

Oral Health-Related Quality of Life and Self-Esteem of Children with Post Traumatic Stress Disorder Living in War Zones: A case-control study

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Research article

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Abstract

Background The aim of the recent study was to evaluate oral health-related quality of life (OHRQoL) and self-esteem (SE) in a group of Syrian children with post-traumatic stress disorder (PTSD) living in war zones and to compare results with healthy controls.

Methods A total of 119 children (57 PTSD children vs. 62 healthy controls) aged between 10 and 14 years joined the present study. Child Post Traumatic Stress Disorder Reaction Index (CPTSD-RI) was utilized to confirm the diagnosis of PTSD symptoms. Child Perception Questionnaire (CPQ 11-14) was used to study OHRQoL. SE was measured with a subscale of the Child health questionnaire-child form87 (CHQ-CF87). T-tests for independent samples and Chi-square test utilized for in assessing the differences between groups.

Results PTSD children had significantly more oral symptoms such as bleeding gums ($p = 0.001$), mouth and food between teeth ($p = 0.000$) when compared to healthy controls. They also had more troubles in sleeping ($p = 0.019$) and chewing hard food ($p = 0.001$). In addition, PTSD children had significantly ($p = 0.000$) more difficulty in opening their mouth wide and eating hot or cold food. They felt unsure about their selves ($p = 0.009$) and felt unsecure about health ($p = 0.025$) and appearance ($p = 0.000$). Children with PTSD showed troubles in attention ($p = 0.001$) and doing homework ($p = 0.000$). They also avoided both activities ($p = 0.001$), being around other children ($p = 0.007$) and even felt left out ($p = 0.015$) more frequently than healthy peers. SE scores were lower in PTSD children when compared to controls (60.96 ± 18.71 vs. 81.01 ± 11.13 respectively).

Conclusions PTSD had negative impact on OHRQoL and SE of war-affected children. More studies are needed to confirm whether improving symptoms of PTSD may lead to better SE and OHRQoL.

Background

Children living in regions of war are exposed to numerous types of traumatic events that have a significant impact on their psychological and physical wellbeing (1). Various psychological responses are observed in children such as increased clinginess, mutism, attachment difficulties, anxiety, behavioral problems, sleep disturbances, bed wetting, and PTSD (2). PTSD is a psychiatric disorder that can occur following the experiencing or witnessing life-threatening events such as military combat. Symptoms of PTSD may include re-experiencing of the traumatic event, avoidance of stimuli associated with the trauma and persistent symptoms of increased arousal (3). The problem with this disorder is that when patients are untreated from war-related traumas, they will consequently be at a risk of having this disorder decades after the traumatic experience (4).

In another context, oral health, although generally not life threatening, can affect the way one eats, speaks, and socializes (5). Since 1997, Locker indicated that oral health is not linked to just oral cavity but to other medical conditions, wellbeing and the quality of life (6). Measures of OHRQoL is essential for making clinical decisions and public health Programs (7,8). OHRQoL evaluate how traumatizing

experiences, functional, psychological and social factors affect the wellbeing of an individual (6). One of these psychological factors affecting our health is SE, the value we place ourselves (9). Recently, APA considered negative perceptions of self and others as one of the criteria for PTSD in both adolescence and adulthood (3).

Oral symptoms may be the first or only manifestation of mental health problem that can affect both SE and QoL (10). Previous studies have demonstrated that people with mental health problems are prone to develop oral health problems because of the general self-neglect that are combined with their mental health in addition to SE problems (11,12).

Therefore, the question now is how mental health, oral health (OH), SE and OHRQoL are connected. A recent study undertaken in Indonesia has addressed the prospective associations between child oral health and SE (13). Another study by Mann (2004) indicated that mental disorders could be developed due to low SE (14).

In Syria, after seven year of ongoing conflict., the number of psychiatric inpatients have significantly increased (15). Syrian children have been particularly affected psychologically. Unsurprisingly, some children developed PTSD because of the exposure to war stress as well as adults.

