Advanced activities of daily living in Argentines over 50 years: its relationship with openness to experiences and resilience

Actividades de la vida diaria avanzadas en argentinos mayores de 50 años: su relación con la apertura a nuevas experiencias y la resiliencia

Atividades da vida diária avançadas em argentinos com mais de 50 anos: sua relação com a abertura a novas experiências e resiliência

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Abstract: Introduction: Advanced activities of daily living (A-ADLs) are an important indicator of adult functional status and active aging. However, few studies have investigated the influence of two personality attributes (openness to experience and resilience) on A-ADLs, and there is no data in the Argentine context. The relationship between A-ADLs and openness and resilience were analyzed, and secondarily the relationship between openness and resilience was examined. Methods: 151 Argentineans (M_{age} = 66) were evaluated with the Scale of Expansive Activities of Daily Life, the IPIP-NEO Personality Inventory and the Brief Resilient Coping Scale. Partial correlations and regression were carried out, controlling for age and education. Results: there were significant (moderate) correlations between all the variables of interest: openness, resilience and A-ADLs. The measures of resilience, openness and education explain 21 % of the variation in the A-ADLs score. Resilience was the variable that most influenced A-ADLs. Conclusion: a personality with more resilience and openness is associated with greater achievement of A-ADLs in Argentines ≥ 50 years old. It is suggested that the Argentine state implement public policies that promote recreational activity and social integration in older and middle age.
Keywords: resilience; active aging; personality psychology; psychogerontology

Resumen: Introducción: las actividades de la vida diaria avanzadas (AVD-A) son un importante indicador del estado funcional adulto y del envejecimiento activo. Sin embargo, pocos estudios investigaron la influencia de dos atributos de personalidad (apertura a nuevas experiencias y resiliencia) sobre las AVD-A y hasta donde se tiene conocimiento no hay datos en contexto argentino. Se analizó la relación de AVD-A con apertura y resiliencia, y secundariamente se examinó la relación entre apertura y resiliencia. Materiales y métodos: fueron evaluados 151 argentinos (Medad = 66) con la Escala de Actividades Expansivas de la Vida Diaria, el Inventario de Personalidad IPIP-NEO y la Escala Breve de Afrontamiento Resiliente. Se efectuaron correlaciones parciales y regresión, controlando por edad y educación. Resultados: se hallaron correlaciones significativas (moderadas) entre todas las variables de interés: apertura, resiliencia y AVD-A. Las medidas de resiliencia, apertura y educación explicaron el 21 % de la varianza del score de AVD-A. La resiliencia fue la variable que más influyó sobre las AVD-A. Conclusión: una personalidad con más resiliencia y apertura está asociada a mayor realización de AVD-A en argentinos ≥ 50 años.
Se sugiere al Estado argentino implementar políticas públicas que promuevan la actividad recreativa e integración social en mediana y tercera edad.

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Palabras clave: resiliencia; envejecimiento activo; psicología de la personalidad; psicogerontología

Resumo: Introdução: as atividades da vida diária avançadas (AVD-A) são um importante indicador do estado funcional adulto e do envelhecimento ativo. No entanto, poucos estudos investigaram a influência de dois atributos de personalidade (abertura a novas experiências e resiliência) sobre o AVD-A e não há dados no contexto argentino. Foi analisada a relação entre AVD-A, abertura e resiliência, e secundariamente foi examinada a relação entre abertura e resiliência. Materiais e métodos: foram avaliados 151 argentinos (M_{idade} = 66 anos) com a Escala de Atividades Expansivas da Vida Diária, o Inventário de Personalidade IPIP-NEO e a Escala Breve de Enfrentamento Resiliente. Foram realizadas correlações parciais e regressão, controlando por idade e educação. Resultados: Foram encontradas correlações significativas (moderadas) entre todas as variáveis de interesse: abertura, resiliência e AVD-A. As medidas de resiliência, abertura e escolaridade explicam 21 % da variância da pontuação do AVD-A. A resiliência foi a variável que mais influenciou o AVD-A. Conclusão: uma personalidade com maior resiliência e abertura está associada a maior realização de AVD-A em argentinos ≥ 50 anos. Sugere-se que o Estado argentino implemente políticas públicas que promovam a atividade recreativa e a integração social na meia-idade e terceira idade.

