. 2023;20(2):72-99. [PubMed ID: 37250758]. [PubMed Central ID: PMC10211430]. https://doi.org/10.36131/cnfioritieditore20230201.
- Bifulco A, Schimmenti A. Assessing child abuse: "We need to talk!".
 Child Abuse Negl. 2019;98:104236. [PubMed ID: 31683250]. https://doi.org/10.1016/j.chiabu.2019.104236.
- Dolisgan KK, Razisni Y. A review of child abuses and its management in Iran. J Critical Rev. 2020;7(19):9899-906.
- Salehian M, Maleki-Saghooni N, karimi FZ. Prevalence of Child Abuse and its Related Factors in Iran: A Systematic Review. Rev Clin Med. 2021;8(2):69-78. https://doi.org/10.22038/rcm.2021.57344.1366.
- Berzenski SR, Madden AR, Yates TM. Childhood emotional abuse characteristics moderate associations with adult psychopathology and caregiving. *Child Abuse Neglect*. 2019;87:77-87. https://doi.org/10.1016/j.chiabu.2018.06.004.
- Keeney AJ, Beseler CL, Ingold SS. County-level analysis on occupation and ecological determinants of child abuse and neglect rates employing elastic net regression. *Child Abuse Negl.* 2023;137:106029.
 [PubMed ID: 36642010]. https://doi.org/10.1016/j.chiabu.2023.106029.
- Bodkin C, Pivnick L, Bondy SJ, Ziegler C, Martin RE, Jernigan C, et al. History of Childhood Abuse in Populations Incarcerated in Canada: A Systematic Review and Meta-Analysis. Am J Public Health. 2019;109(3):e1-e11. [PubMed ID: 30676787]. [PubMed Central ID: PMC6366501]. https://doi.org/10.2105/AJPH.2018.304855.
- Brunton R, Dryer R. Child Sexual Abuse and Pregnancy: A Systematic Review of the Literature. *Child Abuse Negl.* 2021;111:104802. [PubMed ID: 33218712]. https://doi.org/10.1016/j.chiabu.2020.104802.
- Carvalho Silva R, Oliva F, Barlati S, Perusi G, Meattini M, Dashi E, et al.
 Childhood neglect, the neglected trauma. A systematic review and meta-analysis of its prevalence in psychiatric disorders. *Psychiatry Res.* 2024;335:115881. [PubMed ID: 38579459]. https://doi.org/10.1016/j.psychres.2024.115881.
- Dye HL. Is Emotional Abuse As Harmful as Physical and/or Sexual Abuse? *J Child Adolesc Trauma*. 2020;13(4):399-407. [PubMed ID: 33269040]. [PubMed Central ID: PMC7683637]. https://doi.org/10.1007/s40653-019-00292-y.
- Farnia V, Tatari F, Moradinazar M, Salemi S, Juibari TA, Alikhani M, et al. Investigating the prevalence of child abuse in the families with addicted parents in Iran: With emphasis on family risk factors. Clin Epidemiol Global Health. 2020;8(4):1098-103. https://doi.org/10.1016/j.cegh.2020.03.027.
- 14. Douki ZE, Esmaeili MR, Vaezzadeh N, Mohammadpour RA, Azimi H, Sabbaghi R, et al. Maternal child abuse and its association with

