Resilience, depression, and quality of life in elderly individuals with chronic pain followed up in an outpatient clinic in the city of São Paulo, Brazil

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Purpose: In this study, we assessed resilience, depression, and quality of life in a group of elderly individuals with or without chronic pain.

Patients and methods: A cross-sectional study assessing elderly individuals followed up at a geriatrics outpatient clinic and divided into two groups: 54 elderly patients with chronic pain and 54 elderly with no chronic pain.

Results: The sample comprised mainly women (67.6%), with mean age 79.9 years. The mean resilience index in the group with pain was 69.4 and, in the group with no pain, 80.1 ($P<0.001$). Depression was observed in 35.2% of patients with chronic pain; there was no case of depression in those without chronic pain. Quality of life of the elderly with chronic pain was worse in all the domains assessed: physical, mental, emotional, social, vitality, and pain.

Conclusion: In the study sample, resilience was lower, depression was more frequent, and quality of life was worse in the group of elderly with chronic pain.

Keywords: pain, older, resilience

Introduction
As the population grows older, the prevalence of chronic health problems increases. Among these problems are several diseases and syndromes associated with chronic pain.1 In Brazil, in the 1960s, there were more than three million people of 60 or more years of age. In 2000, this portion of the population totaled more than 14 million people, almost 9% of the Brazilian population. Estimates by the Brazilian Institute of Geography and Statistics2 indicate that the elderly will represent 15% of the Brazilian population in 2020, leaping to 18% in 2050, which will correspond to approximately 38 million individuals.3 Within this context, Brazil will rank sixth among the countries with the largest number of elderly persons.

It is estimated that 20%–50% of elderly patients present with problems associated with pain. This proportion rises to 45%–80% of elderly inpatients. Pain control is inadequate in more than 50% of elderly, and over 25% die without obtaining its control.4–6 In the aged with cognitive dysfunctions, the diagnosis and treatment of pain may make the problems even worse; in part, this is aggravated by the greater difficulty in evaluating pain.7–9

Among the elderly, chronic pain is the major complaint at outpatient clinics, and is the most frequent symptom in medical histories, occurring in 25%–50% of individuals.10–12 The most frequent pain complaints among the aged are osteoarthritis, especially in the lumbar or cervical region (about 65%); musculoskeletal pain (roughly 40%);
Resilience was evaluated by the Connor-Davidson Resilience scale (CD RISC) developed in 2003, composed of 25 items that assess the capacity of the patient to face adversities and overcome obstacles encountered during their life, with five answer categories (0–4) grouped into four factors. The first factor was Tenacity (eleven items), which reflects the notion of personal competence; the second factor was Adaptability–tolerance (nine items) that has to do with tolerance of the negative effect and strengthening when facing stress. The third factor, Support (three items), reflects a positive acceptance of changes and safe relations. The fourth factor, Intuition (two items), reflects the control and confidence in one’s instinct. The scale was translated to and validated for Brazilian Portuguese by Solano et al. The Geriatric Depression Scale, a scale designed by Sheikh and Yesavage, was used to evaluate depression. Quality of life was assessed by the SF-36 (The Medical Outcomes Study 36-item Short-Form Health Survey), translated into Portuguese by Ciconelli et al, which assesses eight domains, such as physical, social, and emotional aspects, as well as functional capacity, mental health, vitality, pain, and general health condition.

Initially, each participant’s cognitive state was evaluated by the Mental State instrument (MEEM–Mini Mental) and, if dementia was absent, the patient was invited to participate in the study. If they agreed and signed the written informed consent term, they were included, and the questionnaires were applied while they waited to be seen by the geriatrician. Each instrument was explained to the participants, and the answers from the participants were recorded by the authors (MCM, MSB). At the end of the questionnaire application, the elderly were questioned as to the presence of pain for more than 6 months on the same site, and thus they were allocated to the respective group: with and without chronic pain.

