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Confirmatory factor analysis of the Spanish version of the brief-COPE in Argentine elderly people

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4 **Confirmatory factor analysis of the Spanish version of the brief-COPE in Argentine**
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6 **elderly people**
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14 **Abstract**

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16 Although the progress in theoretical and methodological models in the study of
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18 coping has been growing in the last decades, the focus has been on adolescent and young
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20 adult population. Thus, the first aim of this study was to investigate the latent structure of
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22 the Brief-Cope Inventory and to determine its fit in a sample of Argentine older adults. The
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32 this sample. Likewise, these data made possible to understand the nature of the factor
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36 older population.
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42 *Keywords:* Brief COPE Inventory; elderly; coping; factorial model
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4 **Confirmatory factor analysis of the Spanish version of the brief-COPE in Argentine**
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6 **elderly people**
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10 **1. Introduction**
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14 Since last decades, the study in coping processes has gained relevance in the
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16 understanding of the psychological adjustment to the changes of aging (e.g., retirement,
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18 widowhood, loss of social and labor role, decrease in economic income, among others),
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20 which characterizes a developmental crisis or a vital transition (Baltes, Linderberg, &
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22 Staudinger, 2006; Brandtsädter & Rothermund, 2002). The adaptation of older people to
23
24 critical changes and life events is often affected by the adverse effects of the problem of
25
26 social exclusion and prejudice towards old age (Andrés, Gastrón & Vujosevich, 2002). In
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28 the case of women, gender inequality, greater longevity compare to men often exposes
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30 them to gender violence, widowhood, social vulnerability and loneliness (Muñoz Cobos &
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32 Espinosa Almendro, 2008; World Health Organization -WHO-, 2015).
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39 Furthermore, during old age a great variability is observed in the way in which
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41 people respond to crisis events of life span: while some people exhibit dysfunctional
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43 behavior and depressive symptomatology, others maintain a healthy adaptation level and
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45 even experience life satisfaction (Fierro, 1994). The question of why some people have a
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47 better adaptation level than others generated a growing interest in gerontologists as
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49 demographic aging and longevity increased (WHO, 2015). Argentina is one of Latin
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51 American countries with advanced population aging (Iberoamerican Social Security
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53 Organization, 2016). From the proposal of Ryff (1982) and Baltes (1990) on successful
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55 aging, one of Gerontology interest is focused not only in the prevention of disabilities and
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4 fragility but on the protection of autonomy, and in knowing the factors that stimulate
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6 competent aging, that is, a healthy, satisfactory psychological functioning in old age
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8 (Krzemien, Monchetti, & Urquijo, 2005). The longitudinal investigations such as: Berlin
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10 Aging Study, BASE and European Longitudinal Study of Aging, EXCELSA, showed a
11
12 maintenance of psychological well-being in older adults despite the increase in losses and
13
14 limitations in old age (Kunzmann, Little & Smith, 2000). This phenomenon known as “the
15
16 paradox of aging” is supposed to be a consequence of the coping process (Wrosch &
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18 Freund, 2001). However, it is not clear what are the coping strategies used by older people,
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20 especially women, and their effectiveness in adapting to the critical events of aging (Carver
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22 & Scheier, 2003). Empirical evidence reveals that older adults use a wide variety of
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24 strategies, not only passive but also active and adaptive as well, to face situations (Baltes et
25
26 al., 2007). Most of coping research in old age has been theoretical and empirical studies,
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28 directed to demonstrate the use of coping strategies against certain situations related to age
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30 losses (e.g. chronic disease, widowhood, retirement) (Cardona Jiménez & Villamil Gallego,
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32 2006; Carr, 2004; Cook, Martin, Yearns & Damhorst, 2007; Korporaal, Broese, Van
33
34 Groenou, & Van Tilburg, 2008; Rokach, Matalon, Safarov, & Bercovitch, 2007; Wrosch &
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36 Freund, 2001). Therefore, the study of coping strategies against adverse situations and their
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38 effectiveness is still a question begging for answers and the answers may have implications
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40 for therapeutic intervention in clinical gerontology.
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51 The pioneer work of Lazarus and Folkman define coping strategies as “the cognitive
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53 and behavioral efforts which are developed to manage, tolerate or reduce external and
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55 internal demands and the conflicts between them, which are appraised as taxing or
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57 exceeding the person’s resources” (Folkman & Lazarus, 1980, p. 223). In concordance with
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4 this concept, Carver, Scheier and Weintraub (1989) have developed an integrating
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6 theoretical and empirical model of coping, discriminating three scales: 1. *Problem-focused*
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8 *coping*: the attempt to modify or solve the critical situation, or at least reduce its negative
9
10 impact; 2. *Emotion-focused coping*: the regulation of aroused emotions; 3. *Avoidance*
11
12 *coping*: implies to elude the situation through denial, fantasy or distraction. In table 1, is
13
14 presented the classification of the Carver Model Strategies (Problem-focused, emotion-
