UNIVERSIDAD SAN FRANCISCO DE QUITO USFQ

Colegio de Ciencias Sociales y Humanidades

Validation of the Cognitive Complaints Inventory - Participation (CoCo-P) 2025 applied to a sample of the Ecuadorian population over 65 years of age

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Psicología General

Trabajo de fin de carrera presentado como requisito
para la obtención del título de
Psicología General

Quito, 12 de mayo de 2025

UNIVERSIDAD SAN FRANCISCO DE QUITO USFQ

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HOJA DE CALIFICACIÓN
DE TRABAJO DE FIN DE CARRERA

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Quito, 12 de mayo de 2025

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RESUMEN

Este estudio valida el inventario de Quejas Cognitivas y Participación (CoCo-P) en adultos ecuatorianos mayores de 65 años. Cuarenta y tres participantes con niveles educativos predominantemente bajos completaron el inventario, revelando frecuencias de quejas más altas que estudios previos. El análisis mostró correlaciones bajas entre las quejas cognitivas y las puntuaciones de ansiedad/depresión. Los resultados sugieren que las quejas cognitivas en esta población reflejan preocupaciones genuinas relacionadas con la edad más que angustia psicológica. CoCo-P parece válido para evaluar las quejas cognitivas en ancianos ecuatorianos, aunque los factores culturales y las perspectivas generacionales sobre la salud mental pueden influir en sus patrones de reportaje.

Palabras clave: *quejas cognitivas, actividades de la vida diaria, participación, síntomas de depresión, síntomas de ansiedad*

ABSTRACT

This study validates the Cognitive Complaints and Participation (CoCo-P) inventory in Ecuadorian adults over 65 years. Forty-three participants with predominantly low educational levels completed the inventory, revealing higher complaint frequencies than previous studies. Analysis showed low correlations between cognitive complaints and anxiety/depression scores. Results suggest cognitive complaints in this population reflect genuine age-related concerns rather than psychological distress. The CoCo-P appears valid for assessing cognitive complaints in Ecuadorian elders, though cultural factors and generational perspectives on mental health may influence reporting patterns.

Keywords: *cognitive complaints, daily life activites, participation, depression symptoms, anxiety symptoms*

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INTRODUCTION

Cognitive complaints among older adults represent a significant public health concern with profound implications for quality of life, independence, and early detection of neurodegenerative processes. These subjective reports of cognitive difficulties often manifest as concerns about memory, attention, and executive function that interfere with daily activities and social participation. As the global population ages, particularly in developing countries like Ecuador, understanding and accurately assessing these complaints becomes increasingly important for both clinical practice and research purposes.

The relationship between subjective cognitive complaints and objective cognitive performance remains complex and often contradictory. Research suggests that while some complaints may signal early neurodegeneration, others reflect psychological factors such as anxiety and depression rather than actual cognitive decline. This distinction is crucial for healthcare providers to determine appropriate intervention strategies and avoid unnecessary diagnostic procedures. Furthermore, the association between cognitive complaints and participation in daily activities provides valuable insight into the functional impact of perceived cognitive difficulties on an individual's quality of life.

The Cognitive Complaints and Participation (CoCo-P) inventory, developed by Spreij et al. (2019), represents a significant advancement in the assessment of cognitive complaints and their impact on participation. Unlike previous instruments that focused primarily on memory complaints, the CoCo-P evaluates difficulties across multiple cognitive domains as they manifest in various everyday activities.

This comprehensive approach allows for a more precise understanding of how cognitive complaints affect an individual's daily functioning and participation. While the CoCo-P has demonstrated promising psychometric properties in Dutch population, its validity in culturally and educationally diverse contexts, particularly in Latin America, remains unexplored. Cultural factors, educational background, and generational attitudes toward aging and cognitive decline may significantly influence how cognitive complaints are experienced and reported. Ecuador, with its diverse population and unique cultural context, provides an important setting for examining the cross-cultural validity of cognitive assessment tools.

