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

CURRENT STATUS: UNDER REVIEW

BMC International Health and Human Rights

Sulaf Hasan Hamid  sulaf-rose@hotmail.com
Damascus University
Corresponding Author

DOI: 10.21203/rs.2.20107/v1

SUBJECT AREAS  Dentistry  Psychology

KEYWORDS
oral health, quality of life, Self-esteem, children, PTSD, war
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 clingingness, 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 reprehensive. 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 (CPQ_{11-14})**

CPQ_{11-14} 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-CF$_{87}$):**

Participants’ SE were assessed by using a subscale of CHQ-CF$_{87}$ (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 CPQ$_{11-14}$ and CHQ-CF$_{87}$ were calculated by summing the item response codes. Lower scores of CPQ$_{11-14}$ indicated better OHRQoL while lower scores of CHQ-CF87 indicated low SE. To assess differences in CPQ$_{11-14}$ and CHQ-CF$_{87}$ (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 CPQ$_{11-14}$ 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 ($60.96 \pm 18.71$ vs. $81.01 \pm 11.13$). 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 CPQ$_{11-14}$ 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; CPQ_{11-14}: 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.

Funding: Unfunded, the study was self-funded. This research was supported by Damascus University.

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.

Acknowledgments: The authors would like to thank all the children participated in this study.

References

1. Thabet A, Thabet S, Vostanis P. The Relationship between War Trauma, PTSD, Depression, and Anxiety among Palestinian Children in the Gaza Strip. Heal Sci J. 2016;10(5):1–8.

2. Almoshmosh N. The role of war trauma survivors in managing their own mental conditions, Syria civil war as an example. Avicenna J Med. 2016;6(2):54–9.

3. APA. Diagnostic and statistical manual of mental disorders. 5th ed. Washington; American Psychiatric Publishing; 2013.
4. Priebe S, Matanov A, Gavrilović JJ, Ljubotina D, Knežević G, Kučukalić A, et al. Consequences of Untreated Posttraumatic Stress Disorder Following War in Former Yugoslavia: Morbidity, Subjective Quality of Life, and Care Costs. Croat Med J. 2009;50:465–76.

5. Huff M, Kinion E, Kendra MA, Klecan T. Self-Esteem: A Hidden Concern in Oral Health. J Community Health Nurs. 2006;23(4):245–55.

6. Locker D. Concepts Of Oral Health, Disease and The Quality of Life. In: Slade GD, Measuring Oral Health and Quality of Life. Chapel Hill: University of North Carolina, Dental Ecology; 1997. p. 29.

7. Krisdapong S, Sheiham A. Which aspects of an oral health-related quality of life measure are mainly associated with global ratings of oral health in children? Community Dent Oral Epidemiol. 2014;42:129-38.

8. Kramer P, Feldens C, Ferreira S, Bervian J, Rodrigues P, Peres M. Exploring the impact of oral diseases and disorders on quality of life of preschool children. Community Dent Oral Epidemiol. 2013;41:327-35.

9. Pruessner J, Baldwin M, Dedovic K, Renwick R, Mahani N, Lord C, et al. Self-esteem, Locus of Control, Hippocampal Volume and Cortisol Regulation in Young and old Adulthood. Neuroimage. 2005;28(4):815-26.

10. Rai B. Oral Health in Patients with Mental Illness. Internet J Dent Sci. 2007;6(1):1-4.

11. Mirza R, Phelan M, Wulff-Cochrane V. Oral health of psychiatric in-patients. Psychiatr Bull. 2001;25:143-5.

12. Kisely S. No Mental Health without Oral Health. Can J Psychiatry. 2016;61(5):277-82.

13. Maharani DA, Adiatman M, Rahardjo A, Burnside G, Pine C. An assessment of
the impacts of child oral health in Indonesia and associations with self-esteem, school performance and perceived employability. BMC Oral Health. 2017;17(65):1-10.

14. Mann M, Hosman C, Schaalma H, Vries N. Self-esteem in a Broad-Spectrum Approach for Mental Health Promotion. Heal Edu Res. 2004;19(4):357-72.

15. Latifeh Y, Dashash M. A Critical Analysis and a Suggested Reform of Psychiatric Curricula in Medical Faculties During Syrian Crisis. Am J Heal Res. 2016;4(6-1):12-8.

