Quality of life, psychological wellbeing and resilience: a survey on the Italian population living in a new lodging after the earthquake of April 2009

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Key words: Quality of life, earthquake, resilience
Parole chiave: Qualità di vita, terremoto, resilienza

Abstract

Objective: The aim of this study is to estimate the quality of life and the psychological wellbeing as a result of the earthquake which occurred the 6th of April 2009 and that struck the population of the city of L’Aquila.
Methods: A random sample of 281 subjects, from the population that had the possibility of living in a temporary lodging provided by the State, were interviewed after the earthquake, during the period between July and October 2010. Two self-administered questionnaires were used: the Psychological General Well-Being Index (PGWBI) and the Dispositional Resilience Scale (DRS II).
Results: The women’s health status is worse than the men’s, this is true both on a general level (79.24 vs 70.55), and on different estimated dimensions. Health status is significantly worse in older age groups ($F_{2,245}=4.34$, $p=0.0140$): the elderly appear to be more depressed ($F_{2,245}=6.52$, $p=0.0017$) and to have less self-control ($F_{2,245}=3.06$, $p=0.0487$) than the younger.
Conclusions: Generally women tend to experience greater emotional involvement in social and interpersonal relationships. Although many months have passed since the catastrophic event, feelings of disease and a sense of impotence (about life) are still persistent in people, even though they generally are hopeful about the future.

Introduction

A year after the earthquake in L’Aquila, the University of L’Aquila in collaboration with the University of Marche and the University of Florence (MICRODIS-L’Aquila research team), carried out a survey on midterm psychological consequences of the earthquake. It is a survey on adults enrolled from public list of families which could access the Sustainable Eco-friendly Anti-seismic Complex Project (CASE Project) in L’Aquila.

A disaster implies a sense of bewilderment about the demographic, urban, economic and social contest in which individuals had been living till the day before the event. Moreover, a catastrophe creates a distance from all those daily expectations collectively shared. Mainly in the territory of L’Aquila people are seriously confused because of the numerous changes and because having lost churches, squares and sporting centers. This suffering is shown more evidently in those who have been forced to leave their own habitations because they were seriously structurally

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damaged or because the buildings were too close to others which were inconsiderable structural danger.

The houses of the “C.A.S.E. Project” were intended for the citizens of L’Aquila whose homes had been destroyed or condemned. Most of the severely damaged homes were located in the old center of L’Aquila where the reconstruction and the resumption of everyday life is still far off in time. This suggests that the mood of the people, a year after the event, is still negative and that they have developed strategies for coping and survival strategies in relation to new housing solutions proposed for restoring a social life in a modern community. The direct consequences of an earthquake are clearly represented by the loss of life, damage to public and private buildings, infrastructure, and the effects on survivors’ health. Psychological health is exposed to the risks of the immediate consequences and not of a natural disaster. In our study we investigated how survivors perceive their health by living in new environments, away from the historic architecture that characterized their city. We also investigated the coping strategies of survivors and their ability to adapt to the new structure of their daily lives.

**Materials and methods**

The aim was to investigate the quality of life perception and health status one year after the earthquake on the community who had access to temporary structures that the Italian government made after the earthquake in L’Aquila.

The probability proportional to size method was used to sampling subjects from the public list of beneficiaries of accommodation after earthquake. The optimal number of clusters was 96 for 288 subjects with an effect design 2,2 (1).

Two self-administered questionnaires were used: the Psychological General Well-Being Index (PGWBI) and the Dispositional Resilience Scale (DRS II).

The PGWBI questionnaire is a validated Health Related Quality of Life (HRQoL) measure, with 22 self-administered items, rated on a 6-point scale, which assess psychological and general well-being of respondents in six HRQoL domains: anxiety, depressed mood, positive well-being, self-control, general health and vitality (2). The Dispositional Resilience Scale-II is an instrument that measures resilience skills to stressful events. This scale assesses the hardness, the ability to cope with difficulties, interpreting it as an opportunity, finding meaning and feeling in control (3). Anova one way model was used for continuous variables; the logistic model was applied to dichotomous variables, with STATA 8.0 software.

**Results**

Eight subjects did not join the study: three persons were unable to fill in the questionnaire due to problems linked to language, five subjects refused to cooperate. Twohundred-eightyone subjects completed PGWBI questionnaire and Dispositional Resilience Scale, 46% of the responders were males, mean age was 43 (±16.2), 79% presented a high level of education (high school diploma or degree), 63% were employed, 13% were students and 24% were unemployed or retired. At the time of the interviews, 89% of the respondents considered having witnessed the fury of the earthquake as the most upsetting traumatic event, followed by mourning the loss of friends or family members (4%) and by the presence of a severe illness (2%). Only one person was not in L’Aquila during the disaster.