The present study aims to validate the CoCo-P inventory in a sample of Ecuadorian adults over 65 years of age, with particular attention to individuals with lower educational attainment. Additionally, this research explores the relationship between cognitive complaints and psychological factors such as anxiety and depression in this population. By establishing the validity of the CoCo-P in an Ecuadorian context, this study contributes to the broader effort to develop culturally appropriate tools for assessing cognitive complaints across diverse populations, ultimately improving early detection and intervention for cognitive concerns in older adults.

THEORETICAL BACKGROUND

Cogntive Complaints and Participation

Cognitive complaints are defined as subjective cognitive difficulties that patients encounter in their daily lives (Gosselt et al., 2021). In elderly populations specifically, complaints related to cognitive functions like memory are particularly prevalent, with studies indicating that approximately half of all older individuals surveyed report experiencing some difficulties with their everyday memory function (Weaver Cargin et al., 2008). The assessment of these complaints is usually conducted through patient interviews and occasionally supplemented with self-reported or informant-reported questionnaires (Gosselt et al., 2021).

Additionally, subjective cognitive difficulties often lead to problems across various domains of daily life, including work performance, social interactions, and other routine activities (Gosselt et al., 2021). The patient's active involvement in all these domains of daily life is known as Participation. Participation is negatively impacted by the presence of cognitive complaints (Gosselt et al., 2021). Given their prevalence and impact on quality of life, self-reports of cognitive complaints currently represent the primary means of monitoring the development of early stages of cognitive impairment in older adults (Weaver Cargin et al., 2008). This highlights the importance of properly assessing and understanding cognitive complaints, particularly in elderly populations where cognitive changes may signal early pathological processes.

Although research indicates that memory complaints are rarely associated with poor cognitive test performance, and the relationship between subjective complaints and objective memory impairment remains unclear, self-reported cognitive difficulties

provide valuable information about the lived experiences of older adults and may serve as early indicators of cognitive changes that can possibly conduct to further investigation and intervention (Weaver Cargin et al., 2008). This discrepancy between subjective reports and objective measurements presents also a significant challenge in the field of cognitive assessment, particularly when trying to identify individuals at risk for cognitive decline.

Relationship between cognitive complaints and mental health: a negative impact in participation

The complex relationship between subjective cognitive complaints and neurodegenerative diseases, particularly symptoms of Alzheimer's dementia, represents a critical area of study in gerontological research. However, less research in regards of the relationship between cognitive complaints and mental health factors, especially depression and anxiety, has not been extensively studied. As stated before, this relationship not only influences older adults' perception of their cognitive abilities but also significantly impacts their participation. Understanding this interaction is fundamental and could help to improve a patient's mental health and general quality of life (Jette et al., 2005). Therefore, deepen into the connection between subjective cognitve impairment and psychopathological sings of depression and anxiety is of high relevance for the neuropsychological field (Chin, et al., 2014; Fung et al., 2018; Markova et al., 2017).

Research consistently demonstrates a strong association between memory complaints and symptoms of depression and anxiety in older populations. Balash et al. (2013) and Weaver Cargin (2008) found substantial evidence for a strong association between memory complaints and symptoms of depression and anxiety,

suggesting that many cognitive complaints may actually reflect general worries associated with aging better than objective cognitive deterioration. This distinction is crucial for assessment and intervention approaches.

Relationship between Cognitive Complaints and Anxiety Symptoms

The relationship between anxiety and cognitive complaints appears to be bidirectional. Hill et al. (2019) found that anxiety symptoms reliably change with memory complaints, suggesting a dynamic interaction between these factors. This study demonstrates that perceived memory decline leads to increased anxiety symptoms over time during elderly age, creating a self-perpetuating cycle that can significantly diminish an individual's confidence in their cognitive abilities and subsequently reduce their participation in cognitively demanding activities.