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16 focused and avoidance coping); at the same time, there is some agreement in the in the
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18 bibliography according to theoretical consensus, about the existence of a second-order
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20 dimensions such as cognitive, behavioral and emotional strategies.
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27 INSERT TABLE 1 HERE
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30 Within the quantitative evaluation of coping, probably, the most traditional
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32 instrument has been Lazarus's and Folkman's WOC (Ways of Coping Scale ,1986).
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34 However, it presents empirical disadvantages, for example, an instability in the replication
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36 of the factorial structure (Aliaga & Capafóns, 1996). According to the Carver theoretical
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38 model (1989), it has designed a measurement instrument called COPE (Coping
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40 Orientations to Problems Experienced Inventory). The main objective of COPE was to
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42 obtain greater precision in items formulation, the dimensions to be evaluated,
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44 considering other coping strategies not included in previous instruments such as WOC.
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46 The multidimensional design of COPE reflects the complexity of the variables involved in
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48 the coping process and it contributes with evidence of convergent and discriminant validity
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50 (Carver et al., 1989; Litman, 2006; Reich, Costa-Ball & Remor, 2016). Within the
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52 framework of coping assessment, the COPE, in its original as well as in its Brief COPE
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4 version, has strong theoretical basis and empirical validation (Suutama, 2007), acquiring
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6 growing interest among coping researchers and extending its use to different contexts.
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10 The main strength of the questionnaire consists in the multidimensional evaluation
11 of coping, that is, the different styles and strategies that people use to answer to stress or
12 crisis. This instrument integrates individual differences (given the diversity of coping
13 responses), alluding to the need to consider not only dispositional personality styles but
14 also specific strategies or responses regarding particular situation and context. Furthermore,
15 the instrument allows to describe coping in multidimensional ways, considering cognitive,
16 behavioral, emotional aspects, action-oriented strategies (passive and active) focused in the
17 problem, emotion or avoidant. Moreover, the COPE questionnaire enables the
18 discrimination of different coping strategies in two different ways: dispositional and
19 situational, and the determination of adaptive and disadaptive coping behavior. However,
20 the factorial structure of coping styles remains stable in the different samples, even though
21 the strategies grouped in each factor oscillate according to the sample characteristics.
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40 In this regard, previous studies about the use of the Brief-COPE show that its
41 implementation in different contexts and cultural groups has given rise to variation as
42 regards the scales that form each coping dimension according to the different factor
43 analysis performed in young adult population (García, Barraza-Peña, Włodarczyk, Alvear-
44 Carrasco, & Reyes, 2018; Reich et al., 2016); and clinical sample (Vargas-Manzanares,
45 Herrera-Olaya, Rodríguez-García, & Sepúlveda-Carrillo, 2010). Recently, researchers
46 (Monzani et al., 2015), have shown that the original 14-subscale Brief-COPE model has
47 received little empirical support. Specifically, this factor structure has been confirmed only
48 by Muller and Spitz (2003), who performed a confirmatory factor analysis of situational
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4 French version of the Brief-COPE provided by a sample of 178 university students, which
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6 reveals a limited external validity.
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10 All these previous studies, as well as the original, suggested that the structure of the
11 instrument is not stable and its administration throws different relational patterns among the
12 items according to the assessed sample. The authors suggest that the researchers develop
13 their factor model based on their own gathered empirical data. According to this, he
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15 recommends observing the behavior of each subscale by analyzing the relationship between
16 these indicators and other variables of interest.
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24 Carver et al. (1989) conceive coping as a multidimensional construct that includes
25 diversity of responses and requires a way of assessment that accounts for such variety, i.e.
26 the different coping strategies separately. Thereby the need to overcome simplistic and
27 dichotomy general conceptions which do not allow to distinguish the different strategies is
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29 justified.
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38 Although there are several instruments to assess coping, their development for the
39 older population in regional context is still pending. Cultural diversity and the impact of
40 international psychometric studies require that researchers count on instruments validated
41 for different countries. Due to the precedents, it is of interest its implementation in other
42 age groups samples, especially in the older population, considering the aim of overcoming
43 the methodological limitations of the instrument as regards the revision of the stability of
44 the factor structure. The main reasons to carry out this research were: (a) the results
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46 obtained in several studies in which the factor structure of the Brief COPE is not clear, and
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48 (b) previous studies conducted in different samples with little attention to older adults.
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4 According to this, the general interest of these study is to offer evidence of validity
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6 of the Brief-COPE Inventory in older adult. The first purpose was to investigate the
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8 structure of the Brief-COPE Inventory to determine its fit in an Argentine older adult
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10 sample. The second purpose was to determine if the three-dimensional structure suggested
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12 by the author is coincident with the empirical evidence obtained in the Argentinean elderly
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14 sample. To achieve these purposes the fit rate of the original model and the one, two and
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16 three factors models were evaluated and compared. These results provide conceptual
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18 evidence about the construct behavior in coping in older adult population.
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27 **2. Material and Methods**

