

# CHILD PHYSICAL ABUSE WITH IMPACT ON THE ORAL CAVITY: ABUSERS' VULNERABILITIES

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## ABSTRACT

**Introduction.** Child physical abuse is a worldwide phenomenon with a multifactorial cause. The oral cavity is the potential focus center of abuse, in more than 50% of cases, due to its essential role in communication and nutrition. **The aim of this study** is to analyze the abusers' vulnerabilities which predispose them to perpetration of child physical abuse, their action resulting in traumatic injuries of the oral cavity. **Material and methods.** We have carried out a retrospective cohort study on a group with 67 patients aged between 3 months and 18 years, 49 boys and 18 girls, victims of physical violence, between 2014-2018 in Bihor county. The data collected were statistically analyzed and processed and the results were rendered with the help of descriptive and correlational studies. **Results.** It was noted that fathers (46.3%) or concubines (23.9%), aged between 21-40 years (78.5%), have perpetrated abuse most often, the majority being illiterate (35.8%) or with primary education not completed (29.9%). Moreover, a significant percentage of abusers was observed to have chronic diseases (43.2%) also associated with alcoholism (43.3%). **In conclusion,** it is important to raise the level of education, both in rural and urban areas, so as to increase the level of awareness of the population, in order to achieve secondary prevention in case of physical abuse.

**Keywords:** child, oral and maxillofacial lesions, physical abuse, abuser

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## INTRODUCTION

Child physical abuse is a widespread phenomenon throughout the world, being recognized as the most visible form of abuse. It represents the action or inaction, singular or repeated, of a parent or a person in a position of responsibility, power or trust that results in actual or potential physical injury (1). This is the result of a complex interaction between child, caregiver/guardian and environmental factors; there is no specific etiological factor. Even if child abuse occurs in all age groups, ethnicities and cultures, there are specific situations that often trigger abuse. The increase in the risk of child abuse is most often due to the coexistence and interconnection of multiple factors (2-4).

Injuries in the cephalic extremity, especially in the massive craniofacial, as well as in the soft oral and facial tissue, occur in more than 50% of child abuse cases (5-9). Thus, the oral cavity becomes the potential focus center of physical abuse, due to its significant role in communication and nutrition (5,10,11). The post-traumatic injuries with oral and maxillofacial localization are easily identified by the dentist, my means of a careful intraoral and extraoral examination, which has a crucial role in diagnosing this type of abuse, being shown that abusers take their children to the same dentist (12,13).

The study of characteristics in the case of

abusers is limited, being closely linked to research on physically abused children. The aim of discovering vulnerabilities is to contribute to the well-being of children by trying to change the caregiver's behavior and life circumstances (14).

The following risk factors were identified, in a significant percentage in abusers, in the case of child abuse: low social status, domestic violence, cognitive and intellectual disorders, psychological problems, physical problems and consumption of alcohol and/or dangerous substances. Parental factors such as the young age of the parent, single parent (caused by death or divorce), cohabitation, low level of education, high number of children in the family, low family income, lack of job and parental psychopathology, all these were associated with physical abuse. Also, social and environmental factors such as poverty, slums, social isolation, religious beliefs represent a risk of child abuse and these can encourage and justify the parent's aggressive behavior (14-17).

Alcohol or drug use may alter the mood, and in case of weaning, possible onset of anxiety, insomnia, attention difficulties, depression (at least temporary), symptoms of mental problems, low self-esteem which, associated with other risk factors can lead to the perpetration of abuse (18).

The investigation conducted in cases of child abuse has revealed that an important part of the abusive parents come from families with a high degree of violence, these parents themselves being abused

as children, which draws attention to the danger of transgenerational transmission, the lack of interest in child's development and meaningless destructiveness in family life (4).

The aim of this study is to analyze the abusers' vulnerabilities which predispose them to physical abuse of the child, their action resulting in traumatic injuries of the oral cavity.