16. Pynoos RS, Goenjian A, Tashjian M, Karakashian, M. Manjikian A, Manoukian G, et al. Post-traumatic stress reactions in children after the 1988 Armenian Earthquake. Brit J Psych. 1993;163:239-47.

17. APA. Diagnostic and Statistical Manual of Mental Disorders. 4 th. Washington, DC; American Psychatric Publishing; 1994.

18. Thabet A, Vostanis P. Post-traumatic Stress Reactions in Children of War. J Child Psychol Psychiatry. 1999;40(3):385-91.

19. Thabet A, Vostanis P, Karim K. Group crisis intervention for children during ongoing war conflict. Eur Child Adolesc Psychiatry. 2005;14:262-9.

20. Jokovic A, Locker D, Stephens M, Kenny D, Tompson B, Guyatt G. Validity and reliability of a questionnaire for measuring child oral-health-related quality of life. J Dent Res. 2002;81(7):459-63.

21. Brown A, Al-Khayal Z. Validity and reliability of the Arabic translation of the child oral-health-related quality of life questionnaire (CPQ11-14) in Saudi Arabia. IntJPaediatrDent. 2006;16(6):405-11.

22. Landgraf JM, Abetz L. Child health questionnaire (CHQ): A user manual. Boston, MA.: The Health Institute, New England Medical Center; 1996.
23. Dyregrov A, Yule W. A Review of PTSD in Children. Child and Adolescent Mental Health. 2006. p. 176-84.

24. Agou S, Locker D, Streiner D, Thompson B. Impact of Self-Esteem On The Oral-Health-Related Quality of Life of Children with Malocclusion. Am J Orthod Dentofac Orthop. 2008;134(4):484-9.

25. Olsen JM, Breckler SJ, Wiggens EC. Social psychology alive. 1st. Canada. Toronto: Thomson Nelson.; 2008.

26. Muhvic-Urek M, Uhac I, Vuksic-Mihaljevic Z, Leovic D, Bleceic N. Oral Health Status in War Veterans with Post-Traumatic Stress Disorder. J Oral Rehabil. 2007;34:1-8.

27. De Oliveira Solis A, Araujo A, Corchs F, Bernik M, Duran E, Silva C, et al. Impact of Post-traumatic Stress Disorder on Oral Health. J Affect Disord. 2017; (219):126-32.

28. Uhac I, Kova Z, Muhavic-Urek M, Kovacevic D, Franciskovic T, Simunovic M. Prevalence of TMJ disorders in PTSD patients. 2006;171(11):1147 .

29. Salami SO. Moderating Effects of Resilience, Self-Esteem and Social Support on Adolescents ’ Reactions to Violence. Can Cent Sci Educ. 2010;6(12):101-10.

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 |
|-----------------------------------|------|---------|-------|
| Pain in the teeth                 | 24   | 26      | 50    |
| No                                | 33   | 36      | 69    |
| Bleeding gum                      | 40   | 25      | 65    |
| No                                | 17   | 37      | 54    |
| Mouth sores                       | 21   | 11      | 32    |
| No                                | 36   | 51      | 87    |
| Bad Breath                        | 25   | 11      | 36    |
| No                                | 32   | 51      | 83    |
| Food caught between/in teeth      | 38   | 14      | 52    |
| No                                | 19   | 48      | 67    |
| Food stuck to roof of mouth       | 12   | 12      | 22    |
| 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 |
|------------------------------------------------|------|---------|-------|
| Breath through the mouth                       | 28   | 27      | 55    |
| Yes                                            | 29   | 35      | 64    |
| No                                             | 32   | 45      | 77    |
| Taken longer than others to eat a meal          | 25   | 17      | 42    |
| Yes                                            | 32   | 45      | 77    |
| No                                             | 36   | 51      | 87    |
| Had trouble sleeping                           | 21   | 11      | 32    |
| No                                             | 36   | 51      | 87    |
| Difficulty to bite or chew food like Apple, corn on the cob or steak | 29   | 13      | 42    |
| No                                             | 28   | 49      | 77    |
| Difficulty to open your mouth wide              | 38   | 14      | 52    |
| No                                             | 19   | 48      | 67    |
| Difficulty to say any words                    | 19   | 16      | 35    |
| No                                             | 38   | 46      | 84    |
| Difficulty to eat the foods you like           | 18   | 12      | 30    |
| No                                             | 39   | 50      | 89    |
| Difficulty to drink with a straw               | 22   | 17      | 39    |
| No                                             | 35   | 45      | 80    |
| Difficulty drink or eat hot or cold foods      | 30   | 13      | 43    |
| No                                             | 29   | 49      | 76    |

PTSD: Post Traumatic Stress Disorder; OHRQoL: Oral Health Related Quality of Life.