Palavras-chave: resiliência; envelhecimento ativo; psicologia da personalidade; psicogerontologia

Aging

The world's population is undergoing an unprecedented ageing process (United Nations, 2019, 2020; World Health Organization [WHO], 2022). In 2015, people over 60 years of age accounted for about 12% of the world's population (900 million) and it is estimated that by 2050 this number will rise to over 20% (2000 million) (WHO, 2022). One of the major challenges posed by population ageing is the preservation of the autonomy and quality of life of older people. In this regard, the importance of promoting models of ageing has been emphasized for years, especially those of active ageing, in European tradition and in line with the World Health Organization (WHO), and those of successful ageing, in the US tradition (Marzo et al., 2023; Dogra et al., 2022; Petretto et al., 2016). According to the WHO model, four pillars underpin active ageing: social participation and integration, lifelong learning, health and security (Hijas-Gómez et al., 2020). In turn, classical models of successful ageing postulate three conditions: a) a low probability of illness and disability, b) high cognitive and physical performance, and c) high engagement with life (Petretto et al., 2016). Indeed, successful ageing is not limited to the absence of pathology, nor to the maintenance of basic capabilities, but requires high physical, cognitive and social functioning.

Activities of daily living

Activities of daily living (ADLs) are actions necessary to maintain autonomy and an indicator of a person's functional status (Edemekong et al., 2023). According to their complexity, they are classified into basic ADLs (B-ADLs), instrumental ADLs (I-ADLs) and advanced ADLs (A-ADLs). B-ADLs are the most basic tasks such as hygiene, feeding, dressing and getting around on one's own, while I-ADLs are more complex tasks such as money management, taking medication, household shopping, cooking or cleaning (Edemekong et al., 2023; Guo et al., 2022). Third, A-ADLs, a concept coined by Reuben and Solomon more than 30 years ago and the focus of this study, are even more complex actions that determine the degree of an adult's attachment to his or her environment and the deepening of interests and motivations in life (personal development) and is an indicator of cognitive function performance (Cornelis et al., 2019; de Oliveira et al., 2015; Sánchez-Rodríguez et al., 2023). The preservation of A-ADLs is thus central to achieving active and successful forms of ageing, and includes social and community activities, recreational activities such as walking and travel, physical exercise, and cognitive activities such as reading or other intellectual pursuits. To refer to A-ADLs some authors adopt the term expansive ADLs (Bressan et al., 2019) in allusion to the contact that the adult establishes with his or her environment.

A-ADLs: relationship with openness to experience and resilience

It is stimulating to conjecture that certain personality attributes such as openness to experience (OE) or resilience could positively influence the performance of A-ADLs, and through them, contribute to an active and healthy old age. OE is one of the five personality traits of the big five model (McCrae & John, 1992), one of the most widely accepted theories in personality psychology. OE is defined as an individual's willingness to explore new feelings, emotions, ideas or values that differ from previous experiences and preferences (McCrae & John, 1992). OE has been associated with increased creativity,

curiosity and flexibility (DeYoung et al., 2010) and the activation of specific brain networks (Abu Raya et al., 2023). It has been proposed that OE increases in adolescence and tends to decrease with ageing (Costa et al., 2019). In addition to the above, there is evidence that high OE favors the performance of A-ADLs in adult life, as higher OE would motivate and encourage the performance of social and recreational activities. However, most of the available studies have focused on investigating A-ADLs partially according to the type of activity -social, physical or cognitive (Hogan et al., 2012; Kekäläinen et al., 2020; Olaru et al., 2023; Tolea et al., 2012) and less frequently studied using global activity indices or scores as in Stephan et al. (2014), who found that higher OE in middle-aged American and French adults predicted a better global index of A-ADLs. The A-ADLs index in Stephan et al. (2014) was composed of the sum of physical, social and cognitive activity. Therefore, further efforts remain to be made to study the association between OE and A-ADLs with global and methodologically more robust measures.

On the other hand, resilience is a recurrent scientific topic in recent years and is multidisciplinary in scope. Pioneers of its study in the field of psychology and psychiatry consider resilience as a personality trait that moderates the negative effects of stress and improves individual adaptation (Connor & Davidson, 2003; Wagnild, 2009). In the same direction, Babić et al. (2020) define resilience as the individual's ability to withstand and positively cope with difficult, stressful or traumatic situations, and according to Herrman et al. (2011), it is the ability to maintain or recover mental health after an adverse experience. There is no conclusive data on whether resilience increases or decreases with old age (Nieto et al., 2023). The meta-analysis by Färber and Rosendahl (2020) identified that, in older adults, high resilience correlates with better mental health, and two recent studies observed that a more resilient personality is associated with higher performance of A-ADLs (Rodrigues & Tavares, 2021; Toth et al., 2023). This is because resilience would help to overcome difficult situations and maintain mental health, thus providing the motivational resources needed to initiate and sustain A-ADLs during old age. Finally, it is also worth noting scientific efforts to better characterize the relationship between resilience and personality traits according to the big five model. In general, resilience was found to be positively related to OE, extraversion, agreeableness and conscientiousness, and negatively related to neuroticism (Nieto et al., 2023; Oshio et al., 2018). It is worth noting that, up to this point, most studies have recruited young samples (see meta-analysis by Oshio et al. 2018).