Despite the increasing attention given to anxiety disorders especially PTSD in recent years, assessing the impact of PTSD on OHRQoL of child patients has not been well established in Literature. Thus, the aim of our study was to assess OHRQoL and SE in a sample of children who have a diagnosis of PTSD and if there is an impact of SE on their OHRQoL.

Methods

Study population and design:

The recent study had a case-control study design. The population of the recent study included children living in two temporary accommodation centers (TACs) in Damascus city. These centers have been set up by the government for people displaced from affected areas. Children living in those TACs had fled with their families from hot regions all around Syria. Therefore, this sample may be considered as nation representative. With the help of social worker in the two centers, we could invite children between 10-14 years to participate in the study.

Ethics Approval and Consent to participate:

The study was approved by the Ethical Committee of the Institutional Review Board of the Faculty of Dentistry in Damascus University, Syria in may-16-2016 (Ethics approval #2039). Children were given a written consent form. Only children with signed consents from parent(s) or guardian(s) were enrolled in this study.

Diagnosis of PTSD:

Child Post-Traumatic Stress Disorder Reaction Index (CPTSD-RI):

CPTSD-RI was used to assess PTSD reactions in children and adolescents. This Index is the most widely self-report method used in children aged 6 to 16 years old after an exposure to traumatic events such as war (16). The scale showed validity in diagnosing PTSD according to psychiatric diagnostic classification (17). The 20-item scale has been translated and validated in Arabic (18). The instrument has been used internationally and in two Middle Eastern countries (Egypt and Palestine) (19).

Children then were diagnosed with PTSD throughout this self-reported questionnaire. Children who were healthy and had a 0 score in CPTSD-RI served as a control group.

Evaluating OHRQoL:

Child Perception Questionnaire (CPQ₁₁₋₁₄)

CPQ₁₁₋₁₄ was used to measure OHRQoL (20). Brown and Al-Khayal have translated and validated the Arabic version (21). CPQ items included 4 domains: oral symptoms (OS), functional limitations (FL), emotional well-being (EW) and social well-being (SW). The responses were: never = 0; once or twice = 1; sometimes = 2; often = 3 and very often = 4. The score ranged from 0-144 points for the CPQ₁₁₋₁₄. Low scores indicated better OHRQoL within a recall period of 3 months.

Evaluating SE:

Child Health Questionnaire-Child Form 87 questions (CHQ-CF₈₇):

Participants' SE were assessed by using a subscale of CHQ-CF₈₇ (22). This five-level response subscale contains 14 items assessed: social confidence, school abilities and self-regard. Responses range from "very satisfied" to "very unsatisfied". Therefore possible score range from zero to 56. High SE score indicates significant satisfaction with life overall.

Study procedure:

Children were instructed to fill questionnaires by themselves since they were all above the age of 8 years so they can read and complete self-rating scales independently (23). Children living at the same TAC completed the questionnaires in the same day. (SH.) supervised the questionnaires filling process.

Statistical Analysis:

SPSS version 20 was used to carry out Statistical analysis. Descriptive and univariate analysis was performed separately for PTSD and healthy children. Data analysis included also bivariate analysis. Additive scores for CPQ₁₁₋₁₄ and CHQ-CF₈₇ were calculated by summing the item response codes. Lower scores of CPQ₁₁₋₁₄ indicated better OHRQoL while lower scores of CHQ-CF₈₇ indicated low SE. To assess differences in CPQ₁₁₋₁₄ and CHQ-CF₈₇ (SE) scores according to study group Student's t-test for

independent samples was used. Chi-square test was used to study the difference between PTSD and control group regarding children responses to the four CPQ₁₁₋₁₄ domains. *P*-value was significant at $P < 0.05$.

Results

One hundred nineteen children participated in the recent study. Fifty-seven children (47.4% boys and 52.6% girls) diagnosed with PTSD (mean age = 11 ± 1.1) and sixty-two (51.6% boys and 48.4% girls) were healthy (mean age = 10.8 ± 1.1). Demographic characteristics of PTSD and healthy children are shown in Table 1.