Additionally, recent research suggests potential causal mechanisms linking anxiety to cognitive performance. A longitudinal study by Fung et al. (2018) revealed that otherwise healthy older adults with anxiety showed specific decline in episodic memory over a three-year interval. These finding positions anxiety symptoms as potentially predictors of episodic memory decline in cognitively healthy older adults, i.e. the possibility that anxiety could serve as an early indicator of neurodegenerative processes. The implications of this research are significant, as it indicates the importance of addressing anxiety symptoms not just for mental health but also as a potential preventive measure against cognitive decline.

Moreover, the mechanisms underlying the relationship between anxiety and memory function in aging populations have also been investigated. Yochimin et al. (2013) found that affective symptoms of anxiety were related to decreased performance on immediate verbal memory recall tests. Their findings suggest that

poor categorization ability—a cognitive process essential for efficient memory encoding and retrieval—might explain the observed association between anxiety symptoms and memory difficulties. This finding provides insight into the cognitive processes that may be affected by anxiety in older adults and offers potential targets for intervention.

Relationship between Cognitive Complaints and Depression Symptoms

Depression similarly plays a fundamental role in the appereance and experience of cognitive complaints among older adults. Braileana et al. (2019) observed that increasing depressive symptoms were associated with increasing subjective memory complaints but not with objective cognitive decline. This amplification effect could lead to exaggerated perceptions of cognitive difficulties, potentially causing unnecessary distress and reduced participation in daily activities. This amplification effect has significant implications for how older adults participate in their daily lives, potentially leading to unnecessary withdrawal from cognitively stimulating activities.

Recent research has focoused more on the relationship between depression and cognitive complaints due to its prevalence and impact. Chin et al. (2014) identified depression as an important factor in determining the severity of subjective memory impairment. Interestingly, their research also revealed that depressive symptomatology correlated significantly with performance on certain neuropsychological tests assessing attention, suggesting a complex relationship where actual cognitive decline might have preceded depression in some instances. This bidirectional possibility complicates the understanding of cause and effect

between depression and cognitive complaints, highlighting the need for longitudinal assessment approaches.

Further evidence of the strong relationship between depression and cognitive complaints comes from Markova et al. (2017), who found that a higher number of subjective cognitive complaints in cognitively well-functioning individuals was most closely related to depressive symptomatology. Their research concluded that the level of depressive symptomatology was the best indicator of subjective cognitive complaints, suggesting that addressing depression might be crucial in reducing the burden of perceived cognitive difficulties in older adults.

The cumulative evidence from these studies explains the complex relationship between mental health factors, cognitive complaints in older adults and daily live activities. While objective cognitive decline may sometimes be present, the subjective experience of cognitive difficulties is often influenced by psychological factors such as depression and anxiety, with clear manifestiations of diminished participation in daily life activities. Understanding this intricate relationship between mental health and cognitive complaints ultimately serves to improve clinical care for older adults by enabling more precise identification of underlying issues and more targeted intervention approaches. By addressing both cognitive and emotional aspects of aging, healthcare providers can support older adults to maintain optimal functioning, persistent social participation, and enhanced quality of life despite the challenges of aging.

The CoCo-P Inventory

The Cognitive Complaints-Participation (CoCo-P) inventory is a neuropsychological tool designed to assess complaints about cognitive functioning in

people with acquired brain injury (ABI). It was developed by specialists at UMC Utrecht in the Netherlands in 2019 to fill an important gap in assessment options (Spreij et al., 2019).

Before the CoCo-P was created, suitable inventorioes to measure cognitive complaints during everyday activities were no table for clinical practice. Recognizing this need, Spreij et al. (2019) aimed to develop a comprehensive inventory for ABI patients that could measure cognitive complaints across several cognitive functions while also assessing the effect of these complaints affect daily life.

The CoCo-P was developed through a rigouros process that included reviewing existing research, consulting with experts, interviewing patients about their experiences, and conducting a quantitative study to refine the tool (Spreij et al., 2019). This extense approach helped ensure the inventory would capture the range of cognitive complaints experienced by individuals with brain injury.

