

Mindful Attention Awareness Scale (MAAS) in the Elderly: Systematic Review

Escala de Atenção Plena e Consciência (MAAS) em Idosos: Revisão Sistemática

Escala de Atención Plena y Conciencia (MAAS) en Personas Mayores: Revisión Sistemática

RESUMO

Objetivo: Esta revisão sistemática analisa a aplicabilidade prática da Escala de Atenção Plena em idosos. **Método:** Metodologia com base na estratégia PICO e uma busca abrangente em bases como PubMed, EMBASE e Scopus, sete estudos foram selecionados. **Resultados:** Esses estudos, realizados em contextos desde ambientes educacionais até atividades físicas e programas contemplativos, utilizaram a versão original em inglês da escala. Os resultados apontam alta consistência interna da escala, com valores de alfa de Cronbach entre 0,80 e 0,90. Além disso, uma tradução para o urdu demonstrou excelente confiabilidade (alfa de Cronbach de 0,97). **Conclusão:** A revisão destaca o desequilíbrio de gênero na pesquisa sobre atenção plena, a importância de considerar fatores de risco específicos por gênero e a resiliência como um processo dinâmico no envelhecimento. A escala mostra-se um instrumento confiável para avaliar mindfulness em idosos, reforçando a necessidade de mais estudos em contextos culturais e linguísticos diversos.

DESCRIPTORES: Idosos; Instrumento; Atenção plena; Escala; Revisão sistemática.

ABSTRACT

Objective: This systematic review evaluates the practical applicability of the Mindfulness Attention Awareness Scale in older adults. **Methods:** Following the PICO strategy, a comprehensive search was conducted in PubMed, EMBASE, and Scopus, resulting in the selection of seven studies. **Results:** The included studies applied the original English version of the scale in contexts such as educational programs, physical activities, and contemplative interventions. Findings demonstrated high internal consistency, with Cronbach's alpha ranging from 0.80 to 0.90. One study using a translated Urdu version reported excellent reliability (Cronbach's alpha = 0.97). **Conclusion:** The review identifies a gender imbalance in mindfulness research and emphasizes the need to consider gender-specific risk factors and resilience as a dynamic aging process. The MAAS appears to be a reliable tool for assessing mindfulness in older populations, underscoring the importance of further validation in culturally and linguistically diverse settings.

DESCRIPTORS: Older adults; Instrument; Mindfulness; Scale; Systematic review

RESUMEN

Objetivo: Esta revisión sistemática evalúa la aplicabilidad práctica de la Escala de Atención Plena en personas mayores. **Métodos:** Siguiendo la estrategia PICO, se realizó una búsqueda exhaustiva en PubMed, EMBASE y Scopus, seleccionando siete estudios. **Resultados:** Los estudios incluidos utilizaron la versión original en inglés de la escala en contextos como programas educativos, actividades físicas e intervenciones contemplativas. Los resultados mostraron una alta consistencia interna, con valores de alfa de Cronbach entre 0,80 y 0,90. Una versión traducida al urdu presentó excelente fiabilidad (alfa de Cronbach = 0,97). **Conclusión:** La revisión revela un desequilibrio de género en la investigación sobre atención plena y destaca la importancia de considerar factores de riesgo específicos por género y la resiliencia como un proceso dinámico en el envejecimiento. La MAAS es una herramienta confiable para evaluar mindfulness en adultos mayores, resaltando la necesidad de más estudios en contextos culturales diversos.

DESCRIPTORES: Personas mayores; Instrumento; Atención plena; Escala; Revisión sistemática

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Systematic Review

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INTRODUCTION

The United Nations defines elderly people as someone over 60 years old. The World Health Organization (WHO) defines the elderly as 65 years or older.⁽¹⁾

Well-being among the elderly denotes a rising area of study. In 2019, there were 1 billion people aged 60 and over worldwide, by 2030 it is expected to rise to 1.4 billion, and by 2050 this population will almost double from 12 to 22%, with 2.1 billion elderly worldwide.⁽¹⁻³⁾ This number increase is unprecedented and not slowing. Moreover, declining mortality rates are influencing the increase in life expectancy.⁽¹⁾

Decreases in executive function in late life may have several detrimental effects. Generally elderly suffer from various chronic diseases at once, such as diabetes, hypertension, cognitive decline, and joint diseases inter alia, that affect their quality of life.⁽³⁾

