



Combating social determinants with collective weapons: Social identities and health inequalities in Portuguese Veterans

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ABSTRACT

Introduction: Exposure to traumatic experiences during military service can result in different psychological and social consequences for individuals and their close social networks. This study aims to contribute to a psychosocial understanding of these phenomena by examining whether the relationship between perceived socio-economic status and the health of Veterans is moderated by participation in Veterans' associations, as well as whether this moderation effect is moderated by the level of identification with the military group. **Methods:** A total of 480 Portuguese Veterans ($M_{age} = 73.24$; $SD = 3.74$) completed validated measures of perceived socio-economic status, physical and mental health, identification with the military, and participation in Veterans' associations. **Results:** The results show that Veterans facing greater economic vulnerability report poorer health outcomes. However, those who are members of Veterans' associations, particularly those with a strong identification with the military, report better health despite their socio-economic vulnerability. **Discussion:** Overall, this study highlights the importance of Veterans' associations as identity-based support networks that can promote the health and well-being of military Veterans.

Key words: physical and mental health, social identity, socio-economic status, Veterans, Veterans' associations

RÉSUMÉ

Introduction : L'exposition à des expériences traumatiques pendant le service militaire peut avoir des conséquences psychologiques et sociales différentes selon les diverses personnes et leurs réseaux sociaux proches. Cette étude vise à mieux comprendre ces phénomènes sur le plan psychologique par l'examen des relations entre la perception de la situation socioéconomique et la santé des vétérans, qui est modérée par la fréquentation des associations de vétérans. Elle évalue aussi si cet effet de modulation est relativisé par le degré d'identification au groupe militaire. **Méthodologie :** Au total, 480 vétérans portugais. ($M_{age} = 73,24$; $ET = 3,74$) ont fourni des mesures validées de la perception de leur situation socioéconomique, de leur santé physique et mentale, de leur identification aux Forces armées et de leur fréquentation des associations de vétérans. **Résultats :** Les résultats révèlent que les vétérans plus vulnérables sur le plan économique déclarent de moins bons résultats cliniques. Cependant, ceux et celles qui sont membres d'associations de vétérans, notamment lorsqu'ils ou elles s'identifient fortement aux Forces armées, déclarent être en meilleure santé malgré leur vulnérabilité socioéconomique. **Discussion :** Dans l'ensemble, cette étude fait ressortir l'importance des associations de vétérans pour renforcer l'identité et promouvoir la santé et le bien-être des militaires vétérans.

Mots-clés : association de vétérans, identité sociale, santé physique et mentale, situation socioéconomique, vétérans

LAY SUMMARY

Exposure to traumatic experiences during military service can lead to various psychological and social effects for Veterans and their close social networks. This study aims to better understand how Veterans' health is related to their economic situation and whether participating in Veterans' associations can make a difference for their health status. We also examine whether the benefits of these associations are stronger for those with a strong identification with the military. The results show that Portuguese Colonial War Veterans facing greater economic vulnerability tended to report poorer health outcomes. However, members of Veterans' associations, particularly those with a strong identification with the military, tended to report better health despite their socio-economic vulnerability. Overall, the findings highlight the important role of Veterans' associations as supportive communities that can help improve the health and well-being of military Veterans.

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INTRODUCTION

The Portuguese Colonial War (PCW), a military conflict that took place between 1961 and 1974, remains one of the most significant events in Portugal's recent history. Approximately 600,000 soldiers were mobilized, many involuntarily, to serve in the former colonies of Angola, Guinea-Bissau, and Mozambique in an effort to maintain colonial control.¹

During their deployment, PCW Veterans were often exposed to severe and prolonged stressors, including witnessing deaths, suffering injuries, surviving attacks, or participating in violent acts.^{2,3} These traumatic experiences, combined with the challenges of post-war reintegration into civilian life, have had lasting effects on Veterans' physical and psychological health.⁴ Posttraumatic stress disorder (PTSD), major depressive disorder, and generalized anxiety disorder are among the most common conditions identified in this population.⁴

Although extensive research has documented the long-term effects of combat exposure, particularly regarding PTSD and depression, most studies have focused on the individual level. This approach tends to treat the Veteran as an isolated patient and overlooks the broader social context in which health and illness are embedded. As a result, the role of social factors in shaping health outcomes remains quite underexplored.

The present study seeks to fill this gap by adopting a psychosocial approach to Veterans' health. Specifically, it examines the role of social determinants (i.e., socio-economic status, participation in Veterans' associations, and identification with the military) in shaping the health outcomes of PCW Veterans.

