

# Stress symptoms and coping strategies in healthy elderly subjects

SINTOMAS DE ESTRESSE E ESTRATÉGIAS DE COPING EM IDOSOS SAUDÁVEIS

SÍNTOMAS DE ESTRÉS Y ESTRATEGIAS DE COPING EN ANCIANOS SALUDABLES

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## ABSTRACT

Elderly subjects may present stress symptoms due to physical, psychological and social changes during aging process. The aim of this study was to identify stress symptoms in elderly subjects and the coping strategies they used, verifying the relationship between these variables. The Stress Symptoms List (SSL) and the Jalowiec Coping Scale were administered to 41 healthy elderly subjects. Elderly subjects presented stress symptoms with a mean score of 42.8. Although problem-focused coping was predominantly observed, no significant difference was observed between mean SSL scores among elderly subjects who used problem-focused or emotion-focused coping. Although elderly subjects mainly elected problem-focused coping, stress intensity was independent of the coping style, showing that both problem- and emotion-focused coping are associated with similar stress levels.

## KEY WORDS

Stress.  
Aged.  
Adaptation, psychological.

## RESUMO

Idosos podem manifestar sintomas de estresse em decorrência das mudanças biopsicossociais do envelhecimento. O objetivo deste estudo foi identificar sintomas de estresse em idosos e o estilo de coping utilizado por eles, verificando a relação entre estas variáveis. Foram aplicados a Lista de Sintomas de Stress (LSS) e o Inventário de Coping de Jalowiec, em 41 idosos saudáveis. Os idosos apresentaram sintomas de estresse, com intensidade média de 42.8 pontos. Observou-se predomínio do coping focado no problema, porém não houve diferença significativa entre as médias dos escores do LSS entre os indivíduos que utilizaram coping focado no problema ou na emoção ( $p=0.737$ ). Neste estudo, embora os idosos tendessem a eleger o coping focado no problema, a intensidade dos sintomas de estresse independeu do tipo de coping utilizado, evidenciando que tanto o coping focado no problema como o focado na emoção estão associados a níveis semelhantes de estresse.

## DESCRIPTORIOS

Estresse.  
Idoso.  
Adaptação psicológica.

## RESUMEN

Los ancianos pueden manifestar síntomas de estrés como consecuencia de los cambios biopsicosociales del envejecimiento. El objetivo de este estudio fue identificar síntomas de estrés en ancianos y el estilo de coping utilizado por ellos, verificando la relación entre estas variables. Fueron aplicados la Lista de Síntomas de Estrés (LSS) y el Inventario de Coping de Jalowiec, en 41 ancianos saludables. Los ancianos presentaron síntomas de estrés, con intensidad promedio de 42.8 puntos. Se observó el predominio del coping enfocado en el problema, sin embargo no hubo diferencia significativa entre los promedios de los puntajes del LSS entre los individuos que utilizaron el coping enfocado en el problema o en la emoción ( $p = 0.737$ ). En este estudio, a pesar de que los ancianos tendieron a escoger el coping enfocado en el problema, la intensidad de los síntomas de estrés fue independiente del tipo de coping utilizado, evidenciando que tanto el coping enfocado en el problema como el enfocado en la emoción están asociados a niveles semejantes de estrés.

## DESCRIPTORIOS

Estrés.  
Anciano.  
Adaptación psicológica.

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## INTRODUCTION

The several changes in daily life resulting from the aging process, due to physical, mental or social alterations elderly subjects experience, become a threat to biopsychosocial equilibrium, thus constituting a stress factor that is capable of stimulating behavioral and neurovegetative responses as an adaptation to stressor events<sup>(1)</sup>.

The current definition of stress comprises an adaptive physiological response to a given environmental or internal demand posed on the subject organism, being the stressor the factor that triggers stress activation, while stress reactivity is the response set mobilized by the organism<sup>(2)</sup>.

