

The Role of Resilience and Age on Quality of life in Patients with Pain Disorders

Saeid Yazdi-Ravandi¹, Zahra Taslimi², Hayede Saberi³, Jamal Shams⁴, Shima Osanlo³, Golnoosh Nori², Abbas Haghparast^{2,*}

1. Young Researchers Club, Rudehen Branch, Islamic Azad University, Rudehen, Iran.

2. Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, P.O.Box 19615-1178, Tehran, Iran.

3. Islamic Azad University, Rudehen Branch, Rudehen, Iran.

4. Department of Psychiatry, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

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ABSTRACT

The quality of life (QOL) has been defined as “a person’s sense of well-being that stems from satisfaction or dissatisfaction with the areas of life that are important to him/her”. Age was also significantly associated with several functional limitations such as illness, and physical restrictions. The concept of “resilience” refers to successful adaptation that unfolds within a context of significant and usually debilitating adversity or life stress. The ability to adapt to pain may play an important role in maintaining the QOL. In this study, we investigated the role of resilience and age in various domains of quality of life such as physical, psychological, social and environmental domains. In this study, 290 adult patients (146 men, 144 women) completed the Connor-Davidson Resilience Scale and the WHOQOL-BREF questionnaire. Moreover, we illustrated several demographic variables. The results were analyzed using SPSS version 19.0 and means, descriptive correlation and regression were calculated. Our data revealed that resilience and age could significantly anticipate the QOL and physical aspect ($P < 0.001$). In psychological, social and environmental domains resilience but not the age could significantly predict this domains. In addition, it is noticeable that the effect of resilience on the prediction of QOL is much more obvious in the psychological domain. In conclusion, resilience is more important factor than the age in prediction of life quality (QOL) in persons suffering from chronic pain.

1. Introduction

The term “quality of life (QOL)” is used to evaluate the general well-being of individuals and societies. According to the World Health Organization (WHO), quality of life (QOL) is defined as individual perception of life, values, objectives, standards, and interests in the framework of culture (Heydarnajad, Hassanpour, & Solati, 2011). The QOL refers to “global well-being,” including physical, emotional, mental, social, and behavioral components. In the last

few years, a number of informative and valid QOL tools have become available to measure health-related QOL (Heydarnajad, et al., 2011). Pain is an essential process that can signal injury or illness and can attract attention to areas of the body that require immediate care. Chronic pain has been associated with a variety of negative outcomes, including depression (Brown, Nicassio, & Wallston, 1989), and a variety of health problems, including obesity (Marks, 2007; Sturgeon & Zautra, 2010). Studies have shown that pain plays a prominent role in mental- and health-related quality of life (Elander, Robinson, Mitchell, & Morris, 2009).

* Corresponding Author:

Abbas Haghparast, PhD

Neuroscience Research Center, Shahid Beheshti University of Medical Sciences, P.O.Box 19615-1178, Tehran, Iran