28 *2.1 Participants*

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33 The sample is representative of the population where the study was conducted, the
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35 city of Mar del Plata, Buenos Aires Province. It included 504 older adults of both genders
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37 (85.9% women), whose ages ranged from 60 to 92 years ($M=71.59$; $SD=7.03$).
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42 Nowadays, in Argentina the percentage of people over 60 years is 22.5% (Cicciari,
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44 2017), reaching 25.8% of the total population where 65% of them are women according to
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46 the last population census (Cicciari, 2017). Both nationally and locally, the role of
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48 octogenarians become more relevant as the population group increases.
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52 Participants were selected from different institutions for the welfare of elderly
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54 people, named National Institute of Social Services for Retirees and Pensioners (PAMI)
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56 (50%), University Programme for Older adults (PUAM) (14.2%), Primary Care Services
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4 for the Elderly of the Private Community Hospital (HPC) (14%), non-governmental
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6 organizations (9.4%), senior centers (7.1%) and private homes (5.3%).
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10 A non-probabilistic intentional sample of older adults between 60 and 90 years of
11 both genders were evaluated. The following inclusion criteria was considered: a) not
12 presenting psychiatric disorders, neurological disease, intellectual disability, motor or
13 sensory deficit, b) not being under psychopharmacological treatment at the time of the
14 instrument administration, and c) have obtained 86 points or more in the ACE-III
15 (Adenbrook’s Cognitive Examination; INECO, Bruno et al., 2017), which is considered the
16 cutoff score to rule out cognitive impairment. The people included were older adults from
17 the above-mentioned institutions and free access places, self-sufficient with independent
18 mobility. The people excluded were residents in nursing homes or institutionalized patients.
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31 *2.2 Measures*

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33 Brief situational Spanish version of the Brief-COPE Inventory (Perczek, Carver, Price, &
34 Pozo- Kaderman, 2000). The situational version assesses the different coping strategies,
35 limited to a specific time and context, in which people must indicate to what extent they
36 have been adopting each behavior listed in the items when facing a specific situation, from
37 a certain period of time to the present (in the last year). The items listed in the Brief-COPE
38 uses present perfect continuous tenses (“I have been doing...”). The factor structure of the
39 questionnaire is consistent to its original 14 factors complete version. The brief version
40 omits two scales from the original version (Restraint coping and Suppression of competing
41 activities), reduces others two items per scale (Positive reframing, Venting and Self-
42 distraction) and adds a new scale (Self-criticism). This version includes 28 items grouped
43 in pairs in 14 strategies according to the first order factor analysis: 1. Active coping, 2.
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4 Planning, 3. Positive reframing, 4. Acceptance, 5. Humor, 6. Religion, 7. Use of emotional
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6 support, 8. Use of instrumental support, 9. Self-distraction, 10. Denial, 11. Venting, 12.
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8 Substance use, 13. Behavioral disengagement and 14. Self-criticism. The second order
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10 factor analysis corresponds to three basic coping styles: 1. Problem-focused coping, 2.
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12 Emotion-focused coping and 3. Avoidance coping. Coping is evaluated according to the
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14 strategies that people use to answer to critical situations in a four-point Likert scale (not
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16 frequently, little frequently, very frequently and frequently).
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22 Specifically, participants were trained to rate the frequency in which they have been
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24 using each strategy listed at the instrument when facing a critical situation during
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26 ageing. The Brief-COPE presents satisfactory psychometric properties (Carver, 1997; Lyne
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28 & Roger, 2000), it has validation in studies with different context, cultures and ages (Garcia
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30 et al., 2018; Reich et al., 2016) particularly, in older adults (Klein, Turvey & Pies, 2007).
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38 *2.2.1 Linguistic adaptation for the sample of Argentine older adults.*