Materials and methods
This study was approved by the Ethics Committee for Analysis of Research Projects of the Hospital of Clinics of The University of São Paulo Medical School (# 499.917). A cross-sectional design was used. The chosen population comprised aged individuals from a Multidisciplinary Care Group geared toward the elderly and seen at a geriatrics outpatient clinic. Inclusion criteria were as follows: older without impairment cognitive and age over 60 years, and exclusion criteria were as follows: disagree in participating in the study and the sample do not follow up in geriatric clinic. The sample was divided into two groups: 54 elderly participants with chronic pain and 54 participants with no chronic pain. The study was conducted from April to December 2017.

Statistical analysis
The values of the quantifiable variables were described by means and standard deviations, and minimum and maximum values. Even if the sample distribution of the values was asymmetric, the data were presented as means to allow better visualization of the results, since the median often coincided with the value of the first or the third quartile.

Quantitative variables were described as means±SD even when the distribution was asymmetric, to allow better visualization of the results, since the median often coincided with the value of the first or the third quartile. Minimum and maximum values were also presented. Categorical variables were described as absolute frequencies and percentages. For comparisons between groups regarding qualitative variables,
we used chi-squared or Fisher’s exact test. For quantitative
variables, we used nonparametric Mann–Whitney since
neither of the variables was normally distributed. The sig-
ificance level was set at 5%, and analyses were conducted
with the R package (version 3.1.3).

**Results**

The sample comprised 108 elderly patients, 54 with pain,
and 54 without. Seventy-three were women (67.6%) and
the mean age was 79.9 years. The pain sites most often
reported were knees (24.1%), lumbar region (20.4%), shoul-
der (11.1%), lower limbs (11.1%), and upper limbs (9.3%).
Relationships between resilience, depression, and quality of
life in the groups with and without pain, and relationships
between resilience, depression, and quality of life among all
the participants, were determined (Table 1).

Resilience was 80.1±7.4 in the participants with no
chronic pain, and 69.4±13.4 in those with chronic pain
(P<0.001; Table 2). The factorial structure of the CD RISC
scale adapted for Brazil identified four main factors: Tenac-
ity, Adaptability–Tolerance, Support, and Intuition. When
analyzing these factors between the groups without and
with pain, we observed higher values of Tenacity
(P<0.001), Adaptability–Tolerance (P<0.001), Support
(P=0.009), and Intuition (P=0.005) in the group without pain. In general, we
noted less variability in the group without pain.

Depression was significantly more frequent among the
elderly with pain (P<0.001), and did not occur among those
without chronic pain (Table 2). In the group with pain, qual-
ity of life was worse in all SF-36 questionnaire domains
(Table 3).

We noted an association between resilience and depres-
sion; the median resilience was 76 in the group without
depression and 63 in the group with depression (Table 4).
Lower resilience was observed in the participants with worse
quality of life in the following domains: physical aspects,
general health condition, pain, and mental health.

**Discussion**

This study aimed to compare the resilience of elderly people
with and without chronic pain. It also analyzed other variables
in the sample such as depression and quality of life. A total
of 108 elderly individuals were evaluated, and 54 of them
had complaints of chronic pain.

Investigations about resilience and chronic pain in the
elderly are scarce. Our results showed that lower resilience
was associated with chronic pain. When analyzing the four
factors that comprise the Brazilian version of the CD RISC
(Tenacity, Adaptability–Tolerance, Support, and Intuition),
the differences between the two groups (with and without
pain) proved consistent, especially in the Tenacity and
Adaptability–tolerance factors. This appears to agree with
the best psychometric properties found for Tenacity and
Adaptability–tolerance facets in the validation study of the
Brazilian version of the scale.29 Being a cross-sectional
study, one cannot infer if chronic pain leads to decrease of
resilience or lower resilience facilitates the development of
chronic pain in older people.