Scores from PGWBI scales show significant differences between males and females. Women’s health status is worse than
psychological well-being and environment after the earthquake than prior to the earthquake (4, 5). Many factors, including displacement, poor housing, crowded conditions and diminished access to health services, affect their ability to cope with its long term consequences (6). Young people seem to be more positive but more anxious than the rest of the investigated population. State of anxiety is a risk factor which can lead to development of harmful lifestyles. Alcohol and cigarettes are usually consumed by young people to achieve tension reduction (7).

Table 1 - PGWBI Subscales scores by gender

<table>
<thead>
<tr>
<th>Variable</th>
<th>men mean±sd</th>
<th>women mean±sd</th>
<th>F*</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>anxiety</td>
<td>17.90±5.1</td>
<td>15.82±5.1</td>
<td>11.24</td>
<td>0.0009</td>
</tr>
<tr>
<td>depression</td>
<td>12.24±2.7</td>
<td>11.14±3.1</td>
<td>9.91</td>
<td>0.0018</td>
</tr>
<tr>
<td>positivity</td>
<td>12.83±3.7</td>
<td>10.68±4</td>
<td>21.78</td>
<td>0.0000</td>
</tr>
<tr>
<td>self control</td>
<td>11.55±2.9</td>
<td>10.55±3.2</td>
<td>7.12</td>
<td>0.0081</td>
</tr>
<tr>
<td>health</td>
<td>11.70±2.7</td>
<td>10.70±2.9</td>
<td>9.11</td>
<td>0.0028</td>
</tr>
<tr>
<td>vitality</td>
<td>13.02±3.8</td>
<td>11.68±4.1</td>
<td>8.04</td>
<td>0.0049</td>
</tr>
<tr>
<td>Global Index</td>
<td>79.24</td>
<td>70.55</td>
<td>15.54</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

* Anova one way

Table 2 shows the comparisons among PGWBI scores across the three age groups. Health status, as measured by general health index, is significantly worse in older age groups ($F_{2;245}=4.34$, $p=0.0140$): the elderly appear to be more depressed ($F_{2;245}=6.52$, $p=0.0017$) and to have less self-control ($F_{2;245}=3.06$, $p=0.0487$) than the younger. Older people are the most vulnerable in disasters. In fact, they usually perceive a lower quality of life in physical capacity, psychological well-being and environment after the earthquake than prior to the earthquake (4, 5). Many factors, including displacement, poor housing, crowded conditions and diminished access to health services, affect their ability to cope with its long term consequences (6). Young people seem to be more positive but more anxious than the rest of the investigated population. State of anxiety is a risk factor which can lead to development of harmful lifestyles. Alcohol and cigarettes are usually consumed by young people to achieve tension reduction (7).

Table 2 - PGWBI Subscales scores by age

<table>
<thead>
<tr>
<th>Variable</th>
<th>18-34 years n=90</th>
<th>35-55 years n=90</th>
<th>&gt;55 years n=68</th>
<th>F*</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>anxiety</td>
<td>16.52±5.1</td>
<td>17.37±4.7</td>
<td>15.88±6.1</td>
<td>1.60</td>
<td>0.2044</td>
</tr>
<tr>
<td>depression</td>
<td>12 ±2.6</td>
<td>12.01±2.5</td>
<td>10.53±3.6</td>
<td>6.52</td>
<td>0.0017</td>
</tr>
<tr>
<td>positivity</td>
<td>12.13±3.6</td>
<td>11.93±3.5</td>
<td>10.44±4.5</td>
<td>4.29</td>
<td>0.0148</td>
</tr>
<tr>
<td>self control</td>
<td>11.18 ± 3.0</td>
<td>11.33±3.01</td>
<td>10.15±3.5</td>
<td>3.06</td>
<td>0.0487</td>
</tr>
<tr>
<td>health</td>
<td>11.69 ± 3.7</td>
<td>11.39±2.5</td>
<td>10.01±3.2</td>
<td>7.77</td>
<td>0.0005</td>
</tr>
<tr>
<td>vitality</td>
<td>12.34 ±3.9</td>
<td>12.56±3.7</td>
<td>11.50±4.4</td>
<td>1.50</td>
<td>0.2243</td>
</tr>
<tr>
<td>Global Index</td>
<td>75.87 ± 16.4</td>
<td>76.59±17.1</td>
<td>68.51±22.5</td>
<td>4.34</td>
<td>0.0140</td>
</tr>
</tbody>
</table>