Regarding OHRQoL, results showed that PTSD children had significantly more OS such as bleeding gums ($p = 0.001$), mouth sores ($p = 0.019$), bad breath ($p = 0.002$) and food between teeth compared to healthy children ($p = 0.000$). Responses to OS domain are shown for both groups in Table 2.

Findings of the recent study revealed that PTSD children had more troubles in sleeping ($p = 0.019$) and chewing hard food ($p = 0.001$) than the controls. They also had significantly ($p = 0.000$) more difficulty in opening their mouth wide and drinking or eating hot or cold food compared to healthy children. Responses of children in FL domain in both groups are shown in Table 3.

Similarly, Table 4 shows the responses of children in EWB domain. Children suffering from PTSD had felt unsure of their selves ($p = 0.009$), different and not as healthy as other children when compared to the controls ($p = 0.025$). They also had been worried more about not being good looking ($p = 0.000$) and concerned what people think about their teeth ($p = 0.024$) in comparison with the controls.

Children with PTSD had significantly more trouble in doing their homework compared to healthy ones ($p = 0.000$). They avoided speaking loud ($p = 0.014$), taking parts in activities ($p = 0.001$), smiling and spending time with other children ($p = 0.025$). They felt more left out ($p = 0.015$) and had a hard time paying attention at school ($p = 0.001$) compared to healthy children. Table 5 shows responses of SWB domain.

In Table 6, mean and SD of SE and CPQ_{11 - 14} (total and subtotals) scores for both groups. Children suffer from PTSD had significantly ($P < 0.001$) lower SE score compared to healthy children (60.96 ± 18.71 vs. 81.01 ± 11.13). They also had higher scores in total and subtotals CPQ_{11 - 14} ($P < 0.001$) indicating worse OHRQoL compared to the controls.

Discussion

Over the past years, more attention has been given to how mental disorders can affect the QoL. Even more, studies showed that impaired QoL is a consequence of PTSD as well as poor QoL may be a risk factor for having PTSD. From another hand, SE is also an important personality trait for QoL (24) and may play a profound role in all aspects of a child's development (25). It has been proved that PTSD

patients have poor OH (Muhvic-Urek et al. 2007; De Oliveira Solis et al. 2017). However, poor OH can be responsible of Losing SE and affect QoL negatively (5).

To our knowledge, there are no previous studies that have evaluated the OHRQoL and SE in Children suffering from PTSD. Therefore, this study is the first study to assess the OHRQoL and SE among PTSD children living in a war zone.

The recent study reported that children with PTSD had worse OHRQoL than normal children. No previous data found in the literature regarding the OHRQoL in PTSD patient. However, those results may be explained by the fact that PTSD usually associates with OH problems that may, in its turn, affect the QoL.

In the current study, the responses of the study participant regarding the four CPQ₁₁₋₁₄ domains (OS, FL, EWB and SWB) were evaluated. PTSD children suffer more from OS like bleeding gums, mouth sores, bad breath and food caught between teeth when compared with their healthy peers.

Children suffered from PTSD in this study showed more troubles in sleeping because of dental reasons. In general, this disorder is known of its impact on sleeping especially in children exposed to war trauma (18). Children with PTSD in this study also have more difficulty in opening their mouth wide compared to controls. A previous studies showed that PTSD patient reported higher risk for TMJ problems (26–28). This may be a possible reason for limited mouth opening.

Children with PTSD reported more difficulty in chewing and eating hot or cold food. Knowing that this population tends to have more dental caries (26,27), it will be trivial that biting hard food as well as drinking and eating hot or cold food is going to be difficult.

The current study showed that PTSD children had emotional unsecure. They felt unsure of their selves, had more worries about appearance (including dental appearance), health and felt different from other children.

PTSD had also influenced their social life particularly school performance. PTSD children showed troubles in attention, doing homework and speaking loud during a class. They also avoided participating in activities, being around other children and even felt left out. These are common symptoms of PTSD. Patients suffering from this disorder often have decreased concentration and lose the joy of doing activates or being around other people.