The elderly with pain presented with more depression
(35.2% of patients) than those with no chronic pain. Some
studies have shown that, among the elderly with persistent
pain, the prevalence of depression is estimated as 19%–

### Table 1 Characterization of the sample according to gender, marital status, and age in groups of elderly with and without chronic pain

<table>
<thead>
<tr>
<th>Group</th>
<th>Without pain</th>
<th>With pain</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>30 (55.6)</td>
<td>43 (79.6)</td>
<td>0.013a</td>
</tr>
<tr>
<td>Male</td>
<td>24 (44.4)</td>
<td>11 (20.4)</td>
<td></td>
</tr>
<tr>
<td>Marital status n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>10 (18.5)</td>
<td>16 (29.6)</td>
<td>0.196b</td>
</tr>
<tr>
<td>Married</td>
<td>20 (37.0)</td>
<td>11 (20.4)</td>
<td></td>
</tr>
<tr>
<td>Widower</td>
<td>22 (40.7)</td>
<td>23 (42.6)</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>2 (3.7)</td>
<td>4 (7.4)</td>
<td></td>
</tr>
<tr>
<td>Age n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65–75 years</td>
<td>12 (22.2)</td>
<td>21 (39.6)</td>
<td>0.151a</td>
</tr>
<tr>
<td>75–80 years</td>
<td>17 (33.3)</td>
<td>14 (26.4)</td>
<td></td>
</tr>
<tr>
<td>More than 80 years</td>
<td>24 (44.4)</td>
<td>18 (34.0)</td>
<td></td>
</tr>
</tbody>
</table>

Notes: *Chi-squared test. aFisher’s exact test.

### Table 2 Frequency of depression and resilience in the groups of elderly with and without chronic pain

<table>
<thead>
<tr>
<th>Group</th>
<th>Without pain</th>
<th>With pain</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>54 (100.0)</td>
<td>35 (64.8)</td>
<td>&lt;0.001a</td>
</tr>
<tr>
<td>Positive</td>
<td>0 (0.0)</td>
<td>19 (35.2)</td>
<td></td>
</tr>
<tr>
<td>Resilience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>80.1 (7.4)</td>
<td>69.4 (13.4)</td>
<td>&lt;0.0001b</td>
</tr>
<tr>
<td>Minimum–Maximum</td>
<td>(55.0–92.0)</td>
<td>(24.0–93.0)</td>
<td></td>
</tr>
</tbody>
</table>

Notes: *Chi-squared test. aNonparametric Mann–Whitney test.
Abbreviation: GDS, Geriatric Depression Scale.
28%30,31 Authors stated that 25% of elderly with persistent pain are at risk of depression and its consequences.32,33 In our sample, more than one-third of patients with pain presented depression, and suffered from both depression and chronic pain; however, no depression was identified in any participant without pain, using the GDS questionnaire.

We found that lower resilience was associated with depression. The relationship between low resilience and mood disorders has already been pointed out in some studies.34,35 Individuals with lower resilience present with greater vulnerability for developing depression and somatization.36–38 In a population of a Chinese community aged over 60 years, lower levels of resilience were significantly associated with higher levels of depressive symptoms.39

Quality of life of the elderly with pain was compromised in the eight domains evaluated. These findings are corroborated by several studies showing that quality of life related to health is lower in patients with chronic pain, compared with healthy individuals40–44 Some authors suggest that pain is the main cause of deteriorating quality of life.45

Regarding the association between resilience and quality of life, this study showed lower resilience in the following domains: physical, general health condition, mental health, and pain. However, there was no difference in functional capacity between the two groups.

This study identified a relationship between lower resilience and religiousness in its organizational aspect, which relates to attendance at religious meetings, such as masses and services. Among the forms of dealing with pain, religiousness and spirituality have proved very important.45

Resilience refers to the capacity to deal with and adapt in the face of adversity, and affects several aspects of life. Some authors state that individual and psychological

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**Table 3** Distribution of quality of life aspects in the groups with and without pain according to SF-36