In summary, the amount of research aimed at understanding the influence of personality attributes such as OE and resilience on A-ADLs remains limited, and to the best of our knowledge, there is no data from the Argentinean cultural context. Furthermore, research on the relationship between resilience and OE has focused on young samples.

This study examines the relationship of A-ADLs with OE and resilience in Argentines over 50 years of age from a non-clinical population. Complementarily, the relationship between resilience and OE is analyzed. The main hypothesis of the study proposes that a higher frequency of A-ADLs should correspond to higher OE and greater resilience, and secondly, that OE should be associated with resilience. It is important to highlight that this study could provide relevant scientific information for the design of public policies aimed at improving the quality of life of middle-aged and older adults in Argentina.

Materials and methods

Methodological approach and design

A quantitative approach was adopted. The study employed an observational, cross-sectional design. Additionally, the scope of the study was correlational, as it aimed to examine associations among all variables of interest.

Sample

In order to participate in the study, three inclusion criteria were established: a) being 50 years of age or older, b) having Argentinean nationality and c) giving written consent. Participants with a psychiatric diagnosis (N = 15) were excluded to avoid a possible confounding bias on the psychological and behavioral variables under study. The final sample consisted of 151 participants (see sociodemographic characteristics in Table 1).

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Instruments

Expansive Activities of Daily Living Scale-EADLS (Bressan et al., 2019). It assesses A-ADLs and is composed of seven items: a) level of socio-affective contact (interaction with family, friends), b) recreational activities (trips, cinema, games), c) physical activity (walking, gymnastics, sport), d) new learnings (crafts, reading, etc.), e) expression of needs and desires, f) interest in the context (whether or not one keeps informed about politics, sports, culture, etc.) and g) capacity for self-control. Each item offers four response options, and by direct summation of the items an overall activity score is obtained. A lower score value is indicative of retained activity, and a higher score value is indicative of difficulties in carrying out activities. The scale was constructed and validated in Argentina by Bressan et al. (2019). The authors examined the reliability of the scale, and its construct validity using an exploratory factor analysis. Good internal consistency (α .73) and a unifactorial structure with good fit indices (RMSEA = .04, GFI = .99, SRMR = .02) were obtained.

IPIP-NEO Personality Inventory (Goldberg, 1999; Argentine adaptation by Cupani et al., 2014). This is the IPIP version of the NEO-PI-R Personality Inventory by Costa and McCrae (1992). This inventory assesses personality according to the big five model (McCrae & John, 1992), discriminating between neuroticism, agreeableness, extraversion, conscientiousness and openness, and is contains 300 items with five Likert-type response options. The instrument includes six sub-traits for each personality factor. For each facet there is a 10-item scale. For the current study, items from the openness factor (actions scale) were administered. Only one scale of the openness factor was administered in order to avoid overloading the volunteers' participation time and to improve the feasibility of the study. Furthermore, it is important to clarify that the actions facet was selected, and not another facet of the openness factor, because after deliberation by the researchers, it was considered that this facet might have a more direct connection to the performance of A-ADLs. The openness scale demonstrated acceptable psychometric properties (α .76) (Cupani et al., 2014).

Brief Resilient Coping Scale-BRCS (Sinclair & Wallston, 2004; Spanish version translated from Limonero et al., 2014). It is a brief, unidimensional measure of the ability to cope adaptively with stress. It consists of four items with five response options in a Likert format. An overall score with a range between 4 and 20 is obtained by the direct sum of its items, and a higher score indicates better resilient coping. In this study, the Spanish version of Limonero et al. (2014) was used. The original version by Sinclair and Wallston (2004) obtained acceptable psychometric properties with a test-retest correlation coefficient of .71, α .69, and good fit indices. In Peru, Caycho-Rodríguez et al. (2018) administered the Spanish version of Limonero et al. (2014) and reported good indices of confirmatory factor analysis fit, acceptable convergent validity, and good reliability (α .87). Gallardo-Peralta et al. (2020) also reported acceptable properties in Chilean older adults. To ensure the good psychometric performance of this scale in Argentinean adults, reliability was extracted based on the present sample (*n* = 151), obtaining an acceptable α of .72.