The CoCo-P inventory serves two purposes: it captures subjective cognitive complaints in a standardized way and assesses how these complaints impact participation in daily life (Spreij et al., 2019). This makes the inventory particularly useful for assessment and treatment planning, as it connects subjective experiences of cognitive difficulty with their practical consequences in everyday life.

Research on other Cognitive Complaints Inventories' Validity standardized in other international populations

The assessment of cognitive complaints across different populations has gained significant attention in international research, with numerous countries developing their own inventories tailored to their specific populations and official languages. This global research effort focusing on self-reported cognitive complaints

has been comprehensively documented by Rabin et al. (2015), highlighting the importance of culturally and linguistically appropriate assessment tools.

Several countries have developed population-specific inventories, including the Italian Cognitive Function Instrument (CFI) by Chipi et al. (2019) and the Korean-Everyday Cognition (K-ECog) validated by Song et al. (2021). These instruments reflect the growing recognition that cultural and linguistic factors may influence how cognitive complaints are expressed and interpreted across different populations.

Beyond developing entirely new instruments, researchers have also investigated the validity of existing cognitive complaints questionnaires when applied to different populations. For instance, Markova et al. (2019) evaluated the French questionnaire of cognitive complaints (Le Questionnaire de Plainte Cognitive) in cognitively healthy Czech older adults. Such cross-cultural validation studies are particularly valuable as they assess whether instruments developed in one cultural context maintain their psychometric properties when used in different populations. When consistent results are obtained across different populations, this increases the overall validity of the questionnaire and supports its use as a cross-culturally applicable assessment tool.

Despite this growing body of international research, there have been relatively few standardized tests of cognitive complaints conducted specifically in Latin American populations. The existing studies in this region include a validation study directed by Universidad de El Bosque in Colombia, which validated the internal consistency of the questionnaire by Salazar and Maldonado in a Colombian sample (Orjuela et al., 2024). Similarly, Zlatar et al. (2022) conducted research among U.S. Hispanics/Latinos between 18 and 74 years of age, finding that subjective cognitive decline was associated with global cognitive and executive functions.

In Ecuador specifically, research in this area has been particularly limited, with only one study conducted by Lopez-Guerra V. in 2022. This study focused on college students rather than older adults and concluded that alcohol intake and memory complaints increased correlationally among this younger population. Notably, there is a striking absence of research on cognitive complaints in the Ecuadorian elderly population over 65 years of age, highlighting a significant gap in the literature.

This research gap highlights the importance of the current study, which aims to validate the CoCo-P in cognitively healthy Ecuadorian older adults over 65 years of age. Additionally, this research seeks to determine whether the inventory is potentially suitable for anxiety and depression diagnosis in this specific population. By addressing this research gap, the present study contributes to the broader international effort to develop and validate culturally appropriate tools for assessing cognitive complaints across diverse populations.

METHODOLOGY

Participants

The present study used a targeted sampling approach to investigate cognitive complaints among elderly individuals without diagnosed neurodegenerative conditions. A sample comprising 43 elderly participants was recruited through purposive sampling techniques designed to capture a representative cross-section of the target population. All participants were of Ecuadorian nationality, with an average age of 76,9 years, and 69,8% of participants identified as female. According to the Dutch lassification system by Verhage, that consists of 7 levels, the majority of participants had a low educational level. Excepting one participant from Azuay Province, all other participants lived in Pichincha Province (cf. Table 1).

To ensure methodological rigor and sample homogeneity, specific inclusion criteria were established. First, participants were required to be 65 years of age or above. Additionally, participants were asked for the absence of any diagnosed neurodegenerative pathology (e.g. Alzheimer's Dementia, Parkinson's Disease, Lewy Body Dementia and other related conditions that might confound the assessment of cognitive complaints).

Measurements

The CoCo-P Inventory was designed as both a patient-reported and relative-reported measure, recognizing that different perspectives are valuable in assessing cognitive functioning. Both versions include 38 items focusing on memory, attention, and executive function across ten different everyday activities (Spreij et al., 2019). This structure helps understand how cognitive complaints manifest in real-world situations. The CoCo-P uses a four-point scale for responses, ranging from

"independently without effort", "independently with effort", "help needed" to "impossible to accomplish" (Spreij et al., 2019). This allows a precise measure of cognitive complaints effect on a person's participation.

