



# Quality of Life and Post-Traumatic Stress Disorder Among Elderly Survivors of the Al Haouz Earthquake in Morocco

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## Abstract

### Keywords:

Quality of life,  
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**Objective:** This study aims to analyze the association between post-traumatic stress disorder (PTSD) and quality of life among older adults following the Al Haouz earthquake in Morocco. **Methods:** A cross-sectional study conducted in health centers in the province of Al Haouz among 240 older adults ( $\geq 60$  years). Data were collected using a questionnaire that included the WHOQOL-BREF scale to assess quality of life and the PLC-5 scale to assess PTSD. Statistical analysis was performed using SPSS version 25. **Results:** The results showed that 47.9% of participants suffer from PTSD and that the mean overall quality of life score was relatively low (46.58). The analysis showed that survivors with PTSD have a significantly lower quality of life than those without it, particularly in physical, psychological, and environmental domains, while the social dimension appears relatively stable. **Conclusion:** These results highlight the importance of comprehensive care strategies, incorporating psychosocial support and rehabilitation, to promote survivors' recovery.

## I. Introduction

In Earthquake survivors often experience lasting disruptions to their overall well-being, particularly among vulnerable individuals (Sobczak et al., 2025). Older adults are particularly vulnerable and are more exposed to post-disaster consequences due to comorbidities, limited recovery, and weakened social networks (Ardalan et al., 2011; Yabuki et al., 2015).

Earthquakes significantly impair the quality of life (QOL) of older adults by affecting their living conditions in multiple ways (EL Harsi et al., 2026; Sato et al., 2025; Yayla et al., 2025). Environmental damage, particularly damage to homes and basic infrastructure, reduces the sense of security and hinders access to essential daily resources (Morishima et al., 2020). Socially, forced displacement and the disruption of family structures foster isolation and limit forms of support, both material and emotional (Sasaki et al., 2019). Furthermore, exposure to traumatic situations, such as the loss of loved ones or a direct threat to life, increases the likelihood of psychological disorders, particularly depression (Kim et al., 2022; Wagle et al., 2021). Furthermore, earthquakes can have physical repercussions, including injuries and impaired functional abilities (Ito et al., 2016; Kim et al., 2022).

Multiple determinants of quality of life (QoL) among older adults following an earthquake have been identified in the scientific literature, encompassing sociodemographic factors and factors related to post-earthquake trauma (Kim et al., 2022; Lee & Kim, 2025; Sato et al., 2025; Yayla et al., 2025). The literature consistently highlights the significant influence of PTSD on the QoL of earthquake survivors (Ma et al., 2022; Yayla et al., 2025). This disorder reflects a complex psychological reaction, marked by lasting disturbances that force individuals to adjust and reorganize their lifestyles in the face of its consequences (Martignier & Genoud, 2015). It is accompanied by various limitations affecting daily functioning and compromising several dimensions of QoL (Fortin, 2022).

Although the assessment of PTSD and its impact on QoL is a major public health issue (Balayan, 2014), this topic remains insufficiently documented following the Al-Haouz earthquake. In this context, the present study aims to analyze the relationship between PTSD and quality of life among older adults who survived the Al-Haouz earthquake in Morocco.

## **II. Methods**

### **Study Design**

This is a quantitative cross-sectional study aimed at examining the association between post-traumatic stress disorder and quality of life among older adults following the Al Haouz earthquake in Morocco. The survey was conducted in two primary healthcare centers located in the most affected areas of the province of Al Haouz.

### **Population and Sampling**

The study was conducted among older adults residing in the areas most severely affected by the Al Haouz earthquake and seeking care at two health centers in the province. Inclusion criteria included survivors aged 60 years and older. Excluded were individuals not directly exposed to the disaster, those with cognitive impairments, or those with communication difficulties. A total of 240 older adults were included in the study using convenience sampling.