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40 Since there is not adaptation of this questionnaire to assess coping strategies in older
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42 population in our country, it was decided to perform the adaptation of the Brief-COPE, in
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44 its Spanish version, due to being one of the most used instruments in clinical studies at
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46 different countries. A linguistic adaptation of the scale was done with the purpose of
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48 performing preliminary descriptive analysis and foreseeing any difficulties in the
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50 understanding of the items. A pilot study was carried out (N= 30, 79% women, ages from
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52 60 to 90 years, M= 69.4, SD= 6.51) in order to review the linguistic adaptation.
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57 Participants were asked to indicate those words or expressions that were not common in
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4 their everyday language. The reliability indices in the 14 scales showed acceptable values
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6 in the Cronbach's alpha coefficient ($\alpha=.721$).
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8 9 *2.3 Procedure*

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13 A team of well-trained professionals administered the Spanish version of the Brief-
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15 Cope in a 25 minutes individual session performed in institutions and private homes
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18 through standardized assessment conditions which allowed participants relevant attention
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20 and concentration. Previously, every participant signed an informed consent document to
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22 participate in the study which explained the aim of the research and guaranteed
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24 confidentiality of the obtained information and its use for scientific purposes
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26 exclusively. The present study was performed according to the principles established in
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28 regulations of the National Ethics Committee of CONICET, the ethics regulations of
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30 UNMDP (Mar del Plata National University), the National Ministerial Resolution 1480/11
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32 and the Provincial Resolution 11044/09.
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38 *2.4 Data analysis*

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41 The computer software used to prepare data was SPSS for Windows, version 19.0.
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43 Subsequently, the sample was divided into two data groups. With the first group ($n=248$),
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45 an exploratory factor analysis (EFA) was conducted in order to discover the most suitable
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47 factor structure for Argentine older adults sample. The respective analyses were performed
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49 using Weighted Least Square, Promin oblique rotation and Horn's Parallel analysis to
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51 identify how many factors could be retained (Horn, 1965). These analyses were carried out
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53 with FACTOR 9.3 software (Lorenzo-Seva & Ferrando, 2013). The second group ($n=256$)
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55 was reserved to conduct the confirmatory factor analysis (CFA) with Mplus 6.12 software
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4 (Muthén & Muthén, 2011). Moreover, a Confirmatory Factor Analysis (CFA) was
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6 performed and the weighted Least Square Mean Variance (WLSMV) was used as an
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8 estimation method. In order to assess the fit of the models, the Pearson's correlation
9
10 coefficient, the comparative fit index (CFI), the Tucker-Lewis index (TLI), the Root Mean
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12 Square Error of Approximation (RMSEA) and the Weighted Root Mean Square Residual
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14 (WRMR) were used. Furthermore, CFI and TLI above .90 indicated acceptable to excellent
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16 fit; in the case of RMSEA, values between .50 and .08 were expected, finally WRMR
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18 below 1.00 (Yu & Muthén, 2002) was considered as an indicator of good fit.
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24 According to these results, a three-model factor according to Carver (1989) was
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26 proposed in order to compare the fit of both rival models. The composite reliability (p) was
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28 estimated. Values equal or above $p = .70$ were considered as acceptable (Mc Donald, 2011).
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31 32 **3. Results**

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34 In table 2, descriptive statistics are displayed.
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44 45 *3.1 Evidence on internal structure: Exploratory Factor Analysis*