Covariates

Age and years of education were included in the analyses, as these variables could confound the results. Age could condition the performance of some A-ADLs such as physical exercise. Education could influence the frequency of intellectual activities such as reading, or -as an indicator of socio-economic status- condition recreational activities that carry an economic cost such as travel, theatre or other cultural consumptions.

Data collection procedure

Assessments were individual and face-to-face between September and October of 2023. All volunteers were invited to participate in the study as part of a public health promotion campaign in the city of Rosario (Argentina) aimed at middle-aged and elderly adults, organized by the Rosario Neuroscience Research Centre (CINR-UNR).

Data analysis

The SPSS26.0 statistical package was used. Descriptive statistics were performed by calculating means and SD for quantitative variables, and relative frequencies for categorical variables. In accordance with the main objective of the study (to test the association of A-ADLs with OE and resilience), and the secondary objective (to test the association between EA and resilience), partial correlations were applied between all variables of interest, controlling for age and years of education.

Effect sizes were calculated based on the magnitude of the correlation coefficient according to Cohen's criteria (Ríos & Iniesta-Sepúlveda, 2022), for which a correlation between .1 and .3 is weak, between .3 and .5, moderate, and >.5, strong. On the other hand, to test the predictive capacity of the independent variables OE, resilience, years of education and age on the dependent variable A-ADLs, a stepwise multiple regression analysis was performed. The effect size was calculated from the coefficient of determination (R^2). An $R^2 < .02$ indicates no effect size, $R^2 \geq .02$, a small effect, $R^2 \geq .13$, a medium effect, and $R^2 \geq .26$, a large effect (Ellis, 2010).

Ethical and legal aspects

The procedures recommended by the American Psychological Association and the Declaration of Helsinki were followed, safeguarding the will, well-being and confidentiality of the participants. All individuals provided written informed consent. This manuscript is derived from a research project approved in August 2021 by the Research Ethics Committee of the Faculty of Psychology (National University of Rosario, Argentina) with registration number 15821/2021.

Results

Descriptive

Table 1 shows the demographic descriptives of the sample. The scores of the three instruments used are also reported: EADLS to explore the performance of A-ADLs, IPIP-NEO Personality Inventory to assess OE and BRCS to measure resilience.

Table 1

Descriptive data

	M (*SD*)	Min-Max	%
Years	66 (9.4)	50-89	
Years of Education	14.1(4.2)	4-30	
EADLS (A-ADLs)	4.1 (2.8)	0-12	
IPIP-NEO (OE)	38.3 (7)	20-50	
BRCS (resilience)	17.1 (3.1)	4-20	
Female			68.2

Notes. EADLS: Expansive Activities of Daily Living Scale. A-ADLs: Advanced Activities of Daily Living. OE: Openness to new experiences. IPIP-NEO: Personality Inventory. BRCS: Brief Resilient Coping Scale. M: mean. SD: standard deviation. Min: minimum. Max: maximum.

Correlations

As shown in Table 2, negative correlations were obtained between the EADLS scores and the IPIP-NEO, and between the EADLS scores and the BRCS. Positive correlations between the IPIP-NEO scores and the BRCS are also observed. All correlations were adjusted for age and education. Correlations of moderate strength were obtained in all cases.

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Table 2

Correlations between A-ADLs, openness and resilience

		1	2	3
EADLS (A-ADLs)	coef.	1		
	p			
IPIP-NEO (openness)	coef.	-.340	1	
	p	.000		
BRCS (resilience)	coef.	-.351	.344	1
	p	.000	.000	
		1	2	3
EADLS (A-ADLs)	coef.	1		
	p			
IPIP-NEO (openness)	coef.	-.340	1	
	p	.000		
BRCS (resilience)	coef.	-.351	.344	1
	p	.000	.000	

Notes. EADLS: Expansive Activities of Daily Living Scale. A-ADLs: Advanced Activities of Daily Living. IPIP-NEO: Personality Inventory. BRCS: Brief Resilient Coping Scale. p: significance value. Coefficient: Correlation coefficient.

Regression

The most robust regression model showed that resilience score, OE score and years of education explain 21% of the variance of the A-ADLs score (Table 3). The model is statistically significant and of medium effect. Standardized β coefficients of -.268 (resilience score), -.264 (years of education) and -.234 (OE score) were obtained.

Table 3

Regression

	R	*R* square	*R* square adjusted	Standard error	*F*	*p*
Model	.477	.227	.211	2.5	14.21	.000

Notes. Model independent variables: resilience score, openness score and years of education. Dependent variable of the model: advanced activities of daily living score. Excluded variable from the model: age.