## MATERIAL AND METHODS

The retrospective cohort study was carried out on a group with 67 patients aged between 3 months and 18 years, namely 49 boys and 18 girls, all residing in Bihor county, both in rural and urban areas. All patients investigated were victims of physical violence, between 2014-2018. The study was performed within the Bihor County Forensic Medicine Service, the Municipal Clinical Hospital "Dr. Gavril Curteanu" Oradea – Pediatrics Department and at a Private dental practice in Oradea.

The statistical analysis was carried out using IBM SPSS Statistics 20 and Microsoft Office Excel/Word 2013 programs. Quantitative variables were tested for distribution using the Shapiro-Wilk test and were expressed as mean with standard deviations and categorical variables were expressed as absolute form or percentage. Independent quantitative variables were tested using Student T-Test/Mann-Whitney U/Kruskal Wallis H in relation to their distribution and the existing correlations have been proven using the Spearman's Rho correlation coefficient, while the qualitative variables were tested using Fisher's Exact Test. Z tests with Bonferroni correction were performed in order to present in detail the results obtained in testing the qualitative variables. Dunn-Bonferroni tests have represented post-hoc tests carried out to detail the results obtained in testing the independent quantitative variables.

## RESULTS

Parameters	Valid case No.	Value			
Child's gender (No./%)	67	49 (73.1%) M / 18 (26.9%) F			
Age (Mean ± SD years)	67	6.63 ± 3.7409 (Min = 0.3, Max=17, Median=6)			
Background (No./%)	67	24 (35.8%) Urban / 43 (64.2%) Rural			
Child's health condition (No./%)	67	49 (73.1%) Healthy	13 (19.4%) With acute illness	5 (7.5%) With chronic disease	
Child's nationality (No./%)	67	17 (25.4%) Hungarian	27 (40.3%) Rroma	16 (23.9%) Romanian	7 (10.4%) Slovak
Child's family (No./%)	67	33 (49.3%) Normal / 34 (50.7%) Dysfunctional			

Table 1. Patient distribution within the study in relation to children data

Parameters	Valid case No.	Value					
Person (No./%)	67	31 (46.3%) Father	5 (7.5%) Mother	2 (3%) Both parents	16 (23.9%) Concubine	7 (10.4%) Stepfather	6 (9%) Nanny
Age (No./%)	65	4 (6.2%) <21 years	51 (78.5%) 21-40 years	9 (13.8%) 41-60 years	1 (1.5%) >60 years		
Studies (No./%)	67	24 (35.8%) Illiteracy	20 (29.9%) Primary education not completed	10 (14.9%) Primary education completed	13 (19.4%) Secondary education		
Health condition (No./%)	44	25 (56.8%) Healthy / 19 (43.2%) With chronic disease					
Alcoholism (No./%)	67	38 (56.7%) Absent / 29 (43.3%) Present					

Table 2. Patient distribution within the study in relation to abusers' data

The data presented in Table 1 and 2 represent the patient distribution within the study in relation to children data and abusers' data. It is thus noted that:

- most children are boys (73.1%), with an average age of  $6.63 \pm 3.7409$  years, ranging from 0.3 to 17 years; most of them are from rural areas (64.2%);
- it was noted that most children were clinically healthy (73.2%), of various nationalities, ranging from Rroma (40.3%) to Hungarian (25.4%), Romanian (23.9%) or Slovak (10.4%); in addition, it was noted that the percentage of children living in a normal family

(49.3%) is approximately similar to that of children living in a dysfunctional family (50.7%), most of these children are living in dysfunctional families such as cohabitation (61.8%) or divorce (29.4%), death (5.9%) or single mother (2.9%) representing rare cases;