Tel & Fax: +98-21-2243-1624

E-mail: Haghparast@yahoo.com

Chronic pain is often associated with anxiety and depression (Bair, Robinson, Katon, & Kroenke, 2003), resulting in a low health-related quality of life (Otto, Bach, Jensen, & Sindrup, 2007; Gustorff et al., 2008; Pagano, Matsutani, Ferreira, Marques, & Pereira, 2004; Dworkin & Caligor, 1988; Lautenbacher & Krieg, 1994). The mechanisms underlying the association between mental symptoms and chronic pain are, however, not clear (Dersh, Polatin, & Gatchel, 2002), but abnormalities in pain and mood modulating systems in the brain and spinal cord have been suggested as a common mechanism (Stahl .S & Briley, 2004; S. M. Stahl, 2003). In chronic pain, the goal of treatment is to maintain or restore function and improve quality of life (Gordon et al., 2010). Several studies have shown that health-related quality of life is lower in patients with chronic pain than in healthy controls (Otto, et al., 2007; Gustorff, et al., 2008; Pagano, et al., 2004; Bergman, Jacobsson, Herrstrom, & Petersson, 2004; Haythornthwaite & Benrud-Larson, 2000; Gormsen, Rosenberg, Bach, & Jensen, 2010). In addition, one study suggested that pain was the leading cause of low health-related quality of life (Gormsen, et al., 2010; Svendsen, Jensen, Hansen, & Bach, 2005). Chronic pain patients have significantly lower scores on all health-related quality of life subscales (SF-36 & WHOQOL) than healthy controls. It is generally accepted that chronic pain has a negative impact on quality of life (Kempen, Ormel, Brilman, & Relyveld, 1997; Schlenk et al., 1998; Stewart et al., 1989). Chronic pain has negative consequences for general health (Becker et al., 1997) and for social and psychological well-being (Lame, Peters, Vlaeyen, Kleef, & Patijn, 2005; Gureje, Von Korff, Simon, & Gater, 1998). The ability to adapt to pain may play an important role in maintaining quality of life as people age and experience the injuries and illnesses that can cause pain (Smith et al., 2009). Following dissatisfaction with 'deficit' models of illness and psychopathology (Fergus & Zimmerman, 2005), international research on resilience has increased substantially over the past two decades (Haskett, Nears, Ward, & McPherson, 2006). Resilience is now also receiving increasing interest from policy and practice in relation to its potential influence on health, well-being and quality of life and how people respond to the various challenges of the ageing process. The concept of "resilience" refers to successful adaptation that unfolds within a context of significant and usually debilitating adversity or life stress (Besharat M. A., Bahrami-Ehsan, & Mirdamadi, 2010; Windle, Bennett, & Noyes, 2011). Resilience also may be important for preventing and liv-

ing with chronic pain (Smith, et al., 2009). On the other hand, studies confirmed that QOL is dynamic over time and that age has an impact on QOL and the demographic ageing is mostly considered to be a negative phenomenon and issues related to demographic ageing are often reduced to reform of pension system. The purpose of this study was to determine the effect of resilience to adaptation the conditions would be related to the ability to habituate to painful stimuli and aging in quality of life in patients with chronic pain.

2. Methods

2.1. Participants

A cross-sectional study was performed in a population of patients referred to Pain and Pain management clinics of the Tehran hospitals. This population (290 adult: 146 men and 144 women) is a heterogeneous group of chronic pain patients with different localizations of pain, such as low back pain, arthritis, rheumatoid, foot pain, hand pain and migraine. All patients were between 18 and 65 years old and were selected through stratified random sampling. All participants were paid \$2 for completing the study.

2.2. Measurement

WHOQOL-BREF: Before asking the subjects to participate and fill out quality of life (QOL) questionnaire, a formal consent was obtained from all of them. With some modification, world health organization (WHO-QOL-BREF) was used to measure QOL in the chronic pain patients. Each question had an equal value and the QOL was quantified as the sum of the scores for all domains. The higher scores on this scale represent a better QOL.

Connor-Davidson Resilience scale: The ability to adapt to or bounce back from stress was assessed using the Brief Resilience Scale (Connor & Davidson, 2003). The Connor-Davidson Resilience scale (CD-RISC) comprises of 25 items each rated on a 5-point scale (0–4), with higher scores reflecting greater resilience. All of which carry a 5-point range of responses, as follows: not true at all (0), rarely true (1), sometimes true (2), often true (3), and true nearly all of the time (4). The scale is rated based on how the subject has felt over the past month. The total score ranges from 0–100, with higher scores reflecting greater resilience.

3. Results

3.1. Descriptive Statistics

The results were analyzed by using SPSS version 19.0. Consequently, correlation, regression (linear method)

and frequency were computed. Basic summary statistics (e.g. mean, standard deviation, minimum, and maximum,) were calculated for each variable (Table 1).