New and unpredictable situations that invoke a feeling of low sense of control<sup>(3)</sup> and are ego-threatening are capable of triggering stress hormones like glucocorticoid (cortisol in humans), which can in turn affect physical, cognitive and emotion reactions to cope or deal with the stressor<sup>(4)</sup>. However, the mechanisms inherent to the stress response, organized to prepare and protect the organism against the stressor, maintaining stability, can become harmful for health and survival if called upon repeatedly, in the form of chronic stress or in the presence of prolonged exposition to a stressor without adaptive behavior<sup>(5)</sup>. Thus, the continued exposure of elderly to the daily changes stemming from the aging process may trigger dysfunctional neuroendocrine and behavioral responses, since these changes are characterized by situations that are new, unpredictable and uncontrollable. Furthermore, elderly subjects may perceive their ego is threatened by the others' negative judgment about themselves, since a negative perception about the aging process may be socially publicized.

In addition, it is noteworthy that, besides the stressor characteristics, self-appraisal about one's coping capacity may influence stress reactivity in both acute and chronic situations<sup>(6)</sup>. Hence, a certain stressor agent or situation deemed stressful for one individual may not be for another, or the magnitude of the impact of a given stressor could be larger or smaller according to the individual evaluation of the stressful situation<sup>(6)</sup>. Thus, even if the event represents an extremely aggressive situation to one individual, the response intensity could vary according to the individual's appraisal of the event and previous experiences acquired in dealing with the situation.

In this context, psychological stress has been conceptualized as a relationship between the person and the environment, taking into account both characteristics of the person and the nature of the event environment, which in turn is appraised by the person as burdening or exceeding their resources and endangering their wellbeing<sup>(6)</sup>. This appraisal process of the stress event and the individual re-

sources to deal with the stressful situation, called *cognitive appraisal*, has been defined as a non-biological mediator that is capable of intervening in the stress response. This assessment comprises two (primary and secondary) interdependent stages and consists in a process that defines why and to what extent a certain relation between individuals and the environment that surrounds them is stressful. In this relation, it is not the quality of the event but the way we perceive it that will classify it as stressing<sup>(6-7)</sup>. The primary and secondary stages of the appraisal process represent distinct actions because of by the complexity of the response organization, and not because of the chronological order in which it occurs. Thus, the secondary stage does not depend on the primary stage to occur. Instead, it depends on the complexity of the appraisal about the event<sup>(6)</sup>.

After the assessment steps, a judgment phase starts, in which the person analyzes whether environmental or internal (fear, anxiety) demands are greater than the personal efforts to modulate the stress experience. This conflict between demands and efforts made to act upon them is called coping<sup>(6)</sup>. The current definition of coping comprises attempts to manipulate stressful situations independent of the outcomes, being the effects better or worse<sup>(6)</sup>. In a certain way, coping modifies the stress evolution through strategies of avoiding or confronting the stressful situation<sup>(6)</sup> and can exist in two distinct divisions: problem-centered and emotion-centered<sup>(6)</sup>. Problem-centered coping refers to any of the individual's attempts to manage or modify the problem. Emotion-centered coping, on the other hand, describes the attempt to replace or regulate the emotional impact of stress in the individual, mainly deriving from defensive processes that make the person realistically avoid confronting the threat<sup>(6-7)</sup>.

Besides the individuals and circumstantial issues that influence coping with stressful situations, some authors have demonstrated that age may also be associated with different coping styles<sup>(8-9)</sup>. A previous study revealed that elderly subjects use mechanisms of defense more maturely than young adults. However, the effectiveness of coping strategies did not reveal differences among them<sup>(9)</sup>.

Passive acceptance, helplessness and depression are associated with worse adaptation and lower survival in elderly subjects when compared to those who react with angry feelings and non-acceptance of the adverse situation<sup>(6)</sup>.

Moreover, some authors have demonstrated that coping strategies elected to deal with a stressful situation may be altered as age moves forward, not as a consequence of the aging process but because of changes in stress sources<sup>(8-9)</sup>.

Although some evidences have showed that elderly subjects present different coping styles compared to young adults, the association between coping style and stress symptoms remains unclear.

Elderly subjects may perceive their ego is threatened by the others' negative judgment about themselves, since a negative perception about the aging process may be socially publicized.

## OBJECTIVES

The current study aimed to identify the stress symptoms and coping styles predominantly used by elderly subjects and compare the intensity of these symptoms between elderly who used emotion and problem-focused coping. Our hypothesis was that the coping style was associated with stress symptom intensity, with greater or lesser intensity according to the coping style elected by the elderly.