Aging itself is considered a chal-

lenging experience on account of its physical, mental and social functioning.⁽⁴⁾ Likewise, it is also a social construct based on custom, practice, and perceptions of the roles people play in their communities that could impact the person who is living this stage of life.⁽²⁾

A positive emotional state contributes to better self-confidence and stronger physical functioning, and these factors promote a welfare state. Furthermore, the regulation of emotions is a protection factor that positively impacts cognitive function in the elderly against decreasing functional decline.⁽⁵⁾ In addition, aging affects further attention demands in association with cognitive functions that interfere with physical activity engagement.⁽⁵⁾

In this regard, among copy strategies that are adopted to deal with these factors in the elderly, studies have demonstrated that mindfulness is positively related to vitality as a marker of welfare.⁽⁶⁾

The ability to be mindful allows the elderly to be in the present to experience daily events. This behavior improves cognition and remains the balance between existential reality and psychological reality in the elderly. Moreover, it is allowed through improving the level of attention.⁽⁵⁾

There are numerous tools for assessing physical, sociological, and psychological health that embrace mindfulness. The MASS is one of the most widely used tools for simultaneously evaluating the cognitive, emotional, physical, interpersonal, and general domains of mindfulness.^(2, 7) The mood impact associated with the lack of attention requires more studies with the elderly.

OBJECTIVES

The aim of the present study was to conduct a systematic review to identify the practical applicability of the MASS in elderly attention awareness.

MATERIALS AND METHODS

Design

To ensure rigorous methodological quality and scientific relevance, this systematic review was developed following the recommendations of the Items of Preferential Reports for Systematic Review and Meta-Analysis - PRISMA.⁽⁸⁾

The systematic review question was constructed using the PICO, Patient, Intervention, Comparison, and Results strategy. This study seeks to answer the following question: what is the use (Co) of the MASS scale (I) in the elderly (P)?

This systematic review was carried out based on seven steps: (1) formulation of the question, (2) location and selection of studies (3) critical evaluation of studies (4) data collection, (5) analysis and presentation of data, (6) interpretation of data and (7) improvement and updating of the review.

Eligibility criteria

The full-text search was conducted with a health sciences librarian to identify search terms and databases that best address our systematic review question. It included studies published without time limitations regarding the year of publication on the evaluation of the results of MASS in elderly over 60 years of age. Literature reviews and reports of professional experience were excluded. The articles were identified through searches in the electronic databases PubMed, EMBASE, and Scopus.

Search strategy

The searches were carried out during the period from December to January 2024. The systematic review search strategy included the terms "Aged" OR "Elderly" in combination with the term "Mindfulness" OR "Mindful Attention Awareness Scale" AND "Scale". The articles were ini-

tially identified through a search in PubMed (<http://www.pubmed.gov>) using the following combination of words: "Elderly" AND "Mindfulness" AND "Scale", which identified 1079 studies. Afterward, bibliographic searches were performed in the EMBASE database, using the combination of words: "Aged" AND "Mindful Attention Awareness Scale", which identified 133 articles, and in the Scopus using the following combination of words: "Elderly" AND "mindful" AND "attention" AND "awareness" AND "scale", which identified 537 articles. As such, 1749 studies were identified for critical analysis.

In this systematic review, we observed that there were enforced different methodologies in the studies the articles found. Two reviewers separately evaluated the bias risk in the added studies.

Selection process

In this present systematic review it was observed that there were enforced different methodologies in the studies the articles found. Two reviewers separately evaluated the bias risk in the added studies. Studies were evaluated for bias using the Joanna Briggs Institute (JBI) Critical Appraisal Tool.⁽⁹⁾ The assessment of methodological quality was conducted based on the following criteria: reasonable quality, denoting less than 40% of the presented items; moderate quality, indicating coverage between 41 and 80% of the presented items; and good quality, signifying more than 80% of the presented items.

In the critical evaluation of the methodological quality of the two included randomized clinical trial articles, both adopted moderate quality.^(7,10) They were categorized as possessing a moderate risk of bias due to their failure to delineate the blinding procedures employed by the research team responsible for result analysis, lack of disclosure regarding whether individ-

uals administering the treatment were blinded to treatment assignments, absence of double-blinding, and insufficient documentation of losses encountered during the treatment process.