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47 The Kaiser-Meyer-Olkin measure of sampling adequacy (.707) and Bartlett's test of
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49 sphericity with values 751.6 ($DF=91$; $p \leq .000$) reported the viability to perform the factor
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51 analysis. Horn's parallel analysis (Horn, 1965) suggested the extraction of one factor when
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53 percentile 95 was considered and the extraction of three factors when the mean was
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55 considered. Based on this results, one, two and three factor structure were compared
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60 respecting the original structure of the instrument. Table 3 exhibits the factor loadings of
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4 three structures obtained. It was observed that one-factor structure comprised ten scales
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6 showing factor weights above 0.3, which explained a variance of 24.3%. This factor
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8 exhibited a reliability of .80. The global goodness of fit index (GFI) was calculated
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10 suggesting not an acceptable model fit.
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14 As regards the two-factor structure, the first factor comprised 6 scales with loadings
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16 from -.39 to .61 and a reliability index of .70. This factor can be called “confrontative-
17
18 cognitive” (active), and refers to the tendency to actively cope a situation using positive
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20 cognitive and reflective resources. This factor includes positively reframing, active coping,
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22 planning, optimism and acceptance (positive loadings) and substance use (negative
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24 loading). The second factor comprised 5 scales with factor loadings from .30 to .79 and a
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26 reliability index of .81. This factor can be called avoidant-emotional (passive) and refers to
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28 the tendency to search emotional support, venting negative emotions and different
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30 avoidance strategies when facing a situation. This factor includes emotional support,
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32 instrumental support, venting, self-criticism and denial. In addition, the two-factor
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34 structure explained 38% of variance and the fit index (GFI) proved excellent fit.
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42 In the three-factor structure, the first factor comprised 9 scales with loadings from
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44 .32 to .77 and a reliability index of .81. This factor can be called passive-avoidant and it
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46 includes denial, behavioral disengagement, self-criticism and substance use. One of these
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48 scales has a shared load with factor 2, the other 3 scales have a shared load with factor 3.
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50 The second factor comprised 6 scales with loadings from .45 to .65 with a reliability of .91.
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52 This factor can be called active-emotional and it includes emotional support, venting,
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54 acceptance, self-distraction, instrumental support and religion.
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4 The third factor comprised 3 scales with loadings from -.39 to .41 with a reliability
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6 index of .55. This factor can be called active cognitive-reflective and includes planning,
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8 active coping, optimism and positive reframing. This factor structure explained 48% of
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10 variance and the fit index (GFI) proved excellent fit (.98). However, the third factor only
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12 comprised three scales that presented loads compiled with factor one, showing that it is not
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14 viable.
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25 *3.2 Evidence on internal structure: Confirmatory factor analysis (CFA)*
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28 The confirmatory factor analysis results indicated that one-factor and two-factor
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30 model, as well as the original, did not fit the data adequately (see Table 3). In the two-
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32 factor model, the fit of the data was more acceptable than in the other models (see Table 3
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34 and Figure 1). However, an examination of standardized weights of this model revealed
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36 that substance use manifested a small regression weight (-0.113). By removing that scale
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38 from the model the fit improved significantly.
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43 Internal consistency: The reliability indices for two factor model were .695 for factor one
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45 and .635 for factor 2. Although these reliability values do not exceed the proposed cut-off
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47 point, they are considerably acceptable considering the number of indicators for each latent
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49 variable (4 for each latent variable).
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INSERT FIGURE 1 HERE

Discussion

Although empirical research and progress in theoretical and methodological models in the study of coping have been growing, the focus has been on adolescents and young adult population instead of elderly population. The contemporary gerontology research has been oriented from an approach focused on deterioration processes in different aspects of personality and on neurodegenerative pathology towards a new perspective that emphasizes positive aspects of ageing such as coping processes in adulthood and old age.

The first aim of the study was to investigate the factor structure of the Brief-COPE Inventory in Argentine older adults population. The structure of the original version of COPE, according to what Carver et al. proposed (1989), comprised three factor structure with specific structures, conceptualized emotion focused coping, problem focused coping and avoidance focused coping. This structure coincides with the findings of other researchers using the same or other instruments with Lazarus's and Folkman's approaches.