## METHOD

### Participants

Forty-one fully independent elderly individuals over 60 years old with normal cognitive function, randomly chosen from a group of elderly who were registered at the University of São Paulo School of Nursing Secretary of Culture and Community Services (SCEU -EEUSP) because they had previously participated in at least one cultural activity at this institution.

Elderly diagnosed with any neurological or neurodegenerative disease were excluded from the study, as well as those with a history of alcohol or drugs abuse during the previous year or during a long period before that, illiterate persons, elderly using psychoactive drugs, medically diagnosed as depressive or anxiety disorder.

### Data collection

Initially, after surveying the files of elderly registered at the SCEU-EEUSP, during an individual interview, a questionnaire was applied to collect personal characteristics, as well as an instrument to assess stress symptoms (Stress Symptoms List - SSL)<sup>(10)</sup> and coping strategies (Jalowiec Coping Scale - JCS)<sup>(11)</sup>.

The SSL<sup>(10)</sup> is composed of 59 items, related to psychophysical symptoms and to social attributes of the stress state, in which the individual is required to mark the presence and note the frequency of each by assigning scores from 0 to 3. The highest possible score is 177 points where, the higher the score, the greater the manifestation of stress symptoms.

The JCS<sup>(11)</sup> aims to identify individual characteristics of strategies to cope with stressors. It consists of 60 positive statements, divided in eight coping styles that are based on cognitive and behavioral elaboration, which are: confrontive, evasive, optimistic, fatalistic, emotive, palliative, supportive and self-reliant.

Although the instruments SSL and JCS are not specifically for elderly, a previous study reported reliability in elderly subjects and internal consistency among the items for both instruments, according to Cronbach's alpha (SSL: 0.92; JCS: 0.8)<sup>(12)</sup>.

Answers to all assessment instruments were obtained on the basis of an individual interview, with questions being asked to each individual, always held by the same researcher (JNST).

### Ethical considerations

In view of the importance of ethical aspects involved in any research, the data were collected after the study's approval by the Ethics Committee of the University of São Paulo School of Nursing (356/2004/CEP-EEUSP). All individuals and/or their respective legal responsible received the consent term, so that participants could choose to be included or not in the study and were informed that refusing would not entail any onus whatsoever.

### Statistical analysis

Data were analyzed using descriptive statistics to obtain mean, standard deviations and absolute frequencies. The Chi-square test was performed to compare coping styles among elderly who elected emotion and problem-focused coping<sup>(13)</sup>. Student's *t* was performed to compare means of stress symptoms among individuals who used emotion and problem-focused coping<sup>(13)</sup> after observation of the normality assumption. Two-way ANOVA<sup>(13)</sup> was performed to verify the effect of the independent variable *stress intensity* (high or low) on the dependent variable *LSS scores*, as well as to analyze the interaction between stress intensity x coping style (problem or emotion) on the SSL scores. All data were coded and inserted in SPSS software (12.0 version) and significance was 5%.

## RESULTS AND DISCUSSION

The sample of the current study was composed of 41 elderly subjects, predominantly women (n= 35, 85.4%), with ages ranged from 62 to 90 years (mean  $\pm$  SD: 72.1  $\pm$  6.3) and schooling ranging from 01 to 19 years (mean  $\pm$  SD: 6.1  $\pm$  4.2).

Regarding stress symptoms, the elderly presented a mean score of 42.8 on the LSS, which ranged from 13 to 82 points. These results corroborate a previous study conducted in elderly individuals, in which a mean score of 41.2 on the SSL was observed<sup>(12)</sup>.

However, given the expressive variability (SD=  $\pm$  20.3) in SSL scores, an analysis was performed based on the SSL score median (median = 38), which classified the individuals in high or low stress intensity. Thus, those elderly who presented scores equal to or higher than the median were classified as high stress intensity, while those who presented scores lower than the median comprised the low stress intensity group. However, no significant difference was observed between elderly with high or low stress symptom intensity ( $\chi^2=0.024$ ,  $p=0.876$ ), showing that the participants were homogeneously distributed, being 21 elderly with high levels of stress symp-

toms (mean  $\pm$  SD: 59.6  $\pm$  12.9). Given that, during the appraisal process of the stressor event, 51% of these elderly deemed their potential daily stressors expressively threatening, therefore showing more intensive stress symptoms.