- in the case of abusers, it is noted that that the father (46.3%) or the concubine (23.9%) is most often involved, with age frequently ranging between 21-40 years (78.5%); the abusers included in the study have had very low level of education, most of them being illiterate (35.8%) or with primary studies not completed (29.9%);
- moreover, a significant percentage of abusers was noted to suffer from chronic disease (43.2%), associating alcoholism as well (43.3%);

to the health condition ( $p > 0.05$ ) and non-parametric in the case of non-alcoholics ( $p = 0.022$ ). According to Student and Mann-Whitney U tests, it was noted that the age of children abused by persons with chronic disease ( $8.158 \pm 3.933$  years), respectively by alcoholics (mid-ranking = 40.05), is significantly higher than that of children abused by healthy persons ( $4.848 \pm 3.2$  years) ( $p = 0.004$ ), respectively by non-alcoholics (mid-ranking = 29.38) ( $p = 0.026$ ).

The data presented in Table 4 and Figure 3, 4 represent the patient distribution in relation to their background or family and the abusers' level of education. According to Fisher tests, significant differences are

Criterion	Mean $\pm$ SD	Median (IQR)	Mid-ranking	p*
Healthy ( $p=0.133^{**}$ )	4.848 $\pm$ 3.2	5 (1.9-7)	-	0.004
With chronic disease ( $p=0.087^{**}$ )	8.158 $\pm$ 3.933	9 (5-9)	-	
Criterion	Mean $\pm$ SD	Median (IQR)	Mid-ranking	p****
Non-alcoholics ( $p=0.022^{**}$ )	5.847 $\pm$ 3.81	5 (3-8)	29.38	0.026
Alcoholics ( $p=0.364^{**}$ )	7.655 $\pm$ 3.446	8 (5-9.5)	40.05	

\*Student T-Test, \*\*Shapiro-Wilk Test, \*\*\*Levene's Test for Equality of Variances, \*\*\*\*Mann-Whitney U Test

Table 3. Value of the child's age in relation to the abusers' health condition

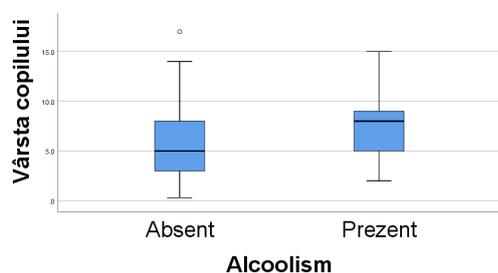


Figure 1. The age of the child in relation to the abuser's health condition

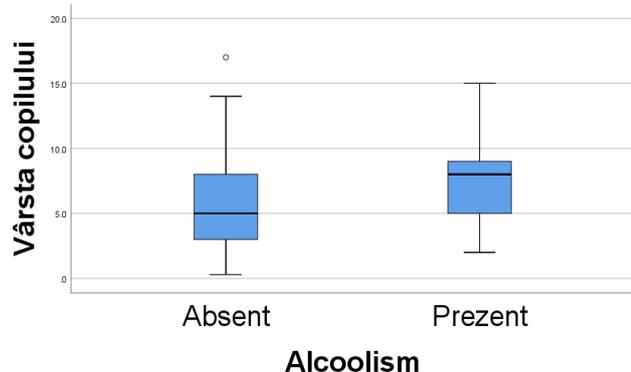


Figure 2. The age of the child in relation to the abuser's alcoholism criterion

- The data presented in Table 3 and Figure 1, 2 represent the value of the child's average age in relation to the abusers' health condition. According to Shapiro-Wilk test, the age distribution was parametric in relation

noted regarding the children distribution in relation to their background and the aggressors' level of education ( $p = 0.020$ ) or the family of children and the aggressors' level of education ( $p = 0.005$ ). Subsequent Z tests with Bonferroni correction show that:

- aggressors with secondary education have significantly assaulted children more frequently from the urban area (33.3% vs. 11.6%);
- illiterate aggressors have significantly assaulted children more frequently from normal families (51.5%) than children from dysfunctional families due to divorce (0%);
- aggressors with primary education completed have significantly assaulted children more frequently from dysfunctional families due to death (100%) than children from normal families (12.1%) or children from dysfunctional families due to cohabitation (14.3%).