Findings of the recent study showed that PTSD children had significantly lower SE in comparison to their healthy peers Thabet and Vostanis (1999) suggested that earlier exposure to traumatic experiences of war predicted neuroticism and low SE (18). In addition, high SE people can have self-confidence, positive outlook to life, overcome the problems and though decrease symptoms of stress (29). Even more, higher SE is associated with fewer oral health impacts in adolescents (24).

One limitation of the current study is that PTSD diagnosis relied only on results extracted from a self-reported questionnaire (CPTSD-RI). Even it is commonly and globally used by previous studies still not

accurate as a structured interview undertaken by psychiatric specialist. Therefore, more better designed studies are needed in order to generalize these findings.

Conclusion

The recent study have provided evidence that PTSD may negatively affect SE and OHRQoL of children affected by the war. Further work is still required to ascertain our findings. Interdisciplinary care to PTSD children affected by war and violence is of critical importance. This would definitely improve their SE and consequently their OHRQoL.

List Of Abbreviations

PTSD: Post Traumatic Stress Disorder; TAC: Temporary Accommodation Center OHRQoL: Oral Health Related Quality of Life; CPTSD-RI: Child Post Traumatic Stress Disorder Reaction Index; CPQ₁₁₋₁₄: Child Perception Questionnaire; SE: Self-Esteem; CHQ-CF87: Child health questionnaire-child form87; QoL: Quality of Life; OH: Oral Health; OS: Oral Symptoms; FL: Functional Limitation; EWB: Emotional Wellbeing; SWB: Social Well Being; SD: Standard Deviation. SH.: Sulaf Hamid. MD.: Mayssoon Dashash.

Declarations

Ethics Approval and Consent to participate: The study was approved by the Ethical Committee of the Institutional Review Board of the Faculty of Dentistry in Damascus University, Syria in may-16-2016 (Ethics approval #2039). Children were given a written consent form. Only children with signed consents from parent(s) or guardian(s) were enrolled in this study.

Consent for publication: Not applicable.

Availability of data and material: The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests.

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Authors' contributions: SH. carried out the data collection, data analysis and drafted the manuscript. MD. supervised the study, participated in its design and revised the paper to its final version. Both authors approved and are responsible of the final manuscript.

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Tables

Table 1: Demographics of study participants			
Variables		PTSD	Control
		N (%)	N (%)
Gender	Boys	27 (47.4%)	32 (51.6%)
	girls	30 (52.6%)	30 (48.4%)
Total		57 (100%)	62 (100%)
Age (Mean±SD)		11.0±1.1	10.8±1.1
PTSD: Post Traumatic Stress Disorder; SD: Standard Deviation; N: number			

Table 2: Responses to oral symptoms domain of OHRQoL according to the study groups:					
Oral Symptom		PTSD	Control	Total	P-value
Pain in the teeth	Yes	24	26	50	0.985
	No	33	36	69	
Bleeding gum	Yes	40	25	65	0.001*
	No	17	37	54	
Mouth sores	Yes	21	11	32	0.019*
	No	36	51	87	
Bad Breath	Yes	25	11	36	0.002*
	No	32	51	83	
Food caught between/in teeth	Yes	38	14	52	0.000*
	No	19	48	67	
Food stuck to roof of mouth	Yes	12	12	22	0.459
	No	45	45	97	

PTSD: Post Traumatic Stress Disorder; OHRQoL: Oral Health Related Quality of Life.
*Chi-square Test, significance at $p < 0.05$

Table 3: Responses to Functional limitation domain of OHRQoL according to the study groups:					
Functional limitation		PTSD	Control	Total	P-value
Breath through the mouth	Yes	28	27	55	0.542
	No	29	35	64	
Taken longer than others to eat a meal	Yes	25	17	42	0.061
	No	32	45	77	
Had trouble sleeping	Yes	21	11	32	0.019*
	No	36	51	87	
Difficulty to bite or chew food like Apple, corn on the cob or steak	Yes	29	13	42	0.001*
	No	28	49	77	
Difficulty to open your mouth wide	Yes	38	14	52	0.000*
	No	19	48	67	
Difficulty to say any words	Yes	19	16	35	0.368
	No	38	46	84	
Difficulty to eat the foods you like	Yes	18	12	30	0.125
	No	39	50	89	
Difficulty to drink with a straw	Yes	22	17	39	0.194
	No	35	45	80	
Difficulty drink or eat hot or cold foods	Yes	30	13	43	0.000*
	No	29	49	76	