Additionally, two scales measuring Anxiety and Depression, each containing 7 items respectively, were included in the CoCo-P Inventory. These scales help assess symptom levels in relation to daily life activities. Responses to these scales were coded on a 0-3 scale to objectively measure symptom severity. Participants were instructed to recall their mood from the previous week and to respond with their first impression or thought about their mood, without refelctiong extensively on their answers.

The inventory was structured as a survey using Qualtrics software. Data collection occurred over a period of six months.

Demographic Summary	
Variable	**Value**
Age	
Mean ± SD	76.9 ± 7.5
Gender	
Male	30.2%
Female	69.8%
Education Level	
Low	76.7%
Moderate	20.9%
High	2.3%
Province	
Azuay	2.3%
Pichincha	97.7%

Table 1 – Demographic Summary

Procedure

The study commenced following ethics approval from the USFQ Committee of Ethical Research in Human Beings (USFQ-CEISH), which authorized the research beginning on March 12th, 2024. Data collection occurred in two phases: an initial phase from March 12th to April 24th, 2024, and a second phase from November 11th, 2024, to April 23rd, 2025. As the study was originally planned to conclude on March 12th, 2025, an amendment was submitted to the USFQ-CEISH requesting a time extension to August 31st, 2025. Research activities continued after this amendment was approved.

Participant recruitment employed two strategies. First, elderly individuals were recruited from senior centers, where investigators conducted in-person interviews to minimize errors and ensure accurate data collection. Second, additional participants were recruited using snowball sampling methods, with the survey being forwarded to potential participants. For these remotely recruited participants, assistance was provided either via telephone or through in-person visits by an investigator.

Prior to the administration of the CoCo-P Inventory, a cognitive status questioning protocol was implemented to verify the lucidity of participants and exclude the possibility of undiagnosed neurodegenerative impairment. This screening consisted of two fundamental orientation questions: spatial orientation ("Where are you?") and temporal orientation ("What day is today?"). These questions served as a basic cognitive screening measure to ensure that participants possessed adequate orientation and cognitive capacity to provide reliable responses on the inventory.

Following confirmation of appropriate cognitive status, the CoCo-P Inventory was administered to participants. It became apparent during initial data collection that many elderly participants found difficulties navigating the Qualtrics interface. Therefore, to mitigate potential technological barriers and ensure data quality, all participants were offered administration assistance. This assistance comprised an aloud reading of inventory items by a trained investigator, followed by the investigator's accurate documentation of participant's responses.

Statistical Analysis

The collected data underwent a comprehensive statistical analysis process to examine various aspects of cognitive complaints and their relationships with mental health variables. Initially, data quality assurement procedures were implemented, which involved identifying and removing outlier data that exhibited substantial deviation from central tendencies. This data refinement process was essential to ensure the integrity and reliability of subsequent analyses.

The analysis approach incorporated multiple methods to thoroughly examine cognitive complaints across different domains and activities. Cognitive complaints were analyzed and presented as percentages across three cognitive domains: attention, memory, and executive function. For each domain, results were categorized to reflect the absence of complaints, presence of complaints, or cases deemed not applicable. Furthermore, a hierarchical approach was employed to differentiate between levels of restrictions, dependence, and incapability according to a scale ranging from 0 to 4, providing a nuanced understanding of complaint severity.

Similarly, cognitive complaints were analyzed across various daily life activities, with results again presented as percentages reflecting the absence of complaints, presence of complaints, or non-applicable situations. This analysis maintained the same hierarchical differentiation between levels of restrictions, dependence, and incapability according to the 0-4 scale, allowing for consistent comparison across different functional domains.

Following the methodology established by Spreij et al., Total Complaints Scores were computed for the overall assessment, alongside specific Complaints Scores for each cognitive domain (Memory, Attention, and Executive Function). This approach facilitated quantitative comparison between domains and allowed for correlation analyses with other variables of interest.