### **Data Collection**

Data collection was conducted using a questionnaire that included participants' sociodemographic and economic characteristics, the PCL-5 scale, and the WHOQOL-BREF scale. The PCL-5 scale is a civilian version of the Posttraumatic Stress Disorder Checklist for DSM-5 used to assess the severity of PTSD symptoms. It consists of 20 items, yielding a total score ranging from 0 to 80 (Blevins et al., 2015). A cutoff score of 33 was selected as the optimal indicator to suggest the probable presence of PTSD (Havermans et al., 2025). The WHOQOL-BREF scale developed by the World Health Organization to assess QoL. It is a standardized instrument comprising 26 items divided into four domains: physical health, psychological health, social relationships, and environment. The scores for the different domains were converted to a standardized scale of 0 to 100, in accordance with the WHOQOL-100 (World Health Organization, 1996).

Prior to data collection, a pretest of the questionnaire was conducted with eight older adults to verify the clarity and comprehensibility of the items. The data collection phase took place between March and May 2024, approximately six months after the earthquake.

### **Statistical Analysis**

Statistical analyses were performed using IBM SPSS version 25. A descriptive analysis (frequencies, means, standard deviations) was conducted, and the normality of the variables was verified using the Kolmogorov-Smirnov test. Parametric tests were then used: Student's t-test for comparisons between two groups and ANOVA for variables with multiple categories. The significance level was set at  $p < 0.05$ .

### **Ethical Considerations**

This study was conducted in accordance with the ethical principles set forth in the Declaration of Helsinki and was approved by the Ethics Committee of the University Hospital of Marrakech (Ref.: No. 99/2024). All participants provided informed consent after being informed of the research objectives. Data anonymity and confidentiality were strictly guaranteed throughout the study process.

## **III. Results and discussion**

### **Results**

The study included 240 elderly survivors of the Al Haouz earthquake, with a mean age of  $70.2 \pm 10.5$  years, the majority of whom were women (59.2%). Most lived with their spouse (67.2%) and within their family (69.2%). The level of education was low, with 50.8% being illiterate.

Analysis of the results showed that 47.9% of participants suffered from PTSD, and that six months after the earthquake, the quality-of-life assessment showed an average overall score of  $46.58 \pm 6.61$ , indicating an overall decline. The social relationships dimension had the highest scores ( $59.56 \pm 12.97$ ), followed by mental health ( $50.24 \pm 10.24$ ), while the environmental ( $41.53 \pm 7.76$ ) and physical ( $43.79 \pm 9.26$ ) dimensions had the lowest scores. (Table 1)

Table 2 highlights differences in quality of life based on the presence of PTSD. Individuals with PTSD have lower overall scores (45.24) than those without PTSD (47.82), indicating a significant decline in quality of life. This decline is most pronounced in the physical (42.00 vs. 45.44) and psychological (49.54 vs. 52.21) domains, as well as in the environmental domain (40.06 vs. 42.88). In contrast, no significant difference is observed for the social dimension ( $p = 0.684$ ), suggesting relative stability in social relationships despite the disaster.

**Table 1. Quality-of-life scores for older adults following the earthquake**

|                             | Mean $\pm$ SD     | Median |
|-----------------------------|-------------------|--------|
| Physical health             | $43.79 \pm 9.26$  | 42.90  |
| Psychological health        | $50.24 \pm 10.24$ | 49.95  |
| Social relationships        | $59.56 \pm 12.97$ | 60.03  |
| Environmental domain        | $41.53 \pm 7.76$  | 40.00  |
| Total Quality of Life Score | $46.58 \pm 6.61$  | 44.66  |

**Table 2 Comparison of quality-of-life scores according to the presence or absence of PTSD in earthquake survivors**

| Quality of life domains     | Mean quality of life scores |                            | p-value |
|-----------------------------|-----------------------------|----------------------------|---------|
|                             | With PTSD = 115 (47.9%)     | Without PTSD = 125 (52.1%) |         |
| Physical activity domain    | $42.00 \pm 8.43$            | $45.44 \pm 9.70$           | 0.004   |
| Psychological domain        | $49.54 \pm 9.39$            | $52.21 \pm 10.86$          | 0.042   |
| Social relationships domain | $59.91 \pm 11.88$           | $59.22 \pm 13.93$          | 0.684   |
| Environmental domain        | $40.06 \pm 6.84$            | $42.88 \pm 8.31$           | 0.004   |
| Total Quality of Life Score | $45.24 \pm 5.65$            | $47.82 \pm 7.20$           | 0.002   |

Abbreviations: PTSD: post- traumatic stress disorder.