In this study the CFA was used because of its capacity to examine a variety of indices that make possible to compare the fit of the models to the data (Jöreskog, Sörbom, Du Toit, & Du Toit, 2001). Therefore, this confirmatory technique was applied in order to test five models: a) one factor (8 scales), b) two factor (11 scales), c) two factor (10 scales), d) three factor (14 scales) and e) original model (13 scales). The results allowed to identify

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4 that the two factor model (10 scales) exhibits the best fit for the assessed sample: 1) active
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6 coping, 2)planning, 3) positive reframing, 4) acceptance, 5) optimism, 6) emotional
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8 support, 7) instrumental support, 8) denial, 9) venting and 10) self-criticism. The first
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10 factor, called confrontative cognitive (active), refers to the tendency to actively cope with a
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12 situation through the use of positive, cognitive and reflective resources. This factor includes
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14 positive reframing, active coping, planning, optimism and acceptance. The second factor,
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16 called avoidant emotional (passive) refers to the tendency to search for emotional support,
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18 to vent negative emotions and use different avoidance strategies, when facing a situation.
19
20 This factor comprises emotional support, instrumental support, venting, self-criticism and
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22 denial. Besides, self-distraction and religion were eliminated due to the lack of satisfactory
23
24 factor loadings, behavioral disengagement was not included as well since it showed a
25
26 shared factor loading in both factors. Furthermore, in the pilot study, substance use and
27
28 behavioral disengagement did not exhibit reliability indices with values according to
29
30 recommended standards ($\leq .70$). This outcome is coherent with the nature of the sample. In
31
32 the case of substance use, participants did not take psychiatric medication, the use of drugs
33
34 was relegated to physical conditions treatment, some of them typical of ageing (arthrosis,
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36 diabetes). This consumption was not considered due to the fact that this strategy refers
37
38 specifically to use and abuse of alcohol or psychotropic drugs. Despite having
39
40 demonstrated a high frequency use in older adults, self-distraction and religion strategies,
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42 did not meet the properties to be included in the mentioned factors. In the case of this
43
44 sample, older adults use self-distraction as an active strategy because they do different
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46 activities and socialize to evade problematic situations; consequently, these are active but
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48 not confrontative, avoidant or emotional strategies. Something similar occurs with religion,
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50 which has a cognitive but not confrontative nature, and at the same time, presents an
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4 emotional but not avoidant content. These results coincide with previous studies data of
5
6 other older adult population (Krzemien et al., 2005).
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10 The second aim was to determine if the questionnaire three-dimensional structure
11 suggested agrees with the empirical evidence obtained in the Argentine sample. The fit
12 indices were tested and several models were compared to identify which one exhibited the
13
14 best fit to the data. Additionally, the obtained results provided evidence of construct
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18 validity of the Brief-COPE.
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22 Unlike the three-model suggested by the original authors (Carver et al., 1989), the
23 model that revealed the best fit in this study was the one with bifactorial structure:
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25 confrontative-cognitive (active) and avoidant emotional (passive).
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31 While some authors assume that due to the increasing number of loss experiences,
32 passive avoidant coping prevails in older age, others, based on the Life Span Theory (Baltes
33 et al., 2007; Stefani & Feldberg, 2006) prefer active coping strategies that allow older
34
35 adults to compensatory adapt themselves to critical situations and chronic diseases
36
37 (Hamarat et al., 2002). The studies of Rothermund and Brandtstädter (2003) and Labouvie-
38
39 Vief and Diehl (2000) highlight a prevalence of cognitive coping strategies, such as the
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41 positive reinforcement of critical situations, coincidentally with another local study
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43 performed in older women (Krzemien et al., 2005). Consequently, the obtained data it is of
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45 interest to understand the nature of the coping construct factor structure and to highlight
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49 coping profiles or patterns as regards its adaptation in the analyzed sample.
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55 Research based on the Life Span Theory and the methodological progress in the
56 evaluation of adaptive resources in older adults (Baltes et al., 2007) have provided
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4 conclusions about the knowledge of coping in older age, questioning the classical
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6 conception of evolutionary development that conceived a universal and irreversible decline
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8 exclusively related to chronical age and biogenetics (Ballesteros Jiménez, 2007).
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11 The study of coping has gained relevance in the understanding of psychological
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13 adjustment in the ageing process. Based on the recognition of the typical coping patterns in
14
15 this sample, the data obtained made a contribution to the understanding of coping processes
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17 in this age group and cultural context. It was observed a differentiated profile in coping
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19 patterns with respect to other groups such as adolescents and young adults (Sladek, Doane,
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21 Luecken, & Eisenberg, 2016).
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26 On the other hand, there is an agreement to refer to active ways of coping as
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28 confrontative efforts to deal with a conflict situation and these are usually described as
29
30 successful since they have positive effects on adaptation. In contrast, passive ways of
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32 coping that refer to avoidant or denial strategies are considered less successful (Carver et
33
34 al., 1989; Lazarus & Folkman, 1984). Nevertheless, some strategies are regarded as
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36 beneficial in a moderate or temporary use, turning into harmful if that use becomes
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38 exclusive. In Carver's model, passive or active ways of coping are considered as adaptive,
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40 whether they are functional to the situation to face. The results obtained in the present
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42 research suggested that alternative perspectives of coping and their measurement should be
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44 considered. Moreover, an outstanding contribution of this study is to offer a widely used
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46 validated coping measurement assessment such as the Brief-COPE for older adult
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48 population.
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56 Despite this investigation contributes to the understanding of the use of COPE in
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58 older adult population, some limitations should be considered. Firstly, the Brief-COPE
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4 includes a self-report about coping behaviors from the participants. Consequently, their
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6 responses represent the best estimation of the individual about those implemented strategies
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8 in their attempt to cope a critical situation. Secondly, it should be considered that most of
9
10 the assessed participants were women. This is due to the fact that women present the
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12 highest life expectancy and have tendency to participate more often in social activities at
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14 different institutions (Krzemien et al., 2005). The present study did not analyze external,
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16 predictive and discriminant validity, these aspects should be considered in future
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18 evaluations. In spite of these limitations, the results obtained in this research showed the
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20 need for culturally relevant empirical research and appropriate measures for the population
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22 studied. Therefore, the linguistic adaptation of an instrument for older people population
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24 offers a specific and dependable coping measurement for this life span stage. Following
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26 Carver´s initiative (1997), these developments promote the instrument replicability in
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28 different context and cultures.
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36 Considering the new theoretical approaches of the Life Span Theory and
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38 contributions from neuroscience, understanding the adaptive capacity through coping
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40 strategies in older age represent a new challenge for Cognitive Psychology and
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42 Development field. In conclusion, the results of this study carry implications for
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44 psychological assessment and intervention as regards knowing and maximizing the coping
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46 factors used by older adults.
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Table