Some authors have argued that stress manifestation during the aging process may be strongly associated with changes in the sources of stress, increasing therefore the vulnerability to a more intensive manifestation of the stress<sup>(6,9)</sup>. Thus, given that the majority of elderly assessed in the current study presented high levels of stress, this may partially reflect the impact of the several biological, cognitive, functional, social and economic changes as a result from the aging process. Such modifications represent stressful situations, since they can expose the elderly to new and unpredictable events, in which relevant components of their self-identity, such as autonomy and intellectuality, may be negatively evaluated<sup>(3)</sup>.

However, it is noteworthy that, besides the stressful event characteristics, in this case, the changes stem from the aging process, the stress intensity also depends on the environmental and internal resources of coping. Thus, personal characteristics like personality trait, as well as social and family support, can additionally interfere in the adaptation and control of a given stressful situation<sup>(6,9)</sup>.

Regarding the stress manifestation, physical symptoms, such as limited performance on daily life activities, forgetfulness, tiredness, back pain, physical burnout and muscular tension were predominantly presented in the participants, while emotion symptoms like anxiety, deep sadness, and avoidance of public and sociable environment were less reported, as well as feelings of anger (Table 1).

**Table 1** - Distribution of elderly according to predominant stress symptoms - São Paulo - 2005

Symptoms	N	Absolute Frequency (N)	Relative Frequency (%)
Limited performance	41	35	86.0
Anxiety	41	32	78.0
Forgetfulness	41	32	78.0
Tiredness	41	28	68.3
Deep sadness	41	28	68.3
Social isolation	41	25	61.0
Back pain	41	24	58.5
Physical burnout	41	22	53.6
Anger	41	21	51.2
Muscle tension	41	20	48.9

These results suggest that the stress intensity was not expressively high in the current sample. Behavioral stress

manifestation represents meaningful symptoms that can influence self-care and daily life maintenance. Thus, the predominance of cognitive-functional (forgetfulness and limited performance) and emotional (anxiety) manifestations emphasizes that stress appraisal should be considered not only in quantitative term. The qualitative characteristics of stress manifestation also need special evaluation<sup>(6)</sup>.

Regarding coping, the participants predominantly reported the confrontive and optimistic styles when they face with an adversity. It means that, when they use confrontive strategies, these individuals cope with the stressor in a combative manner, confronting the stressful situation. When they elected an optimistic coping style, these elderly used optimistic thoughts, mental elaborations and positive comparisons about the problem as an attempt to control the emotions triggered by the stressor event (Table 2).

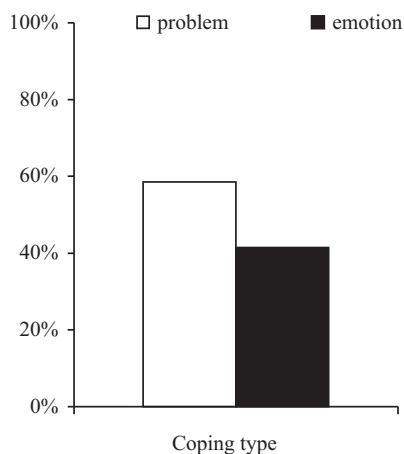
**Table 2** - Distribution of elderly according to coping styles - São Paulo - 2005

Coping style	Absolute frequency (n)	Relative frequency (%)
Confrontive	20	48.8
Evasive	1	2.4
Optimistic	11	26.8
Fatalistic	1	2.4
Emotive	3	7.3
Palliative	1	2.4
Sustentive	2	4.9
Self-Reliant	2	4.9
<b>Total</b>	<b>41</b>	<b>100.0</b>

These results corroborate previous studies in which confrontive and optimistic coping styles were predominantly reported in different groups of elderly<sup>(12,14)</sup>.