The data presented in Table 5 and Figure 5 represent the patient distribution in relation to their nationality and the abusers' level of education. According to Fisher tests, significant differences are noted in relation to the children distribution depending on their nationality and the aggressors' level of education ( $p < 0.001$ ). Subsequent Z tests with Bonferroni correction show that:

- illiterate abusers have significantly assaulted Roma children more frequently (74.1%);

- abusers with primary education not completed have significantly assaulted Slovak children more frequently (71.4%) than Romanian children (6.3%);

- abusers with primary education completed have significantly assaulted Hungarian children (35.3%) or Romanian children (25%) more frequently than Roma children (0%);

- abusers with secondary education have significantly assaulted Romanian children more frequently (56.3%) than Roma children (0%);

Background / Education	Illiteracy	Primary education completed	Primary education not completed	Secondary education	p*
	No. (%)	No. (%)	No. (%)	No. (%)	
Urban	5 (20.8%)	6 (25%)	5 (20.8%)	8 (33.3%)	0.020
Rural	19 (44.2%)	4 (9.3%)	15 (34.9%)	5 (11.6%)	
Education /Family	Illiteracy	Primary education completed	Primary education not completed	Secondary education	p*
Normal	17 (51.5%)	4 (12.1%)	6 (18.2%)	6 (18.2%)	
Dysfunctional due to death	0 (0%)	2 (100%)	0 (0%)	0 (0%)	
Dysfunctional due to cohabitation	7 (33.3%)	3 (14.3%)	8 (38.1%)	3 (14.3%)	
Dysfunctional due to divorce	0 (0%)	1 (10%)	5 (50%)	4 (40%)	
Single mother	0 (0%)	0 (0%)	1 (100%)	0 (0%)	

\*Fisher's Exact Test

Table 4. Patient distribution in relation to the abusers' background or family and level of education

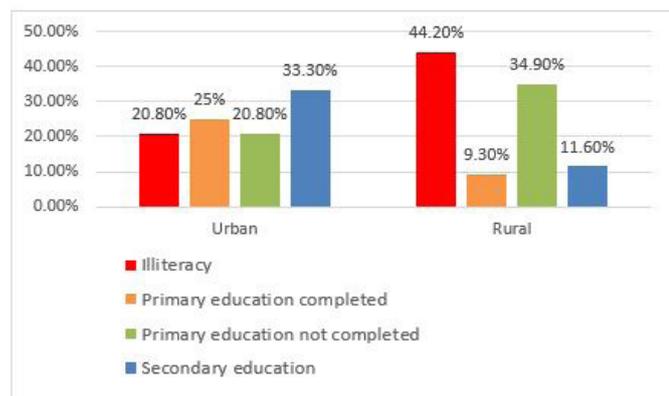


Figure 3. Patient distribution in relation to the abusers' family and level of education

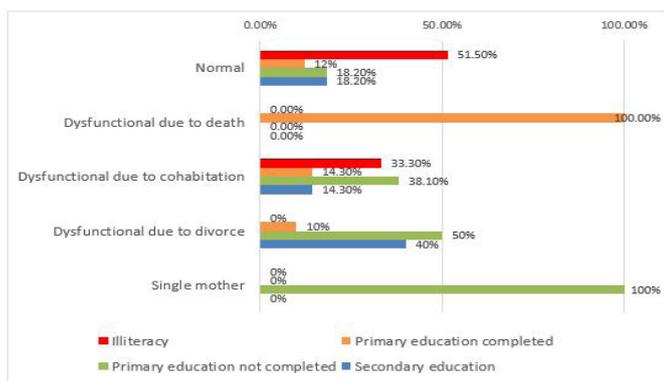


Figure 4. Patient distribution in relation to their background and level of education

## DISCUSSIONS

There are very few studies on abusers' vulnerabilities in literature.