PTSD: Post Traumatic Stress Disorder; OHRQoL: Oral Health Related Quality of Life.
*Chi-square Test, significance at $p < 0.05$

Table 4: Responses to emotional wellbeing domain of OHRQoL according to the study groups					
Emotional wellbeing		PTSD	Control	Total	P-value
Felt irritable or frustrated	Yes	20	21	41	0.889
	No	37	41	78	
Felt unsure of your self	Yes	32	20	52	0.009*
	No	25	42	67	
Felt shy or embarrassed	Yes	28	21	49	0.091
	No	29	41	70	
Been concerned what other people think about your teeth, lips, mouth or jaws	Yes	25	12	37	0.004*
	No	32	50	82	
Worried that you are not as good-looking as others	Yes	34	8	42	0.000*
	No	23	54	77	
Been upset	Yes	21	16	37	0.194
	No	36	46	82	
Felt nervous or afraid	Yes	24	24	48	0.706
	No	33	38	71	
Worried that you are not as healthy as others	Yes	29	19	48	0.025*
	No	28	43	71	
Worried that you are different than other people	Yes	27	17	44	0.024*
	No	30	45	75	

PTSD: Post Traumatic Stress Disorder; OHRQoL: Oral Health Related Quality of Life.
*Chi-square Test, significance at $p<0.05$

social wellbeing		PTSD	Control	Total	<i>P</i> -value
Missed school because of pain, appointment or surgery	Yes	25	18	43	0.093
	No	32	44	76	
Had a hard time paying attention in school	Yes	31	15	46	0.001*
	No	26	47	73	
Had difficulty doing your homework	Yes	33	14	47	0.000*
	No	24	48	72	
Not wanted to speak or read out loud in class	Yes	34	23	57	0.014*
	No	23	39	62	
Avoided taking part in activities like sports, clubs, drama, music, school trips	Yes	29	13	42	0.001*
	No	28	49	77	
Not wanted to talk to other children	Yes	25	21	46	0.264
	No	32	41	73	
Avoided smiling or laughing when around other children	Yes	29	19	48	0.025*
	No	28	43	71	
Not wanted to spend time with other children	Yes	25	13	38	0.007*
	No	32	49	81	
Argued with other children or your family	Yes	17	14	31	0.368
	No	40	48	88	
Other children teased you or called your names	Yes	13	9	22	0.244
	No	44	53	97	
Other children made you feel left out	Yes	28	17	45	0.015*
	No	29	45	74	
Other children asked you questions about your teeth, lips, jaws or mouth	Yes	23	25	48	0.997
	No	34	37	71	

PTSD: Post Traumatic Stress Disorder; OHRQoL: Oral Health Related Quality of Life.
*Chi-square Test, significance at $p < 0.05$

variables	PTSD	Control	<i>P</i> -value**
	Mean± SD	Mean± SD	
SE	60.96±18.71	81.01±11.13	$P < 0.001$
Total CPQ ₁₁₋₁₄	62.68±21.42	35.96±18.75	$P < 0.001$
OS	9.28±4.48	3.64±3.40	$P < 0.001$
FL	12.42±6.62	6.85±4.96	$P < 0.001$
EWB	18.08±6.42	13.25±5.59	$P < 0.001$
SWB	22.89±7.18	12.17±6.00	$P < 0.001$

SD: Standard Deviation; PTSD: Post-Traumatic Stress Disorder; SE: Self-Esteem; CPQ₁₁₋₁₄: Child Perception Questionnaire age 11-14; OS: Oral Symptoms; FL: Functional Limitation; EWB: Emotional Wellbeing; SWB: Social Well Being. ** $P < 0.001$, two sample *t* test, difference between groups.