The analysis also examined the subjective experience of fatigue associated with different daily activities. Average reported fatigue levels were computed for each daily life activity and comparatively analyzed to identify patterns in perceived exertion across different functional domains.

For the mental health components of the study, anxiety and depression scores were summed and subsequently categorized according to the guidelines provided in the Hospital Anxiety and Depression Scale manual. This standardized approach allowed for clinical interpretation of these psychological variables within established parameters.

Finally, to validate the inventory for use in the Ecuadorian elderly population, correlation analyses were conducted using Pearson's coefficient. These analyses meant finding correlations between Clinical Scores (anxiety and depression) and Complaints Scores, providing preliminary evidence for the construct validity of the CoCo-P inventory in this specific population and suggesting potential utility for

identifying psychological distress associated with cognitive complaints. All statistical analysis was conducted using R Studio 2024.04.2+764 Version.

RESULTS

Cognitive Complaints per Daily Life Activity

The analysis of cognitive complaints across various daily life activities revealed notable variations in reported difficulties. Work/Education emerged as the domain with the highest percentage of participants reporting complaints (55.9%), followed closely by Contact with family, friends and community (53.5%) and Family life (39.6%). Conversely, participants reported fewer cognitive complaints in activities related to Cooking (30.2%), Finance (21%), and Driving (16.3%) (cf. Table 2).

Complaints per Daily Life Activity						
Daily life activity	**N/A**	**No complaints**	**Complaints**	**Restricted**	**Dependent**	**Incapable**
Work	20.9%	23.3%	55.9%	34.9%	14%	7%
Leisure	0%	67.4%	32.6%	18.6%	9.3%	4.7%
Travel	4.7%	60.5%	34.9%	4.7%	27.9%	2.3%
Driving	41.9%	41.9%	16.3%	14%	2.3%	0%
Contact	0%	46.5%	53.5%	34.9%	11.6%	7%
Family	7%	53.5%	39.6%	25.6%	9.3%	4.7%
Medicine	4.7%	65.1%	30.3%	16.3%	9.3%	4.7%
Finance	2.3%	76.7%	21%	4.7%	14%	2.3%
Shopping	7%	62.8%	30.2%	11.6%	18.6%	0%
Cooking	37.2%	32.6%	30.3%	18.6%	7%	4.7%

Table 2 – Complaints per Daily Life Activity

Cognitive Complaints per Cognitive Domain

On average, 67.43% of participants reported at least one complaint across any cognitive domain, indicating a high prevalence of perceived cognitive difficulties in this

population. The analysis revealed distinct patterns in the severity of complaints across different cognitive domains. Participants tended to report a restricted level of complaint for activities involving Memory and Attention, suggesting moderate difficulties that did not substantially impair functioning. In contrast, activities requiring Executive Function were more likely to be reported with a dependent level of complaint (cf. Table 3).

Cognitive Complaints per Cognitive Domain					
Cognitive Domain	**No complaints**	**Complaints**	**Restricted**	**Dependent**	**Incapable**
Executive function	30.2%	69.8%	20.9%	34.9%	14%
Attention	32.6%	67.5%	39.5%	14%	14%
Memory	34.9%	65.1%	39.5%	16.3%	9.3%

Table 3 – Complaints per Cognitive Domain

Average level of fatigue per Daily Life Activity

Participants' reported levels of fatigue varied considerably across different daily activities, measured on a scale of 0-10. The highest levels of fatigue were found in Work activities (2.90), Travel (2.53), and Leisure activities (2.20). Interestingly, activities that might be expected to require significant cognitive resources, such as Driving (1.40), Finance (1.34), and Medicine (1.30), were associated with the lowest reported fatigue levels (cf. Table 4).

Complaints Scores

The analysis of complaints scores, which could range from 1-100, revealed relatively consistent levels of perceived difficulties across cognitive domains.