Data collection process

The database search resulted in 1749 articles and 210 duplicate studies, and 869 were retained for consideration. After a detailed evaluation of the titles, abstracts, and eligibility criteria, papers that did not include elderly over 60 years old or those that also evaluated a sample of people with different ages were excluded, because it was not possible to categorize the results of the MASS separately. There were 09 studies selected for a full-text review. Two studies were deleted because they were dissertations, resulting in 07 studies in this systematic review. Figure 1 identifies the search strategies to select the articles and demonstrates the rule-out criteria used in each step.

RESULTS

Seven studies were included in this review: 03 clinical trials, 02 descriptive studies, 01 cross-sectional study, and 01 pre-test-post-test design. All were published in English between 2015 and 2021. Two studies were conducted in the United States, while India, Pakistan, Canada, Australia, and Poland each contributed one study.

Regarding participant demographics, 05 studies (71%) included predominantly female samples, and one study consisted exclusively of women.⁽⁷⁾ Table 01 provides a summary of the studies, including author, country/language, research design, objectives, and population characteristics.

The studies were published across 07 journals: 04 in the health sciences field,^(5-6, 10-11) 02 in the mental health domain^(2, 7), and 01 in the field of nursing.⁽³⁾

The participants' ages ranged from

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60 to 89 years. Educational background was reported in 03 studies. Visser⁽⁶⁾ found an average education level of 16.35 years (SD = 2.78). In another study⁽³⁾, 42.9% of participants had a high school education, while 91.4% had completed post-secondary education in the study by Miller & Taylor-Piliae⁽¹¹⁾.

Recruitment settings varied: 03 studies recruited participants from community settings^(6, 10-11); 02 from healthcare centers^(3, 5); 01 from a nursing home⁽⁷⁾ and 01 from both community and nursing home populations⁽²⁾.

As for recruitment strategies, 04 studies (57%) used traditional methods such as newspaper ads, printed materials, and face-to-face invitations^(2-3, 6, 11). In 03 studies, digital means were employed, including emails, online advertisements, and forums^(5, 7, 10).

The Mindful Attention Awareness Scale (MAAS) was used across diverse contexts: educational settings⁽³⁾, physical activity interventions^(5, 11), and daily life experiences.⁽⁶⁾ It was also applied in meditative programs, such as Mindfulness-Based Cognitive Therapy (MBCT), as seen in the studies by Helmes & Ward⁽⁷⁾ and Mallya & Fiocco⁽¹⁰⁾.

Multiple studies utilized the original English version of the MAAS, reporting Cronbach's alpha values between 0.80 and 0.90, indicative of strong internal consistency and scale reliability across diverse research applications^(2-3, 5-7, 10-11). Notably, in a separate adaptation of the scale into Urdu, an Indo-Aryan language widely spoken in South Asia, the MAAS demonstrated even higher reliability, with a Cronbach's alpha of 0.97. This finding suggests that the Urdu version of the MAAS retains strong psychometric properties, making it a robust instrument for mindfulness research in that linguistic context.

Regarding the purpose of the MAAS application in this systematic review, Visser⁽⁶⁾ examined the relation

to mindfulness in sleep quality and vitality; Anandh⁽⁵⁾ explored the effects of exercise environment on mood effect and attention awareness; Naz⁽²⁾ investigated the relationship among mindfulness, religious, coping, and serenity; Miller & Taylor⁽¹¹⁾ compared cognitive process among elderly adult Tai Chi; Mallya & Fiocco⁽¹⁰⁾ evaluated the effectiveness of mindfulness on executive functions and memory; Gruszczyńska⁽³⁾ assessed the significance of psychological factors related to the adherence to medication recommendations, and finally Helmes & Bradley⁽⁷⁾ measured the effect of a mindfulness program on anxiety symptoms.

DISCUSSION

This systematic review was conducted to investigate the practical applicability of the MASS in elderly attention awareness. The literature search focused on the aims of the studies, the instrument's purpose, and the participants' location.

