**Prevalence of posttraumatic stress disorder and its impact on the daily lives of schoolchildren in public schools in Morocco: A cross-sectional study**

**ABSTRACT**

Posttraumatic stress disorder (PTSD) usually occurs after traumatic occurrences that exceed the range of common human experience.

The study investigates the prevalence of PTSD among schoolchildren in public schools in the city of Salé in Morocco. Our seconde objective for this study is to assess the co-morbidities of PTSD (the disorders of anxiety and depression). Also, study the effect of PTSD on the educational career and social life.

According to a cross-sectional survey, 900 schoolchildren were selected with an age between 11 and 16 years. The percentage was 89% of participants who agreed to take part. The validated questionnaires were processed by the schoolchildren.

31.7% prevalence of PTSD was expressed; this percentage was due to certain predictors in schoolchildren (adventure, independence from parents, etc.), poverty and low level of education of parents. Among schoolchildren with PTSD, girls had a higher percentage (60.7%) compared to boys (39.3%).77.2% and 51.3% of schoolchildren suffered from anxiety and depression respectively. The negative effects of PTSD on students' lives are: 52.6% with poor academic results. 50.1% had difficulty concentrating and 10.2% suffered from memory problems. 29.7% with suicidal thoughts and 29.3% disinterest in activities.

Unfortunately, there are negative consequences of this disorder, especially with the significant prevalence of PTSD, on the well-being of these school-age adolescents. There are interventions to treat this disorder in affected adolescents.

**KEYWORDS:** prevalence; school-age; posttraumatic stress disorder; traumatic occurrences;

 associated disorders; risk factors for PTSD; and negative effects of PTSD.

1. **INTRODUCTION**

As a result of a traumatic experience (related to trauma and stress), the individual may develop a psychopathological disorder: Post-traumatic stress disorder (PTSD). This experience can be identified: sexual assault, death, serious disease and war. It can affect anyone after having experienced a stressful, traumatic event. The main symptoms that characterize PTSD include re-experiencing the event, avoiding things reminiscent of the trauma, negative physical and emotional reactions, and neurovegetative hyper-activation (American Psychiatric Association, 2013).

The studies were a lot concerning the adults (Nixon et al., 2004; Josse, 2011) in relation to adolescents. It is only recently, during the last few years, that these studies have been accentuated.

Schoolchildren are characterized by psychological and social specificities (adventure, the search for autonomy through contribution to their parents, etc.). According to various studies, this is why these adolescents may experience more traumatic occurrences than adults (Christoffersen et al., 2024; Giaconia et al., 2004).

The most observed traumatic occurrence concerns the abrupt death of a family member or friend, that concerns certain studies (Halaly et al., 2024). The various symptoms observed in adolescents suffering from PTSD, are almost identical to those observed in adults (nightmares, anxiety, and uncontrollable thoughts) (Dyregrov &Yule, 2006).

The adolescents were more likely to develop PTSD for several possible causes, such as belonging to developing countries with low income, such as the country where our survey was conducted (Chossegros, 2010). Adolescents are at greater risk of developing PTSD, compared to adults, and the prevalence of this disease can vary from 5 to 90% (Alkharashi et al., 2022; Attanayake et al., 2009; Suliman et al., 2009).

This difference in prevalence was due to certain factors such as the tools used to screen the PTSD, the nature of the trauma, the age of the patient, the nature and culture of the population of the country of investigation, etc. (Peirce et al., 2009; Hodges et al., 2013).

This study investigates the prevalence of posttraumatic stress disorder (PTSD) among schoolchildren in public schools in the city of Salé in Morocco. Our second objective for this study is to assess the co-morbidities of PTSD (the disorders of anxiety and depression). Also, study the effect of PTSD on the educational career and the social life.

1. **PARTICIPANTS AND PROCEDURE**
	1. **Participants**

900 schoolchildren were schooled from 18 middle schools selected randomly from 51 public middle schools for Salé city. 50 students are selected for each school establishment.

The parents or guardians of 900 students had informed consent to be signed to agree to participate in the survey, but, upon return, 99 students had not signed informed consent. The final number was 801 students who were recruited to carry out a cross-sectional investigation during the year 2020 from January to April. That is, the participation rate was 89%. 11 years to 16 years was the age of the student’s with the mean ± standard deviation = 13.64 ± 0.72.

94 schoolchildren who did not continue to full the questionnaires. Thus, after having declared having been exposed to at least one traumatic occurrence during their life, 707 (88.3%) students completed the investigation. These schoolchildren of both sexes were divided into 335 males (47.4%) and 372 females (52.6%).

* 1. **Materials and methods**

In order to visualize the interest and explain all the steps to carry out this research at the school level, we individually met each school director, and agreed on the selection of classes and schoolchildren.

Five questionnaires were used to collect the data and were distributed successively:

1. The sociodemographic data questionnaire.

2. The Life Events List, this list presents 17 questions of the most stressful events during an adolescent's life, according to the DSM 5 (Diagnostic and Statistical Manual of Mental

Disorders) (American Psychiatric Association, 2013).

3. The CPTS-RI questionnaire is intended for children aged between 6 and 16 years. This questionnaire was carried out to define the symptoms of PTSD after exposure to a traumatic occurrence (Fernandez, 2005). It is a scale which presents 20 items.