It was noted that fathers (46.3%) or concubines (23.9%), aged between 21-40 years (78.5%), have perpetrated

Education/ Nationality	Illiteracy	Primary education completed	Primary education not completed	Secondary education	p*
Hungarian	2 (11.8%)	6 (35.3%)	7 (41.2%)	2 (11.8%)	<0.001
Roma	20 (74.1%)	0 (0%)	7 (25.9%)	0 (0%)	
Romanian	2 (12.5%)	4 (25%)	1 (6.3%)	9 (56.3%)	
Slovak	0 (0%)	0 (0%)	5 (71.4%)	2 (28.6%)	

\*Fisher's Exact Test

Table 5. Patient distribution in relation to their nationality and the abuser's level of education

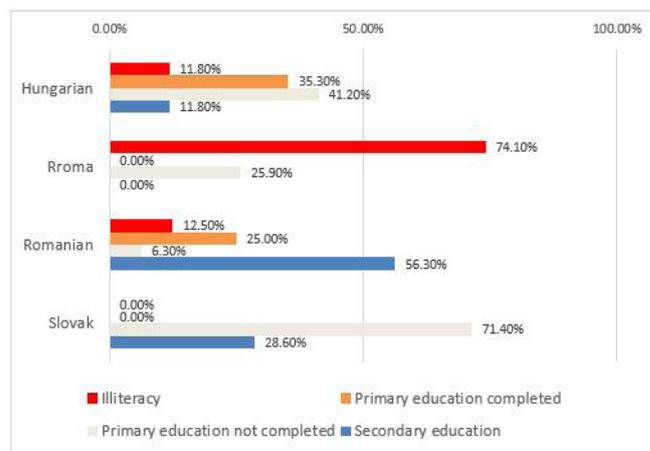


Figure 5. Patient distribution in relation to their nationality and the abuser's level of education

abuse most often. Dysfunctional families have a higher risk of abuse, due to the probable lack of emotional attachment to the child (19).

Most of the abusers presented in this study were illiterate (35.8%) or with primary education not completed (29.9%), with distribution towards the rural area, observing an increase of abuse inversely proportional to the level of education. This was also confirmed by the study carried out by Wekerle C. et al. in 2007, where 4.8% of the caregivers had only primary education (20).

This study notes that 43.2% of the abusers were suffering from chronic diseases, also associated with alcoholism (43.3%), thus observing that chronically ill caregivers have an increased predisposition to alcoholism. The Canadian study performed by Taillieu T.L. et al in 2008 shows that alcohol consumption was associated with 12.3%. Excessive alcohol consumption can cause drowsiness or, on the other hand, aggression and violence. It has been shown, however, that alcohol can affect the same person differently, depending on several variables such as: mental state at the time of consumption, tolerance to alcohol, expectations, personality and dosage (18).

It is wrong to believe that caregivers who suffer from a single disorder, or alcohol consumption, drugs, mental problems, cognitive impairment are prone to perpetration of physical abuse. Studies show that, by providing adequate support, they can be prompt and loving parents/caregivers and have a low risk of physical aggression of the child (18,20).

## CONCLUSIONS

Physical abuse with repercussions on the oral cavity was performed mainly by people with a low level of education (illiterate, elementary education not completed), who had chronic diseases and alcohol addiction, being part of both urban and rural areas. It is important to provide parental education programs to reduce child abuse, which should explain the child's behavior in seemingly critical situations (excessive crying caused by colic abdominal pain, hunger, etc.) and the child's normal development. The success of parental education is given by house-to-house visits, the creation of groups in different ethnic and social communities and the provision of moral and medical support to caregivers (17,19). In addition to methods of preventing physical abuse it is very important for any suspicion of physical abuse to be reported by the medical staff, the dentist to institutions specialized in child support (2,6). An impediment in building the brain map could be the association (73) between regional brain activity and transient emotional states. Esslen et al (74) presents that there are a few brain structures that are both involved in brain cognition.

**Conflicts of Interest: The authors declare no conflict of interest.**

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