Concerning the constitution of the study samples, women were predominant. This finding corroborates studies involving the use of mindfulness in the elderly, such as that by Lenze⁽¹²⁾, in which 72.5% of participants were women, and the systematic review by Li & Bressington⁽¹³⁾ which found a woman sample of 65.3%. Furthermore, the predominance of this gender sample among elderly people in the studies corroborates with the United Nations report that points to the global predominance of 55.7% of women aged 65 or over in 2022, with this number being even higher in North America and Europe⁽¹⁴⁾.

The MASS scale has been implemented in a variety of contexts, including educational, physical activity, and daily life settings. Furthermore, its application extends to individuals participating in contemplative programs, such as Mindfulness-Based

Cognitive Therapy (MBCT), emphasizing the adaptability of the scale and the possibility of being used in different scenarios.⁽¹⁵⁾

Related to education, there was a prevalence of participants with a high level of education, however, only Gruszczyńska⁽³⁾ used this variable for analysis, finding no association between the aforementioned factor and mindfulness.^(3, 6, 11) In this regard, authors have been committed to investigating the use of mindfulness in educational environments.⁽¹⁶⁾ The relationship between levels of education and Mindfulness deserves attention, as interventions may need to be adapted to meet the needs of groups with different educational backgrounds. Ainsworth⁽¹⁷⁾ discuss tensions in mindfulness research and practice, including the need to balance accessibility with fidelity of core components. This suggests that mindfulness awareness and practices may need to be contextualized to align with participants' educational levels, potentially influencing their effectiveness.

The hypothesis is that individuals with a higher level of education may have a different inclination or ability to engage in mindfulness practices, which in turn could affect how interventions are designed and delivered to maximize benefits for all participants regardless of their educational background.⁽¹⁷⁾ However, a gap is identified in terms of revealing whether there is a relationship between educational level and the effects of mindfulness, therefore, it is suggested that future studies can consider this aspect in their analyses.

Shreds of evidence demonstrated the effect of mindfulness in elderly health promotion like a study carried out by Gruszczyńska⁽³⁾ in Poland that identified a higher level of conscious attention as a factor that favorably affected adherence to medication recommendations in a group of elderly examined. This finding is in line with

research that pointed out the role of self-awareness and other psychosocial factors in the treatment process as a fundamental aspect of the biopsychosocial model of health, that is, not only biological factors, but also psychological, emotional, and social impacts have an impact on human health and the treatment process.⁽¹⁸⁾ It is understood that future studies that evaluate aspects involving the implementation and adherence to different types of treatment, interventions, and/or health assessments should take into consideration more comprehensive constructs under the aegis of the biopsychosocial model, such as, for example, mindfulness.

Regarding the results of mindfulness on physical activities, a study conducted by Anandh⁽⁵⁾, identified that outdoor activities were more conducive to improving well-being at the expense of indoor activities, corroborating research that highlighted the type of environment chosen for practicing physical exercise on psychological well-being, a since the group that exercised outdoors had a lower perception of stress.

Furthermore, a study to verify the benefits of Tai Chi exercise on cognitive and physical performance showed an improvement in attention and disposition, in addition to better performance concerning safe driving.⁽¹¹⁾ In another study that verified the feasibility of mindfulness training combined with Tai Chi and explored its effect on patients with diabetic peripheral neuropathy, it was found that this combination increased the effect of Tai Chi training.⁽¹⁹⁾ Mindfulness can be influenced by physical activities, and performance in physical activities can be positively influenced by mindfulness practice. Therefore, it is suggested that future studies combine these constructs in the development of interventions to improve the well-being of individuals.

In general, the studies retrieved in

this review demonstrate the positive effect of mindfulness on aspects of participants' daily lives such as subjective vitality⁽⁶⁾, religious coping, serenity⁽²⁾, and improvements in levels of anxiety.⁽⁷⁾

In this way, an online experimental study carried out in the United States pointed out that there has been a lot of interest in the development of interventions based on mindfulness for the elderly, since there is evidence of the beneficial effects of mindfulness on several aspects, such as mood, self-efficacy, stress, cognitive and everyday life functions. Furthermore, he highlighted the use of MASS, emphasizing its ease of application and effectiveness in further elucidating the psychological characteristics that promote greater well-being and successful cognitive aging.⁽²⁰⁾

However, Mallya & Fiocco⁽¹⁰⁾ did not obtain this same result with their research in Canada. The study hypothesized that participants who completed the mindfulness intervention would achieve significant improvements in measures of executive function, episodic memory, mindfulness, mood, self-esteem, and quality of life. On the contrary, the results did not find clinically significant changes in any variable. The authors believe that this result is due to two main reasons, namely, the fact that the participants showed emotional well-being beforehand and the reduction in the time spent practicing mindfulness, considering that healthy elderly people may need more time to practice mindfulness. integrate the principles of intervention into your daily life.