*Chi-square Test, significance at \( p < 0.05 \)
| Emotional wellbeing                                                                 | PTSD | Control | Total |
|------------------------------------------------------------------------------------|------|---------|-------|
| Felt irritable or frustrated                                                      | Yes  | 20      | 21    | 41    |
|                                                                                   | No   | 37      | 41    | 78    |
| Felt unsure of yourself                                                           | Yes  | 32      | 20    | 52    |
|                                                                                   | No   | 25      | 42    | 67    |
| Felt shy or embarrassed                                                           | Yes  | 28      | 21    | 49    |
|                                                                                   | No   | 29      | 41    | 70    |
| Been concerned what other people think about your teeth, lips, mouth or jaws      | Yes  | 25      | 12    | 37    |
|                                                                                   | No   | 32      | 50    | 82    |
| Worried that you are not as good-looking as others                                | Yes  | 34      | 8     | 42    |
|                                                                                   | No   | 23      | 54    | 77    |
| Been upset                                                                        | Yes  | 21      | 16    | 37    |
|                                                                                   | No   | 36      | 46    | 82    |
| Felt nervous or afraid                                                            | Yes  | 24      | 24    | 48    |
|                                                                                   | No   | 33      | 38    | 71    |
| Worried that you are not as healthy as others                                     | Yes  | 29      | 19    | 48    |
|                                                                                   | No   | 28      | 43    | 71    |
| Worried that you are different than other people                                  | Yes  | 27      | 17    | 44    |
|                                                                                   | 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 |
|--------------------------------------------------------------------------------|------|---------|-------|
| Missed school because of pain, appointment or surgery                          | Yes  | 25      | 18    | 43    |
|                                                                                | No   | 32      | 44    | 76    |
| Had a hard time paying attention in school                                     | Yes  | 31      | 15    | 46    |
|                                                                                | No   | 26      | 47    | 73    |
| Had difficulty doing your homework                                            | Yes  | 33      | 14    | 47    |
|                                                                                | No   | 24      | 48    | 72    |
| Not wanted to speak or read out loud in class                                  | Yes  | 34      | 23    | 57    |
|                                                                                | No   | 23      | 39    | 62    |
| Avoided taking part in activities like sports, clubs, drama, music, school trips | Yes  | 29      | 13    | 42    |
|                                                                                | No   | 28      | 49    | 77    |
| Not wanted to talk to other children                                           | Yes  | 25      | 21    | 46    |
|                                                                                | No   | 32      | 41    | 73    |
| Avoided smiling or laughing when around other children                         | Yes  | 29      | 19    | 48    |
|                                                                                | No   | 28      | 43    | 71    |
| Not wanted to spend time with other children                                   | Yes  | 25      | 13    | 38    |
|                                                                                | No   | 32      | 49    | 81    |
| Argued with other children or your family                                      | Yes  | 17      | 14    | 31    |
|                                                                                | No   | 40      | 48    | 88    |
| Other children teased you or called your names                                  | Yes  | 13      | 9     | 22    |
|                                                                                | No   | 44      | 53    | 97    |
| Other children made you feel left out                                          | Yes  | 28      | 17    | 45    |
|                                                                                | No   | 29      | 45    | 74    |
| Other children asked you questions about your teeth, lips, jaws or mouth        | Yes  | 23      | 25    | 48    |
|                                                                                | No   | 34      | 37    | 71    |

PTSD: Post Traumatic Stress Disorder; OHRQoL: Oral Health Related Quality of Life.
*Chi-square Test, significance at $p<0.05$
Table 6: Mean and SD for SE, total and subtotals CPQ_{11-14} according to study groups

| variables | PTSD | Control | P-value ** |
|-----------|------|---------|------------|
| 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; CPQ_{11-14}: Child Perception Questionnaire age 11-14; OS: Oral Symptoms; FL: Functional Limitation; EWB: Emotional Wellbeing; SWB: Social Well Being. **P <0.001, test, difference between groups.