Classification of the coping strategies in the Carver model.

| Coping strategies | | |
|-------------------|-----------------------------|--------------------------|
| | Active | Passive / Avoidance |
| Behavioral | Active coping | Behavioral disengagement |
| | Planning | Self-distraction |
| | Use of instrumental support | Substance use |
| | Positive reframing | Denial |
| Cognitive | Humor | Religion |
| | Acceptance | Self-blame |
| | | |
| Emotional | Use of emotional support | Venting |

Note: Source: Carver et al., 1989, Carver, 1997b (prepared by authors).

Table 2
Descriptive statistics of coping strategies and factors for the total sample of older adults (N = 504)

| Coping strategies | <i>M</i> | <i>SD</i> | <i>Skewness</i> | <i>Kurtosis</i> |
|------------------------------|----------|-----------|-----------------|-----------------|
| 1. Self-distraction | 2.98 | (.83) | -.49 | -.58 |
| 2. Active coping | 2.87 | (.84) | -.48 | -.52 |
| 3. Denial | 1.57 | (.77) | 1.34 | 1.01 |
| 4. Substance use | 1.37 | (.65) | 2.13 | 4.33 |
| 5. Emotional support | 2.45 | (.87) | -.03 | -.86 |
| 6. Instrumental support | 2.30 | (.91) | .07 | -1.00 |
| 7. Behavioural disengagement | 1.56 | (.70) | 1.29 | 1.25 |
| 8. Venting | 2.28 | (.89) | .14 | -.93 |
| 9. Positive reframing | 2.84 | (.81) | -.43 | -.39 |
| 10. Planning | 2.52 | (.98) | -.14 | -.60 |
| 11. Optimism | 2.25 | (.96) | .20 | -1.10 |
| 12. Acceptance | 3.10 | (.78) | -.93 | .57 |
| 13. Religion | 2.67 | (1.06) | -.18 | -1.29 |
| 14. Self-criticism | 2.08 | (.84) | .49 | -.56 |
| Coping factors | | | | |
| Problem-focused coping | 2.51 | (.52) | -.13 | -.12 |
| Emotion-focused coping | 2.54 | (.65) | -.22 | -.47 |
| Avoidance coping | 2.02 | (.42) | .27 | -.19 |