In this review, most of the studies applied the MASS Scale in its original English version.^(3, 5-7, 10-11) The study developed by Gruszczyńska⁽³⁾ mentions adapting the scale to the Polish context, however, with reliability to be reproduced in people between 15 and 50 years old. In a study carried on in Australia, the authors justify the

frequent use of the MASS by providing a single score for the level of mindfulness.⁽²¹⁾ In India, another study mentions the possibility of using the MASS in a clinical and non-clinical context, with or without the presence of meditation practice, in addition, it refers to the use of the scale in different population groups globally and reiterates the stable structure unidimensional scale.⁽¹⁵⁾ In Canada, there is a validation study of the MASS scale for the cancer population with the justification that the MASS has only been formally validated in non-clinical populations (students and adults in general), however, there have not been changes to its content. In this sense, studies developed in the country that assess mindfulness either use the original version of the MASS⁽²²⁾ or developed and validated a different scale for such assessment.⁽²³⁾

Only the study carried out in Pakistan used an adapted version of the MASS), as well as another study developed in the country⁽²⁴⁾, it is understood that this use is justified because it is the population with the highest cultural and linguistic differences of the population which was validated.

We point out that several studies have employed this scale, demonstrating Cronbach's alpha values ranging from 0.80 to 0.90. This range indicates a high internal consistency among the scale items, validating its reliability and applicability across diverse research contexts.^(2-3, 5-7, 10-11) These studies collectively affirm the scale's utility in mindfulness research, utilizing the English version of the MAAS. However, for the current study, the MAAS was adapted into Urdu, an Indo-Aryan language widely spoken in South Asia. Remarkably, this South Asian version achieved a Cronbach's alpha of 0.97, surpassing the internal consistency coefficients found in the English versions and demonstrating exceptional reliability in the Urdu adaptation of the scale.

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This finding suggests that the Urdu translation of the MAAS retains its psychometric properties, providing a reliable tool for mindfulness studies in this linguistic context.

In this sense, it is noteworthy that the cultural adaptation of the Mindfulness Awareness Stress Scale (MASS) in diverse populations is crucial to guarantee its effectiveness and relevance in global contexts. Watson-Singleton⁽²⁵⁾ showed the need for culturally responsive Mindfulness-based interventions, proposing modifications that include the use of African American facilitators and the incorporation of cultural values. This study highlights the importance of adapting the MASS to reflect cultural specificities, which can not only improve the accessibility and uptake of these interventions but also significantly influence the interpretation of results and the conclusions derived.

CONCLUSION

The MAAS emerges as a pivotal tool in the assessment of mindfulness in elderly showcasing its adaptability and effectiveness in various environments. Despite encountering certain

limitations, our analysis underscores the pivotal role of mindfulness research within this demographic. It brings to light the imperative for future investigations to embrace more inclusive sample sizes and to consider cultural variances more deeply.

Methodological considerations

1. Broader Representation: Future studies should aim for more inclusive sample representations concerning gender, educational levels, and socio-cultural backgrounds within the elderly population.
2. Educational Influence: There's a need to explore how educational levels impact mindfulness, taking into account socio-economic and cultural factors.
3. Cultural Adaptations: Efforts should be made to adapt and validate the MAAS for diverse cultural contexts, ensuring its applicability and relevance across different settings.
4. Contextual Utility: The utility of the MAAS should be further explored in various contexts, particularly in interventions aimed at enhancing mental health and well-being among the elderly.

Contributions of this Review

This systematic review provides a comprehensive analysis of the MAAS's applicability in assessing mindfulness in the elderly. The findings enrich clinical practice and future research, offering valuable insights into the scale's use across different contexts and populations. By highlighting the MAAS's significance, this review paves the way for enhanced mindfulness practices among the elderly, fostering better mental health and overall well-being.

Disclosure statement

The authors declare that they have no competing interests.

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Data availability statement

The datasets generated and analyzed during the present study are available from the corresponding author on request.

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