Table 3 highlights, based on a multiple linear regression model, the factors independently associated with the quality of life of older adults following the earthquake. The multivariate analysis shows that, after adjusting for sociodemographic characteristics, the presence of PTSD remains significantly associated with quality of life ( $\beta = 0.098$ ;  $p = 0.041$ ).

**Table 3: Association between quality of life and post-traumatic stress disorder, adjusted for sociodemographic variables using a linear regression model**

| Variables                       | B (IC 95%)           | ES    | $\beta$ | p-value |
|---------------------------------|----------------------|-------|---------|---------|
| Post- traumatic stress disorder | 1.30 (0.10 à 2.60)   | 0.630 | 0.097   | 0.039   |
| Education                       | 0.18 (-0.89 à 1.30)  | 0.462 | 0.016   | 0.739   |
| Marital status                  | -0.40 (-1.72 à 0.91) | 0.665 | -0.029  | 0.533   |
| Income source                   | 0.49 (-0.18 à 1.17)  | 0.340 | 0.070   | 0.150   |
| Gender                          | 0.69 (-0.84 à 2.32)  | 0.776 | 0.044   | 0.380   |

Abbreviations: B: Regression coefficient; CI: confidence interval; SE: standard error;  $\beta$ : standardized coefficients.

## Discussion

This study aimed to examine the relationship between PTSD and QoL among older adults following the Al Haouz earthquake.

The results indicate that six months after the earthquake, the quality of life of older adults remains impaired, consistent with the literature highlighting the lasting effects of seismic disasters (Sato et al., 2025; Xu et al., 2018; Yayla et al., 2025). The physical and environmental dimensions are the most affected, while the social sphere remains relatively intact, likely due to family and community support that fosters resilience (Kim et al., 2022; Sasaki et al., 2019). Physical deterioration is attributed to trauma, the worsening of chronic illnesses, and functional decline, which are particularly pronounced among older adults (Ito et al., 2016; Kim et al., 2022). Furthermore, environmental impairment reflects disruptions in living conditions linked to property damage and reduced access to resources (Morishima et al., 2020).

Furthermore, our results highlight an association between the presence of PTSD and a decrease in quality of life. This observation aligns with numerous previous studies showing that PTSD has an adverse impact on various dimensions of quality of life (Cao et al., 2015; Yang et al., 2020).

The results showed that the QoL of individuals suffering from PTSD is impaired in its physical, psychological, and environmental dimensions. Although it is a mental disorder, its effects also extend to somatic health, confirming the existence of a close interaction between the psychological and physical dimensions among disaster survivors (Tsai et al., 2007). PTSD is associated with behaviors harmful to health, which can contribute to a decline in the physical dimension of quality of life (Li et al., 2018). Psychologically, this impairment is primarily linked to symptoms of the disorder such as anxiety, sleep disturbances, nightmares, and irritability (Farooqui et al., 2017). Furthermore, comorbidity with major depression is frequently observed in patients with PTSD, which affects their QoL (Brown et al., 2001). The environmental dimension is significantly impaired in individuals with PTSD, which is consistent with the literature (Goenjian et al., 2011; Wang et al., 2000). This impairment may be linked to deteriorating socioeconomic conditions, which influence perceptions of the environment and the fulfillment of basic needs (Liang, 2015). In contrast, the social dimension shows no significant difference, likely due to the maintenance of social ties and strong community solidarity, particularly in the Moroccan context.

### Strengths and Limitations

Despite its methodological rigor and scientific value, this study has certain limitations. The non-probabilistic accidental sampling, linked to the post-disaster context, may reduce the representativeness of the results. Furthermore, the cross-sectional design does not allow for understanding changes over time, but provides a useful snapshot of the survivors' situation.

## IV. Conclusion

Six months after the Al Haouz earthquake, the quality of life for older adults remains generally compromised. Post-traumatic stress disorder appears to be a factor contributing to this deterioration, particularly in physical, mental, and environmental terms, while the social dimension remains relatively intact thanks to family and community solidarity. These findings underscore the need for integrated care for elderly survivors, combining psychological support with improvements in living conditions to promote their recovery and resilience.

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