Table 3
Configuration matrix with the factor saturations of the 14 scales and the three obtained structures.

| | Model | | | | | |
|-----------------------------|--------|--------|-------|--------|--------|--------|
| | F1 | F1 | F2 | F1 | F2 | F3 |
| 1. Self-distraction | 0.240 | -0.091 | 0.301 | 0.449 | -0.161 | -0.396 |
| 2. Active coping | 0.450 | 0.368 | 0.265 | 0.194 | 0.400 | -0.047 |
| 3. Denial | 0.192 | -0.293 | 0.374 | 0.343 | -0.228 | 0.413 |
| 4. Substance use | 0.038 | -0.395 | 0.265 | 0.327 | -0.379 | -0.004 |
| 5. Emotional support | 0.758 | -0.004 | 0.797 | 0.778 | 0.068 | -0.104 |
| 6. Instrumental support | 0.661 | 0.107 | 0.614 | 0.507 | 0.230 | 0.175 |
| 7. Behavioral disengagement | -0.022 | -0.492 | 0.256 | 0.294 | -0.459 | 0.208 |
| 8. Venting | 0.342 | -0.211 | 0.485 | 0.571 | -0.216 | -0.183 |
| 9. Positive reframing | 0.535 | 0.617 | 0.255 | 0.142 | 0.650 | -0.082 |
| 10. Planning | 0.457 | 0.357 | 0.281 | 0.192 | 0.940 | -0.140 |
| 11. Optimism | 0.401 | 0.411 | 0.194 | 0.011 | 0.389 | 0.053 |
| 12. Acceptance | 0.495 | 0.213 | 0.389 | -0.154 | 0.293 | 0.186 |
| 13. Religion | 0.364 | 0.059 | 0.340 | -0.028 | -0.140 | 0.377 |
| 14. Self-criticism | 0.348 | -0.297 | 0.551 | 0.290 | 0.134 | 0.163 |
| Reliability | .80 | .70 | .81 | .81 | .74 | .55 |
| GFI | .89 | | .96 | | .97 | |
| Explained variance | 23% | | 38% | | 48% | |

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Table 4
Fit indices of the different factor models specified for the brief scale.

| | χ^2 (df) | CFI | TLI | RMSEA | WRMR |
|----------------------------|---------------|-------|-------|-------|-------|
| One factor (10 scales) | 153.009 (35) | 0.826 | 0.776 | 0.115 | 1.105 |
| Two Factors (14 scales) | 249.639 (76) | 0.766 | 0.720 | 0.094 | 1.175 |
| Original Model (13 scales) | 285.288 (74) | 0.715 | 0.650 | 0.106 | 1.262 |
| Two Factors (8 scales) | 59.131 (19) | 0.937 | 0.908 | 0.091 | 0.740 |

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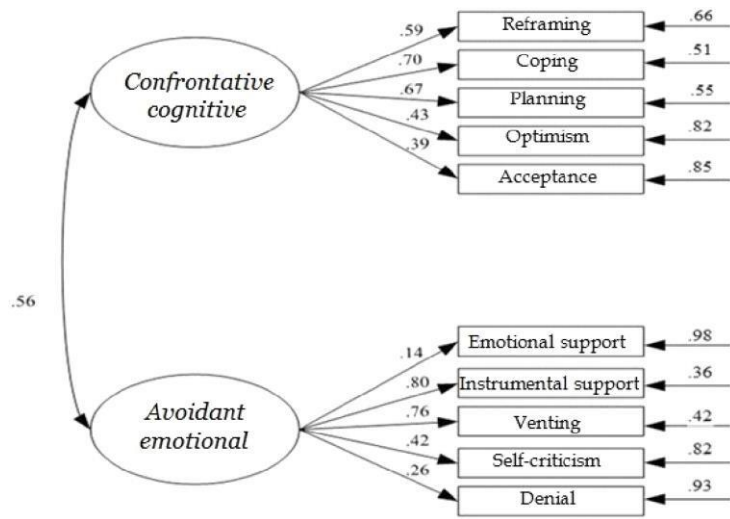


Figure 1. Path diagram of the two-factor model: Confrontative cognitive coping and Avoidant emotional coping

Confirmatory factor analysis of the Spanish version of the brief-COPE in Argentine elderly people

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