Given that the frequency of many coping styles was low among elderly, we decided to regroup the eight different coping styles and classify them on the basis of the characterization of the coping action focus (emotion and problem). This new classification was based on the definitions originally reported by the JCS authors<sup>(11)</sup>. Thus, the confrontive, evasive, sustentive and self-reliant coping styles were classified as problem-focused coping while the emotive, palliative, optimistic and fatalistic styles represented emotion-focused coping. This new division allowed for appropriate statistical treatment, with a view to comparative analysis with the other variables.

Hence, after this regrouping, the problem-focused coping strategies were predominantly reported among the elderly, although statistical significance was not achieved ( $\chi^2=1.19$ ,  $p=0.274$ ; figure 1).

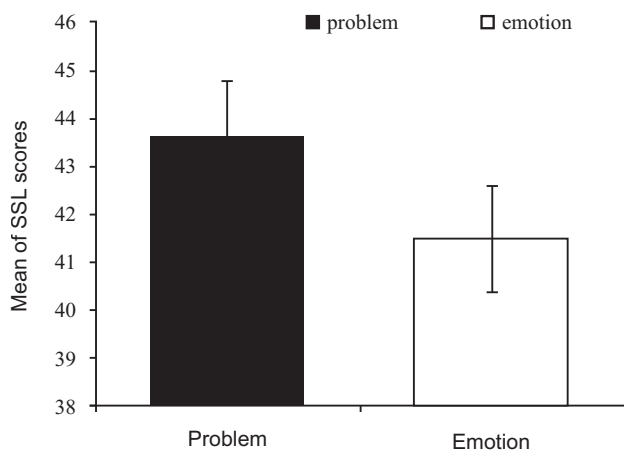


**Figure 1** - Distribution of elderly according to coping type - São Paulo - 2005

Although not statistically significant, this difference in the selection of coping strategies makes us reflect on this group's behavioral efforts to handle specific demands they analyze as something that threatens their personal integrity. Thus, by primarily choosing problem-focused coping, these elderly express their tendency to recruit resources that allow them to change the situation, in the attempt to remove the problem or decrease its impact capacity as a source of stress. However, among elderly subjects who elected emotion-focused coping, the adaptive strategies reflected defensive and distancing processes as coping strategies, focusing their actions on the regulation or substitution of the emotional impact of stress.

Given the relationship between stress and coping, where a effective coping theoretically may be reflected in the absence or low occurrence of stress symptoms<sup>(6-7)</sup>, we decided to verify the relationship between these variables in elderly subjects.

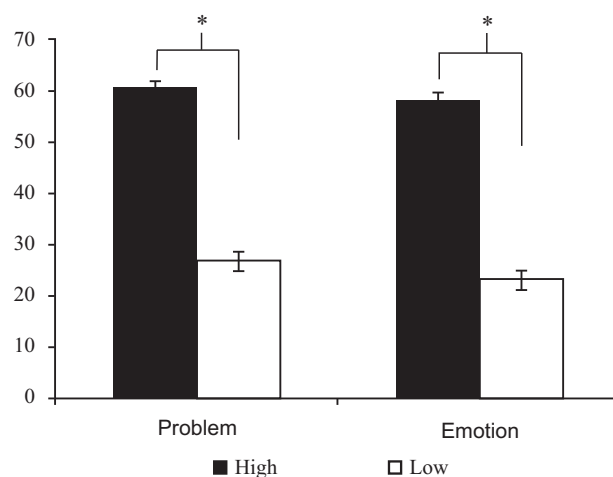
Thus, no significant difference was observed between the SSL scores on emotion and problem-focused coping ( $t=0.338$ ,  $p=0.737$ ; Figure 2).



The error bars represent the standard error of the mean. Student's *t* test.

**Figure 1** - Distribution of elderly according to coping type - São Paulo - 2005

Given that the elderly subjects were divided into groups according to high or low stress intensity, the interaction effect between stress symptom intensity and coping type on SSL scores was noteworthy. Thus, a two-way ANOVA with the *SSL scores* as the dependent variable and *SSL by group* (high x low stress intensity), and *coping type* (problem x emotion) as categorical independent variables. In both emotion and problem-focused coping, elderly with high stress intensity presented higher SSL scores than those elderly with low stress intensity. However, the intragroup analysis revealed that, among elderly with high or low stress intensity, both those who used problem-focused coping and those who elected emotion-focused coping presented no differences on SSL scores ( $F(1,39) = 0.926$ ,  $p = 0.342$ . Figure 3).