Executive Function received the highest average score (*M* = 10.17, *SD* = 13.43), while Memory received the slightly lower score (*M* = 9.62, *SD* = 11,65). Attention scores averaged *M* = 10,11 with *SD* = 11,33 .The average Global Score across all domains for the entire sample was *M* = 10.11 with *SD* =11,41. These findings suggest that while participants did report cognitive complaints, the overall severity of these complaints was relatively low within the possible range of scores.

Average Level of Fatigue per Daily Life Activity		
Daily life activity	**Mean**	**SD**
Work	2.90	2.82
Leisure	2.20	2.32
Travel	2.53	3.01
Driving	1.40	2.34
Contact	1.64	2.49
Family	1.41	2.33
Medicine	1.30	2.17
Finance	1.34	2.18
Shopping	1.57	2.39
Cooking	1.70	2.75

Table 4 - Average level of fatigue per Daily Life Activity

Distribution of Clinical Scores		
Score Category	**Depression (%)**	**Anxiety (%)**
Non-Cases	95.3%	69.8%
Doubtful Cases	2.3%	20.9%
Cases	2.3%	9.3%

Table 5 – Distribution of Clinical Scores

Frequency of Depression Cases and Axiety Cases (according to the HADS)

The Hospital Anxiety and Depression Scale (HADS) was used to assess the presence of anxiety and depression symptoms in the sample. According to the HADS manual criteria (Zigmond & Snaith, 1983), the majority of participants (69.8%) were classified as Non-Cases regarding Anxiety symptoms, while 20.9% were categorized as Doubtful Cases, and 9.3% met the criteria for Cases. The prevalence of depressive symptoms was notably lower, with 95.3% of participants classified as Non-Cases, 2.3% as Doubtful Cases, and only 2.3% meeting the criteria for Cases. These findings suggest that while anxiety symptoms were relatively common in this elderly sample, clinical levels of depression were quite rare.

Pearson Correlations between Anxiety, Depression and Complaints Scores

Depression scores showed stronger correlations with cognitive complaints than anxiety scores across all domains. Depression scores had low to moderate correlations with executive function ($r=0.44$, $p<0.01$), attention ($r=0.53$, $p<0.001$), and memory ($r=0.56$, $p<0.001$). Anxiety scores were low correlated with attention ($r=0.32$, $p<0.05$) and memory ($r=0.43$, $p<0.01$). The strongest correlation observed was between depression scores and memory complaints ($r=0.56$), while the weakest was between anxiety scores and executive function ($r=0.23$).

Correlations between Clinical Scores and Cognitive Complaint Scores			
r	**Executive Function**	**Attention**	**Memory**
Anxiety Score	0.23	0.32*	0.43**
Depression Score	0.44**	0.53***	0.56***

*p<0.05
**p<0.01
***p<0.001

Table 6 – Pearson's Correlations between Clinical Scores and Cognitive Complaints Scores

DISCUSSION

The present study aimed to validate the Cognitive Complaints and Participation (CoCo-P) inventory among Ecuadorian older adults. One notable characteristic of this sample was the high percentage of participants with low educational level, a deliberate sampling decision to minimize the potential confounding effect of education level on cognitive complaints. This approach is particularly relevant in the context of cognitive research, as educational level is strongly associated with cognitive reserve, which can delay the manifestation of cognitive complaint symptomatology (Stern, 2014). Individuals with higher education levels typically demonstrate greater cognitive reserve, potentially slowering early cognitive changes that might otherwise be reported as complaints.

The research interest in investigating cognitive complaints while minimizing cognitive reserve factors is especially pertinent in older adult populations. Although this study did not explicitly screen for cognitive reserve, the educational composition of the sample could reasonably be considered to represent a population with cognitive reserves relatively unaltered by scholarity levels. Any cognitive variations observed would more likely reflect normative age-related cognitive changes instead of educational advantages. This characteristic of this sample provides valuable insights into the natural progression of cognitive complaints in aging, unobscured by substantial educational influences.