Table 1. Descriptive Statistics

| | N | Minimum | Maximum | Mean | | Std. Deviation | Skewness | | Kurtosis | |
|--------------------|-----------|-----------|-----------|-----------|------------|----------------|-----------|------------|-----------|------------|
| | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Statistic | Std. Error | Statistic | Std. Error |
| Resilience | 290 | 11 | 99 | 55.87 | 1.044 | 17.773 | .027 | .143 | -.262 | .285 |
| Age | 290 | 18 | 65 | 43.79 | .734 | 12.507 | -.066 | .143 | -.966 | .285 |
| Quality Of Life | 290 | 35 | 126 | 79.84 | .983 | 16.739 | -.415 | .143 | .021 | .285 |
| Physical | 290 | 7 | 34 | 21.28 | .333 | 5.678 | -.359 | .143 | -.357 | .285 |
| Psychological | 290 | 1 | 31 | 18.30 | .281 | 4.778 | -.398 | .143 | .323 | .285 |
| Social | 290 | 3 | 22 | 9.19 | .176 | 3.002 | .149 | .143 | .843 | .285 |
| Environment | 290 | 10 | 40 | 24.90 | .330 | 5.613 | -.324 | .143 | .114 | .285 |
| Valid N (listwise) | 290 | --- | --- | --- | --- | --- | --- | --- | --- | --- |

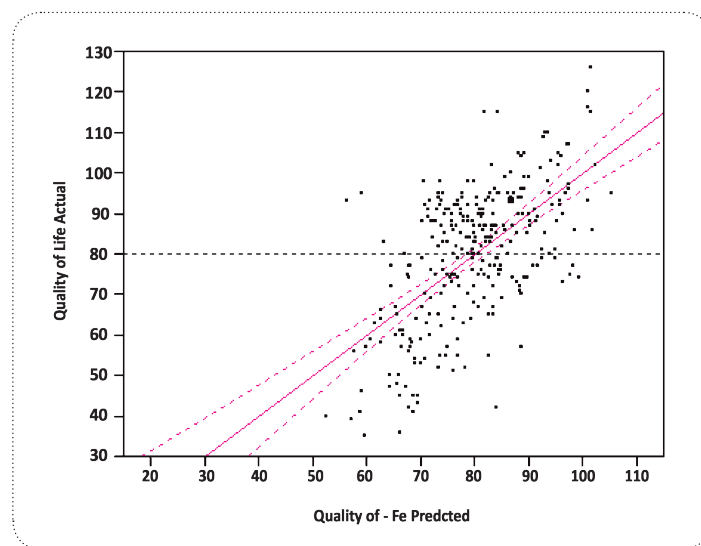
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3.2. Prediction of quality of life from resilience and age in patients with pain disorders

Our data revealed that resilience (P<0.001) and age (P<0.05) could significantly anticipate the QOL. Thirty-seven percent of the variance in QOL total score was predicted by resilience and age (R: 0.60 R2: 0.37 F:

83.74). The analysis indicated that high resilience score could positively anticipate the QOL, but the relationship between age and QOL was negative. Accordingly, a model was formulated as a regression equation:

$$Y: 0.55 (\text{Res}) - 0.126 (\text{A}) + 54.53 (\text{Fig. 1}).$$



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Figure 1. Prediction of Quality Of Life by resilience and age in patients with pain disorders.

3.3. Prediction of physical aspect of QOL by resilience and age in patients with pain disorders

Our data showed that there was an important relationship between resilience ($P < 0.001$), age ($P < 0.05$) and physical aspect of QOL. Patients with higher levels of resilience have better QOL; however, age could nega-

tively predict this domain. Resilience and age predicted 22 percent of the variance in this domain ($R: 0.47$ $R^2: 0.22$ $F: 40.01$). Accordingly, a model was formulated as a regression equation:

$$Y: 0.13 (\text{Res}) - 0.071 (\text{Age}) + 16.95 (\text{Fig. 2}).$$

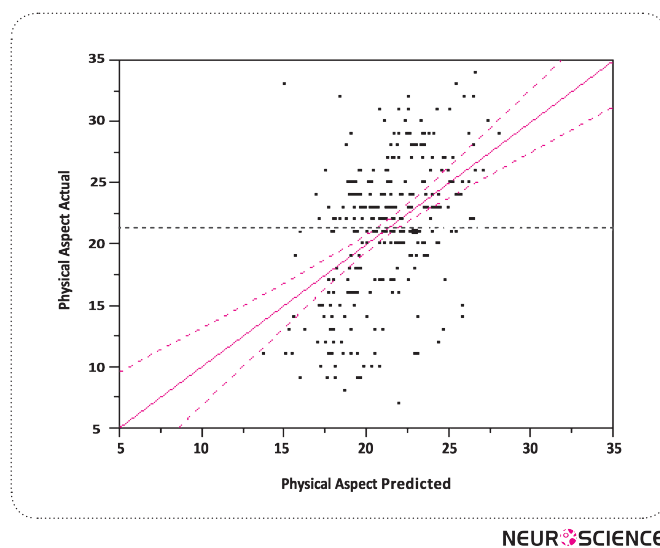


Figure 2. Association of physical aspect of quality of life and resilience and age in patients with pain disorders.