The error bars represent the standard error of the mean. The asterisks indicate  $p < 0.05$  for the comparisons made between elderly with high and low stress intensity according to coping style. Two-way ANOVA.

**Figure 3** - Mean of SSL scores according to coping types and groups classified by stress symptom intensity - São Paulo - 2005

Thus, against the previously established hypothesis in the current study, stress symptom intensity was not associated with coping style used by elderly subjects. Both elderly individuals who used coping strategies to solve the problem and those who elected strategies to minimize or control the emotions deriving from the stressful event presented similar mean stress symptoms intensity scores, revealing that both problem and emotion-focused coping are associated to the same level of stress intensity.

These results corroborate the hypothesis that a specific coping style is not inherently good or bad. On the opposite, when assessing the efficacy of the coping style an individual adopts, the context in which the stressing event occurs needs to be analyzed, as a certain coping style can be effective in on situation but not in another. When preparing for a test, for example, focusing the action on coping with the problem is adaptive. When awaiting the result, on the other hand, it is interesting to direct coping actions at the control of the emotional impact deriving from the waiting time<sup>(15)</sup>. In the same way, when dealing with inexorable situations, such as the death of a partner for

example, initially, it may be more adaptive to involve in palliative coping to handle the emotion-focused situation and then, afterwards, after emotional balance is restored, to select a more instrumental coping in order to elaborate future plans<sup>(15)</sup>.

Moreover, when assessing coping efficacy, not only the possibility of solving, but also of controlling the problem should be verified<sup>(15)</sup>. This approach mainly refers to unsolvable and permanently stressing situations, like in the case of chronic diseases for example, in which the absence of cure perspectives requires many more emotional and situational control strategies than confrontive actions<sup>(15)</sup>.

Furthermore, literature data appoint emotional control, achieved on the basis of emotion-focused coping, as a favorable and effective strategy to cope with stressing situations, in which there is little control capacity<sup>(16-17)</sup>. However, some authors have suggested that, although the emotion-focused coping strategy seems to be adaptive in short term, whether the individual prolongs its use for long period of time may tend towards passiveness and repeatedly focus the action on negative emotions and on the potential consequences of these feelings<sup>(18)</sup>.

Furthermore, it is known that personality traits can influence both stress intensity and coping strategies<sup>(4-6)</sup>. Thus, the absence of association between stress symptom intensity and coping style observed in the current study may be partially explained by the fact that we did not include the influence of personality variables in the present investigation.

Given that the current research indicates no association between stress intensity and coping strategies in the present sample of elderly, it could be suggested that both the coping styles focused on problem solving and those oriented towards controlling the emotions triggered by stressor events may be effective to handle adverse situations. However, in order to evaluate the efficacy of the coping strategies, the interaction between coping styles and different behavioral and bio-

logical stress indicators should be investigated in future studies, and the nature of stressor events present in the daily life of elderly individuals should be analyzed. The observation of the relationship between stress, coping and the nature of a stressor may provide relevant information to investigate strategy effectiveness.

Although no significant association between stress intensity and coping style was observed, several limitations mean that current findings should be interpreted with caution. Firstly, the participants composed a convenience sample with a small number of elderly, which suggests that further investigation of stress and coping with a larger sample from different communities should provide additional findings. Moreover, only an instrument to assess stress was applied, suggesting that the use of additional scales to evaluate anxiety and depression may produce different results. Finally, it is mandatory to include biological markers of stress, such as stress hormones, to evaluate the impact of stressful events on an organism's allostasis<sup>(5)</sup>.

## FINAL CONSIDERATIONS

Despite the limitations, the current study showed that approximately half of the elderly sample presented high intensity of stress symptoms and that the behavioral stress manifestation demonstrated in most participants revealed symptoms that can negatively influence the maintenance of self-care.

Furthermore, although the elderly subjects predominantly elected problem-focused coping, different coping styles were associated with similar stress symptom intensity. Thus, when analyzing to what extent a certain strategy is adaptive, not only the intensity of the stress manifestation should be considered, but also the nature of the stressor and individuals' appraisal of their capacity to solve or control the problem.

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