* Anova one way
The dispositional resilience scale permitted us to have a general picture of the ability of people to react to the traumatic event. The degree of agreement on the various items of the Resilience Scale was studied with two categories (agreement/disagreement). A logistic regression model was used in order to study the probability of agreement by gender. Women appear more pessimistic than men: they are more prone to believe that their life is without meaning (OR=0.58; 95%CI: 0.34-0.97), feeling helpless (OR=0.43; 95%CI: 0.26-0.70), suffering from loneliness (OR=0.48; 95%CI: 0.29-0.80). However, they are less exposed to perceive the strength to face new challenges (OR=2.96; 95%CI: 1.74-5.01) and they often wake up eager to improve their life status (OR=0.48; 95%CI: 0.27-0.84). Female gender is usually determinant of poor quality of life after an earthquake (8), in fact, several studies after earthquakes found lower quality of life among women (9, 10).

Discussion

The concept of quality of life has been defined by the World Health Organization (WHO) as an individual’s perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns (11). The study showed that the 6th April 2009 disaster was a traumatic experience. The death toll in the earthquake was dominated by L’Aquila city and many victims were students and pensioners (12). It has left deep wounds and it has had huge physical and psychosocial consequences for its inhabitants. This survey investigated the impacts of the earthquake on quality of life, resilience skills to stressful events and their relationship to socio-demographic characteristics (gender and age). In fact, lower quality of life is usually associated with female gender and higher age (13). This study found that women reported lower scores for all aspects of quality of life than men. Several studies after earthquakes have shown similar results among women (14). Generally women tend to experience greater emotional involvement in social and interpersonal relationships. Social relationships often represent a coping strategy to minimize or to moderate the adverse effects of the earthquake, and they are often one of the positive effects of stressful life events (15). So, this can be a positive and important characteristic, but it might make some women more vulnerable to a depressive problem. Women show a state of health significantly worse than men, in particular with regards to the degree of anxiety, depression, positivity and vitality. Compared to men, women suffer more often from discontent and dissatisfaction; they are plagued by anxiety and nervousness and more prone to moments of fatigue and weakness. Our study has also shown that health status is significantly worse in older age group, in particular with regards to the degree of depression and self-control. The older age groups report feelings of depression, less self-control, loss of control of their actions, instability and insecurity. So, the elders are most vulnerable to psychological distress following a disaster (16). L’Aquila’s earthquake survivors had a high level of anxiety (its level is higher than the others subscales (16.8 ± 5.2), including a state of tension, agitation and confusion. These data are produced in accordance with the results of a recent study conducted by Istituto Superiore di Sanità (ISS) regarding L’Aquila’s population state of health of after 2009 earthquake. Indeed, data show that the quality of life is lower for older people, women and people with low educational attainment. Moreover, women tend to show symptoms of depression more easily and younger people tend to become dependent on tobacco and alcohol (17, 18).
Conclusions

Despite everything, the majority of the respondents showed a strong and positive impulse to the resumption of normal life regardless of what happened. Moreover, they consider the earthquake as an opportunity for personal growth. It is important to know how people react to earthquakes and promote self-protective behavior. Subjective support and support availability are more useful strategies to improve the QOL of the earthquake survivors (3). The best way to resist the impact of disasters and absorb it by adapting to the hazard, is support a resilient society (19).

Acknowledgments

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Riassunto

Qualità della vita, benessere psicologico e resilienza: indagine sulla popolazione italiana che vive in un nuovo alloggio dopo il terremoto dell’Aprile 2009

Obiettivo: Valutazione degli effetti del terremoto del 6 aprile 2009 sulla qualità di vita e sul benessere psicologico della popolazione trasferita presso i nuovi alloggi messi a disposizione dal governo italiano per fronteggiare l’emergenza terremoto.


Risultati: Lo stato di salute delle donne è peggiore di quello degli uomini sia a livello generale (79,24 vs 70,55), sia con riferimento alle diverse dimensioni indagate. L’indice di salute generale, è significativamente peggiore nelle classi di età più anziane (F 2,245=4,34; p=0,0140): gli anziani appaiono più depressi rispetto ai giovani (F 2,245=6,52; p=0,0017), presentano meno auto-controllo dei più giovani (F 2,245=3,06; p=0,0487).

Conclusioni: A distanza di mesi dall’evento catastrofico, nelle persone persistono ancora sentimenti di disagio e di impotenza rispetto alla vita anche se in generale si è fiduciosi nel futuro.

References


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