3.4. Prediction of psychological aspect of QOL by resilience and age in patients with pain disorders

The results showed that resilience but not the age could significantly anticipate the psychological aspect ($P < 0.001$). Resilience predicted 43 percent of variance psychological domain ($R: 0.65$ $R^2: 0.43$ $F: 106.30$). Pa-

tients with high levels of resilience had significantly higher scores on psychological aspect of quality of life subscales. In addition, it is noticeable that the effect of resilience on the prediction of QOL is much more obvious in the psychological domain. Accordingly, a model was formulated as a regression equation: $Y: 0.17 (\text{Res}) + 9.06 (\text{Fig. 3})$.

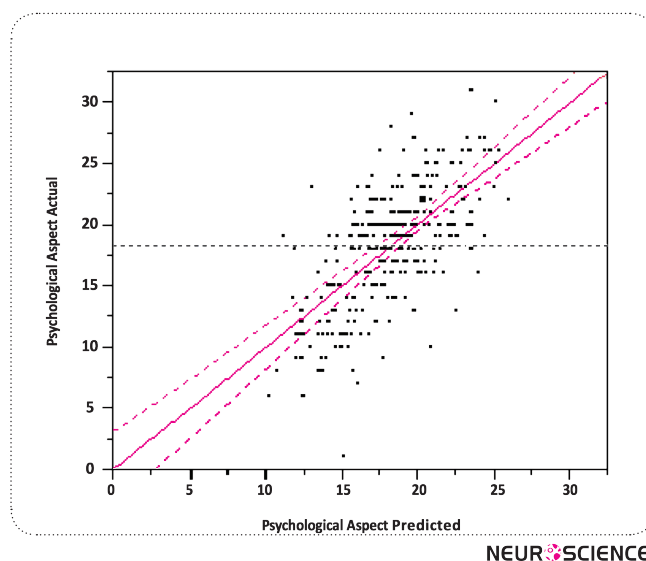


Figure 3. prediction of psychological aspect of QOL by resilience and age in patients with pain disorders.

3.5. Prediction of social aspect of QOL by resilience and age in patients with pain disorders

Our result revealed that resilience could anticipate the social aspect of quality of life (P<0.001) and age could not significantly predict the social domain. High

levels of resilience scale predicted greater levels of social aspect of quality of life (R: 0.50 R2:0.25 F: 47.69). Accordingly, a model was formulated as a regression equation:

$$Y: 0.17 (\text{Res}) + 9.06 (\text{Fig. 4}).$$

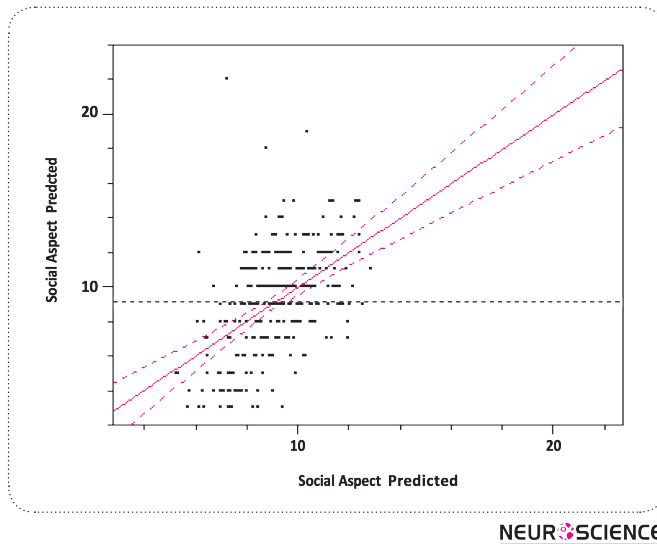


Figure 4. Prediction of social aspect of QOL by resilience and age in patients with pain disorders.