- maternal anxiety in the socio-cultural context of iran. *Oman Med J.* 2013;**28**(6):404-9. [PubMed ID: 24223243]. [PubMed Central ID: PMC3815852]. https://doi.org/10.5001/omj.2013.116.
- Berthold O, Frericks B, John T, Clemens V, Fegert JM, Moers AV. Abuse as a Cause of Childhood Fractures. *Dtsch Arztebl Int.* 2018;115(46):769-75. [PubMed ID: 30602409]. [PubMed Central ID: PMC6329369]. https://doi.org/10.3238/arztebl.2018.0769.
- Khalilizad M. [Diagnosing fractures in child physical abuse: a review study]. Clin Excellence. 2023;13(1):17-33. FA.
- Moody G, Cannings-John R, Hood K, Kemp A, Robling M. Establishing the international prevalence of self-reported child maltreatment: a systematic review by maltreatment type and gender. *BMC Public Health*. 2018;**18**(1). https://doi.org/10.1186/s12889-018-6044-y.
- Rafaiee R, Mohseni F, Akbarian N. Prevalence of Child Abuse and Correlations with Family Factors Among Elementary School-aged Children. Int J High Risk Behav Addict. 2021;10(2). e108823. https://doi.org/10.5812/ijhrba.108823.
- Hashemi E, Azari H, Karimi-Taleqani M. [Effective Factors of Child Abuse within Family]. Iran J Forensic Med. 2019;25(3):209-16. FA.
- Pedroso MRDO, Leite FMC. Violência recorrente contra crianças: análise dos casos notificados entre 2011 e 2018 no Estado do Espírito Santo. Epidemiologia e Serviços de Saúde. 2021;30(3). https://doi.org/10.1590/s1679-49742021000300003.
- Macedo DM, Lawrenz P, Hohendorff JV, Freitas CPP, Koller SH, Habigzang LF. Characterization of Child Maltreatment Cases Identified in Health Services. *Paidéia (Ribeirão Preto)*. 2020;30. https://doi.org/10.1590/1982-4327e3018.
- 22. Azam Azade M, Asadpour A. Investigating the Factors Affecting the Incidence of Child Abuse (Meta-Analysis of Existing Studies). *J Woman Fam Stud.* 2021;9(3):33-55. https://doi.org/10.22051/jwfs.2021.32370.2486.
- 23. Ansari S, Farahbakhsh K, Naeimi E. [The comparison between parents knowledge with and without a college education about the types of child abuse]. *J Counsel Res.* 2020;**18**(72):30-65. FA. https://doi.org/10.29252/jcr.18.72.30.
- 24. Ghorbani SA, Sadat NN, Saffarian TM, Ormoz E. Studying the Role of Parents' Quality of Life and Job Satisfaction on Misconduct of an Abused Child. Middle Eastern | Disability Stud. 2022;246(12).
- Gross-Manos D, Haas BM, Richter F, Korbin JE, Coulton CJ, Crampton D, et al. Why Does Child Maltreatment Occur? Caregiver Perspectives and Analyses of Neighborhood Structural Factors Across Twenty Years. *Child Youth Serv Rev.* 2019;99:138-45. [PubMed ID: 31371843]. [PubMed Central ID: PMC6674984]. https://doi.org/10.1016/j.childyouth.2019.01.043.
- Fabris MA, Longobardi C, Settanni M, Mastrokoukou S. Childhood trauma and factors influencing primary school teachers' reporting of child abuse: Insights from Italy. *Child Abuse Negl.* 2024;149:106631. [PubMed ID: 38218053]. https://doi.org/10.1016/j.chiabu.2023.106631.
- Aziznejad-Roshan P, Shaker Zavardee F. Child abuse and investigating the factors affecting it and providing prevention solutions. The second national rehabilitation counseling congress of Iran. Tehran, Iran. 2021.
- Duindam HM, Vial A, Bouwmeester-Landweer MB, van der Put CE. Differences and similarities between mothers' and fathers' risk factors for child maltreatment. *Child Youth Services Rev.* 2023;150. https://doi.org/10.1016/j.childyouth.2023.106902.

29. Nasiri M, Mohammadi MR, Ahmadi N, Alavi SS, Rezazade H, Ostovar rostami F, et al. The Epidemiology of Psychiatric Disorders in Children and Adolescents in Mazandaran Province. *Journal of Babol*

 $\label{lem:continuous} \begin{tabular}{ll} $University & of & Medical & Sciences. & 2019; {\bf 21} (1): 314-9. & eng. \\ $https://doi.org/10.22088/jbums.21.1.314. & \end{tabular}$