4. The STAIY was a self-assessment questionnaire (Spielberger et al., 1983), it is a scale which presents 20 items and aims to measure the intensity of anxiety in schoolchildren.

5. The last self-assessment questionnaire for assessing the level of depression was the CDI (Fernandez, 2005). That included 27 items and which aim to measure the intensity of depressive symptoms in adolescents aged 7 to 17 years.

The questionnaires were completed anonymously and by the schoolchildren themselves.

1. **RESULTS AND DISCUSSION**
	1. **Sociodemographic Data and Lived Traumatic Events**

All participating adolescents were aged 11 to 16 years. Schoolchildren who had married parents presented 84.7% and schoolchildren who lived with their parents in slums were 1.7%. Students who had unemployed fathers present only 3.6% and mothers did not work were 71.7%. The father's salary with the mother's salary presented an average salary of 3.27 ± 1.61 dh (Moroccan dirham). Which means 4000 dh to 6000 dh of monthly income. 20.1% students consumed tobacco and 10.2% drugs. 27.3% (N=193) presented the percentage of schoolchildren who repeated a grade in school.

According to the Life Events List completed by the schoolchildren, among 17 traumatic occurrences, 16 were experienced (without participation in war). 20.1% presented the percentage of the most experienced event and which was the abrupt death of a family member or friend, as shown in Table 1.

**Table 1.** **The variables expressed in number and percentage of students**

|  |  |  |
| --- | --- | --- |
| **The variable** | **Number** | **Percentage (%)** |
| **Gender**  Male Female | 335372 | 47.452.6 |
| **Married parents** | 599 | 84.7 |
| **Father works** | 682 | 96.4 |
| **Mother works** | 200 | 28.3 |
| **Salary** Under 4000dh Between 4000dh and 8000dh More than 8000dh | 288257162 | 40.736.422.9 |
| **Tobacco use** | 142 | 20.1 |
| **Drug consumption** | 72 | 10.2 |
| **Traumatic events** The abrupt death of a family  member or friend | 142 | 20.1 |
| **The severity level of PTSD** Without PTSD With PTSD | 483224 | 68.331.7 |

Note. Dh - Moroccan dirham.

* 1. **Prevalence of Posttraumatic Stress Disorder and Associated Disorders of PTSD**

For the 707 students enrolled, 31.7% of schoolchildren (N = 224) presented PTSD and 68.3% (N = 483) of the schoolchildren without PTSD, as shown in Table 1.

Comparing both sexes with PTSD, 39.3% for boys (N = 88) and 60.7% for girls (136).

While for the group with disorders associated with PTSD, we found 77.2% anxiety (N = 173) and 51.3% with depression (N= 115), as shown in Figure 1.

**Figure 1**. **The disorders associated with PTSD (anxiety and depression) among**

 **schoolchildren in percentage**

In addition, for girls suffering from anxiety, we found 49.1% (N = 110). While for boys suffering from anxiety, we found 28.1% (N = 63).

For girls suffering from depression, we found 37.5% (N = 84). While for boys suffering from depression, we found 13.8% (N = 31).

Among the significant negative effects of post-traumatic stress disorder on students' lives are: We found 49.8% who did not do the homework requested by their teachers and 52.6% with poor academic results.

We found that 50.1% of students had difficulty concentrating and 10.2% suffered from memory problems. We found that 29.7% with suicidal thoughts and 29.3% disinterest in activities.

* 1. **Recommendations for PTSD interventions**

To reduce the negative psychosocial, economic, and health problems, the results of our study must be taken into consideration by local Moroccan authorities to improve the quality of life of these schoolchildren.

The findings of the current study highlight the need for urgent public interventions (Government and nongovernmental organisations) directed to manage PTSD.

There are practical implications for curePTSD : CBT (cognitive-behavioral therapies) and EMDR (Eye Movement Desensitization and Reprocessing). Also, the psychoeducation, social and family support and relaxation techniques.

1. **CONCLUSIONS**

Posttraumatic stress disorder (PTSD) is a reaction to traumatic events that have been experienced during life and that can have significant physical, functional, and psychological effects on the daily life of adolescents. Our investigation elucidates a complex interplay of factors contributing to the emergence of PTSD following trauma.

Gender, residential environment (poverty and high unemployment rate and a blurred vision of the future), geographical location (Morocco is a low- and middle-income countries), educational attainment (an important rate of parental illiteracy), familial support (a lack of social support), and the nature and locus of the trauma surfaced as integral elements in this disorder.

Treatment strategy encompassing psychological assessment and support; treatment is with behavioral therapy and sometimes with selective serotonin reuptake inhibitors or antiadrenergic medications to hope for partial or complete remission of PTSD.

**Consent**

As per international standards or university standards, Participants’ written consent has been collected and preserved by the author(s).

**Author’s contribution**

The sole author designed, analyzed, interpreted and prepared the manuscript.

**DISCLAIMER (ARTIFICIAL INTELLIGENCE)**

Author hereby declare that NO generative AI technologies such as Large Language Models(ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

**COMPETING INTERESTS**

Author have declared that no competing interests exist.

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