3.6. Prediction of environmental aspect of QOL by resilience and age in patients with pain disorders

Resilience could significantly predict the environmental domain (P<0.001) and age could not anticipate this

domain. It is noticeable that the effect of resilience on the prediction of QOL is obviously lowering in the environmental domain(R: 0.40 R2:0.16 F: 27.07). Accordingly, a model was formulated as a regression equation:

$$Y: 0.17 (\text{Res}) + 9.06 (\text{Fig. 5}).$$

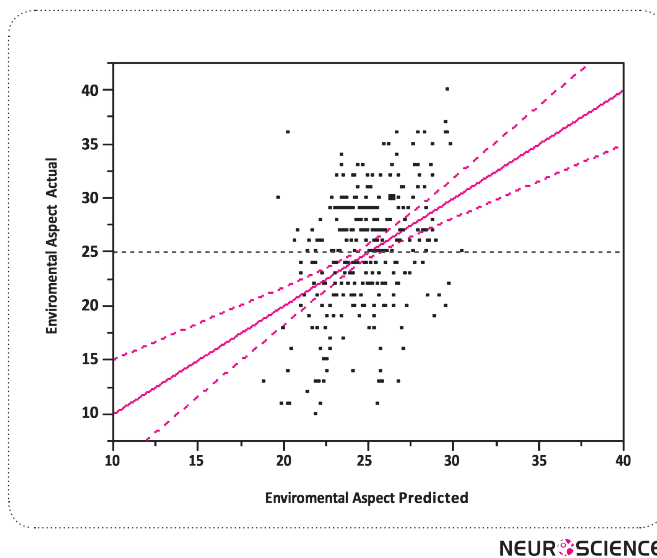


Figure 5. Prediction of social aspect of QOL by resilience and age in patients with pain disorders.

4. Discussion

In this study, we found a significant association between resilience and quality of life. Pain is not only a highly noxious experience per se, but it can also have an overwhelmingly negative effect on nearly every other aspect of life, including mood and capacity to function in daily roles. According to a study by the World Health Organization, individuals who live with persistent pain are four times more likely than those without pain to suffer from depression or anxiety, and more than twice as likely to have difficulty working. Resilience has negative correlation with psychological distress and well-being. High levels of resilience help the individuals to use the positive emotions for passing the unfavorable experience and returning to the normal status (Becona, 2007; Felten & Hall, 2001). Failure to investigate these factors will hamper our ability to understand mental health problems and hence promote good mental health (Patel & Goodman, 2007). Some individuals have been shown to benefit from resilience-promoting interventions such as stress-management and stress-prevention (Steinhardt & Dolbier, 2008). Moreover, some aspects of mental health resilience (such as positive effect, positive expectancy regarding health outcomes, finding meaning in challenging circumstances) may also assist in maintaining somatic well-being (Ickovics et al., 2006; Jowkar, 2008). Some somatic immune mechanisms (e.g., cytokines) may have a direct promoting influence on internal mental resilience barriers (Goldstein, Kemp, Soczynska, & McIntyre, 2009; Miller, 2009).

In agreement with our results, Schmidt et al in 2005 confirmed that ageing reduced to reform of pension system and mostly considered a negative phenomenon and impact on QOL (Schmidt, Bestmann, Kuchler, Longo, & Kremer, 2005). Age was also significantly associated with several functional limitations (Menz, Gill, Taylor, & Hill, 2011). Planning ability and, a subset of executive functioning, have been shown to decline with normal aging (Sanders & Schmitter-Edgecombe, 2012) which may reduce the quality of life. The adaptive somatic immune system involving immunological memory to self-antigens (e.g. memory T-cells to CNS-related antigens) has been suggested to be involved in the so-called 'behavioral immunization' mechanism of mental resilience (Lewitus & Schwartz, 2009). Moreover, immunization with CNS-related antigens as a mean of protecting against depression has recently been introduced (Lewitus et al., 2009).

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