When comparing our findings to those reported by Spreij et al. (2019), this study documented considerably higher percentages of cognitive complaints, both when measured per daily life activity and across cognitive domains. This discrepancy is plausibly attributed to the age difference between the samples—the participants of

this study were, on average, approximately 28 years older than those in Spreij's study. This observation aligns with established research indicating an increase in cognitive complaints with advancing age (Comijs et al., 2004), particularly after the age of 65 when age-related cognitive changes become more pronounced.

An interesting finding in the present study was that average fatigue levels did not vary significantly among participants. This homogeneity might be traced to diminished insight regarding performance, which is frequently observed in elderly populations. Research suggests that compared to older adults often demonstrate less awareness about their metacognitive functions younger cohorts (Castel et al., 2015). This reduced insight might lead to underreporting of fatigue experiences, despite the presence of objective cognitive challenges.

Additionally, the high percentage of non-cases for anxiety and depression in the sample leads discussion. While this might initially appear as a limitation in sample representativeness, research has consistently documented generational differences in mental health awareness and reporting. Studies have found that members of younger generations typically demonstrate greater insight into and willingness to acknowledge mental health concerns, particularly anxiety and depression, while elderly individuals (such as those in the present study) often exhibit less awareness of their mental health status (Kohls et al., 2016). This generational difference in mental health perception could explain the low reported rates of anxiety and depression in our sample.

This generational gap in mental health awareness might also account for the generally low fatigue levels reported by participants. Older adults may have insufficient awareness and perception of their mental fatigue, consistent with

research showing that elderly individuals often normalize or attribute fatigue symptoms to aging rather than recognizing them as distinct conditions warranting attention (Egerton, 2013). This normalization process can lead to systematic underreporting of fatigue symptoms in elderly populations.

The low to moderate correlations found between clinical scores and complaint scores do not necessarily undermine the validity of the CoCo-P for the Ecuadorian population over 65 years. Several factors could explain these modest correlations. Notably, the Hospital Anxiety and Depression Scale (HADS) used in this study has not been specifically validated for healthy elderly samples. Other research has suggested that the cut-off values for this instrument may need recalibration, as the current thresholds lack established validity for elderly populations (Helvik et al., 2011). The scale's interpretation remains somewhat ambiguous, and the percentages of cases, doubtful cases, and non-cases can vary considerably depending on cut-off criteria employed.

Moreover, the relationship between subjective cognitive complaints and objective clinical measures is complex and often indirect. Research has shown that cognitive complaints may be influenced by numerous factors beyond cognitive impairment itself, including personality traits, cultural attitudes toward aging, and social expectations (Brigola et al., 2015). In Ecuadorian culture, resilience is a valued trait among older generations, potentially leading to underreporting of difficulties despite their presence. Additionally, the stigma associated with cognitive decline may influence reporting patterns in ways that attenuate correlations with clinical measures.

It is also worth considering that the CoCo-P was originally developed in a different cultural context, and despite careful translation and adaptation, subtle cultural nuances in how cognitive complaints are experienced and expressed may influence its performance in an Ecuadorian sample. Cultural differences in activity participation patterns, social roles of older adults, and expectations regarding cognitive aging could all contribute to the observed patterns of responses.

CONCLUSIONS

Despite the strengths and limitations discussed before, the present study provides valuable insights into cognitive complaints among Ecuadorian older adults with lower educational level. The high prevalence of complaints despite low reported anxiety, depression, and fatigue suggests that the CoCo-P may be capturing authentic cognitive concerns that are not merely manifestations of psychological distress or fatigue.

Future research is needed, sicne the incorporation of objective cognitive measures alongside the CoCo-P should be considered to better understand the relationship between subjective complaints and actual cognitive performance in this population. Additionally, developing and validating age-appropriate norms for psychological measures like the HADS specifically for Ecuadorian older adults would strengthen future validation studies. Longitudinal studies tracking the evolution of cognitive complaints in relation to objective cognitive decline would also enhance our understanding of the predictive validity of the CoCo-P in this population.

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