Discussion

A-ADLs are an important indicator of functional status during old age, reflecting the degree of integration of the adult into his or her environment, and the satisfaction of personal interests and motivations. This study analyzed A-ADLs according to their relationship with two personality attributes, OE and resilience, for which a sample of 151 Argentines with M = 66 years old, with no psychopathological history, was assessed cross-sectionally and in person.

The results of the study indicate that the global index of an A-ADLs scale correlated with a measure of OE and with a measure of resilience, after controlling for the effects of age and education. These new findings therefore confirm the hypothesis that better maintenance of A-ADLs would be associated with resilient and more open personalities. Our findings are consistent with previous studies (Hogan et al., 2012; Kekäläinen et al. 2020; Olaru et al., 2023; Rodrigues & Tavares, 2021; Stephan et al., 2014; Tolea et al., 2012; Toth et al., 2023) and reinforce an underexplored area of research, despite the importance of A-ADLs for active ageing. According to these records, few studies used a global index of A-ADLs to investigate relationships with OE (e.g. Stephan et al., 2014). Thus, the present study reinforces this body of evidence. Regarding potential bridging mechanisms between OE, resilience and A-ADLs, it should be noted that high OE might predispose adults to initiate and sustain social, physical, recreational and intellectual activities, while resilience would provide the motivational resources needed to maintain A-ADLs despite difficult life situations.

As a complement to the correlation analyses, regression analyses were performed. The independent variables were the measures of OE, resilience, years of education and age, and the dependent variable was the A-ADLs score. Age and education were included because they could hypothetically condition the performance of A-ADLs, e.g. very old age may discourage physical exercise, while a high level of education may motivate intellectual activities such as reading or - as an indicator of socio-economic status - facilitate access to expensive recreational activities such as travel and tourism. The most robust regression model consisted of resilience, OE and years of education, explaining 21% of the variance of the A-ADLs score, and with a medium effect size based on Ellis (2010) criteria. Resilience was the strongest predictor, followed by education and OE, although the β differences between the variables were marginal. It is important to note that age did not significantly influence the model, which shows, at least in this sample, that this variable did not condition the level of advanced activities, as did personality and educational level.

In addition, the current study set out to test whether OE and resilience are associated. Based on partial correlation analyses, a moderate positive correlation was obtained between the IPIP-NEO score and the BRCS score, after adjusting for age and education. These results confirm the second hypothesis of the study whereby a more resilient personality is accompanied by a more open personality, in line with the recent work of Nieto et al. (2023) and the meta-analysis of Oshio et al. (2018). It should be emphasized that up to this point the research focused on young samples (see Oshio et al. 2018). Thus, the current findings expand and extend the evidence to people aged 50 and older.

This study is not without its limitations. To begin with, despite the findings of the predictive regression model, as it is a cross-sectional design we cannot be sure that resilience and OE are causal factors of participants' activity level. That is, it is not possible to prove causality. To address this limitation, we suggest new studies explore longitudinally the changes in resilience and OE during old age, and their impact on functioning and A-ADLs. Secondly, this was a non-probability sample, which compromises the generalizability of the data. Third, in order to reduce administration times and improve the feasibility of the study, the measurement of OE was limited to only one scale of the six scales of the IPIP-NEO openness factor. Fourth, information on psychiatric history (for exclusion criteria) was obtained by self-report, and therefore, as this information depends on the subjective perception of each participant, we cannot rule out omissions or overestimates of illness. Finally, given the relationship between the variables OE and resilience, we cannot rule out possible multicollinearity problems in the regression models.

It is hoped that these results will be used for the design of public policies to improve the quality of life of older adults. For example, through socio-educational strategies aimed at stimulating the behavioral repertoire of older people, overcoming myths and prejudices related to age.

To conclude, in this study, a resilient and more open personality was associated with better maintenance of A-ADLs in middle-aged and elderly Argentines. In addition, resilience, OE and years of education explained 21% of the variance of a global measure of A-ADLs. Based on the results obtained, we suggest, on the one hand, implementing public awareness campaigns on common beliefs and prejudices about old age. Given that certain beliefs, such as equating old age with a state of weakness and fragility, are stereotypes that reinforce the lack of openness in the elderly and therefore inactivity. At the same time, support and accompaniment spaces for the elderly are suggested, for a better emotional management of disruptive situations such as the loss of loved ones or the existential challenge that the continuity of life after retirement means for many people.

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