<table>
<thead>
<tr>
<th>SF-36</th>
<th>Group</th>
<th>Without pain n=54</th>
<th>With pain n=54</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical aspects</td>
<td>Median (minimum, maximum)</td>
<td>100.0 (0.0; 100.0)</td>
<td>0.0 (0.0; 100.0)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>(1st quartile, 3rd quartile)</td>
<td>(80.0; 100.0)</td>
<td>(0.0; 75.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social aspects</td>
<td>Median (minimum, maximum)</td>
<td>100.0 (50.0; 100.0)</td>
<td>87.50 (0.0; 100.0)</td>
<td>0.001*</td>
</tr>
<tr>
<td>(1st quartile, 3rd quartile)</td>
<td>(90.0; 100.0)</td>
<td>(52.75; 100.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Functional capacity</td>
<td>Median (minimum, maximum)</td>
<td>100.0 (0.0; 100.0)</td>
<td>85.0 (0.0; 100.0)</td>
<td>0.001*</td>
</tr>
<tr>
<td>(1st quartile, 3rd quartile)</td>
<td>(90.0; 100.0)</td>
<td>(60.0; 100.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>Median (minimum, maximum)</td>
<td>100.0 (54.0; 100.0)</td>
<td>51.0 (21.0; 100.0)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>(1st quartile, 3rd quartile)</td>
<td>(90.0; 100.0)</td>
<td>(41.0; 61.75)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional</td>
<td>Median (minimum, maximum)</td>
<td>100.0 (0.0; 100.0)</td>
<td>70.0 (0.0; 100.0)</td>
<td>0.001*</td>
</tr>
<tr>
<td>(1st quartile, 3rd quartile)</td>
<td>(90.0; 100.0)</td>
<td>(0.0; 100.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health condition</td>
<td>Median (minimum, maximum)</td>
<td>90.0 (37.0; 100.0)</td>
<td>78.0 (0.0; 100.0)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>(1st quartile, 3rd quartile)</td>
<td>(80.0; 97.0)</td>
<td>(62.0; 87.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental health</td>
<td>Median (minimum, maximum)</td>
<td>90.0 (0.0; 100.0)</td>
<td>60.0 (0.0; 100.0)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>(1st quartile, 3rd quartile)</td>
<td>(80.0; 100.0)</td>
<td>(33.0; 88.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitality</td>
<td>Median (minimum, maximum)</td>
<td>90.0 (25.0; 100.0)</td>
<td>70.0 (0.0; 100.0)</td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>(1st quartile, 3rd quartile)</td>
<td>(80.0; 90.0)</td>
<td>(40.0; 85.0)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *Nonparametric Mann–Whitney test.

**Table 4** Relationship between resilience and depression in both groups

<table>
<thead>
<tr>
<th>GDS</th>
<th>Negative</th>
<th>Positive</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilience</td>
<td>76.00 (24.00; 93.00)</td>
<td>63.00 (46.00; 84.00)</td>
<td>0.009</td>
</tr>
</tbody>
</table>

Resilience involves emotional flexibility and the availability of problem-solving strategies; in chronic pain, these resources may facilitate adaptive confrontation, such as acceptance of pain.23,24 Due to life circumstances and the challenges of advanced age, for instance, death, loss of social roles, and disease,27 resilience may operate differently in the elderly compared with younger adults.18 The hypothesis that aging adds to personal resilience, both in people with and without pain, would be plausible; chronic pain, however, could function as a disruptive stressor, an additional overload that would retard instead of increasing resilience. Nevertheless, an alternative explanation would be that the most resilient elderly would have a greater chance of falling into the group of elderly without pain, since they complain less (including of their own pain).

For most authors, resilience seems to play a significant role in confronting chronic pain, and to contribute to the development of internal resources that help a person deal in a positive manner with all adversities. An intervention study could be useful to assess the value of introducing techniques to enhance resilience in this population.

Conclusion
The study concluded that elderly people with chronic pain have lower resilience, more depression, and lower QOL than those without chronic pain.

The findings of the study suggest that resilience may be an important aspect in the process of confronting chronic pain; its evaluation might contribute to an integral approach to the elderly patient with chronic pain.

Acknowledgment
The authors certify that this work is novel.

Disclosure
The present study is a doctoral research at the University of São Paulo in Brazil, and there are no conflicts of interest in this study. This study kept the ethical standards of research with humans required in Brazil (Resolution 466/12). The authors report no conflicts of interest in this work.

References