Social determinants of health

We often encounter messages that emphasize the importance of individual lifestyle choices in shaping health outcomes. For example, diets that include daily fruit and vegetable consumption are known to prevent serious diseases,⁵ and regular exercise promotes better cardiovascular health.⁶ While these behaviours are indeed important, focusing exclusively on the individual tends to neglect another crucial dimension: the social determinants of health (SDH).

A large and compelling body of evidence has accumulated, particularly since the 1990s, that demonstrates the significant role of social factors in shaping health outcomes across a range of indicators and populations. SDH refers to non-medical factors that influence health outcomes, including the environments in which people

are born, grow, live, work, and age, as well as the broader systems and structures that influence these conditions.⁷ In this way, SDH includes both tangible elements, such as access to health care, education, food, and housing, as well as more intangible ones, such as socio-economic status, social norms, and opportunities for participation.

Among these elements, socio-economic status, which is often measured through education or income, is central to explaining health inequalities: disadvantaged groups tend to experience worse health outcomes.⁸ For instance, longitudinal research with older Portuguese individuals shows that lower income and education levels are associated with poorer well-being.⁹ Moreover, reports from the Commission on Social Determinants of Health¹⁰ reveal that life expectancy varies significantly depending on where one is born, the neighbourhood in which one lives, or the family context in which one is raised. Simply put, people from more privileged backgrounds tend to live longer and healthier lives than those from disadvantaged backgrounds.

Social determinants of health among Veterans

Although well established in the general population, the impact of SDH on Veterans remains underexplored. This gap is particularly relevant because Veterans are often exposed to cumulative risks, both during military service and throughout their reintegration into civilian life.

Recent studies have shown that unemployment,¹¹ housing instability,¹² discrimination,¹³ and low levels of social support¹⁴ are associated with more severe PTSD and depressive symptoms in Veteran populations. Other factors such as rural location, trauma exposure, sexual orientation, and gender identity may also be relevant, although findings in these areas are often inconsistent.¹⁵ Most of these studies have focused on classic socio-demographic and individual characteristics, but a few have examined the role of group membership and social identification in this context. In fact, growing evidence is showing that interpersonal and collective processes, such as social support and identification with significant social groups, play a central role in the development and persistence of PTSD, depression, and other trauma-related disorders.¹⁶

Social identity approach to health

According to social identity theory,¹⁷ people derive part of their self-concept from the social groups to which they belong. These identities provide not only a sense of belonging but also a framework for understanding

the world. The social identity approach to health¹⁸ emphasizes the importance of social identities in promoting psychological well-being, particularly in times of adversity.¹⁹ While group memberships can increase exposure to trauma, they can also offer access to social resources, such as a sense of belonging, emotional support, solidarity, and shared meaning, all of which help individuals recover and adapt after trauma.²⁰

Research consistently shows that participation in shared groups is associated with lower levels of depression, greater overall well-being, and fewer symptoms of PTSD.²¹ These benefits are often attributed to the sense of being understood and supported by others who share the same identity.¹⁸ In this way, social identity, which is defined as “the part of the self-concept derived from membership in a social group, along with the emotional significance attached to that membership,”^{22(p. 255)} represents a shift from “I” to “we.”

For military Veterans, trauma is often experienced in group settings, which makes social identity particularly meaningful. The social identity model of traumatic identity change (SIMTIC),²³ which is built on the broader social identity model of identity change (SIMIC),^{24,25} explains how social factors influence adjustment after trauma. This model integrates the principles of social identity theory¹⁷ and self-categorization theory,¹⁹ highlighting that social identification can be both a protective and a risk factor.

On the one hand, there is growing evidence that identification with social groups can help protect and promote health — a phenomenon described as the “social cure.”^{20,21} According to this perspective, meaningful group memberships, such as participation in social, cultural, or community groups, serve as protective resources for the health and well-being of individuals by offering identity, purpose, and social support.¹⁸ On the other hand, social identity can also become a risk, negatively affecting health and well-being — a phenomenon that has been described as the “social curse.” This phenomenon may occur when individuals are unable to access support from valued groups (e.g., families or other social groups), when group membership is discontinued, when the group is stigmatized or devalued,^{26,27} or when identification centres mainly around shared trauma and suffering.²⁸ In such cases, instead of offering protection, group membership can reinforce feelings of exclusion and psychological distress.²⁰

The social cure approach¹⁸ has also become a particularly valuable framework for understanding how social

connectedness contributes to health and well-being in later life. Like other older adults, ageing Veterans face significant life transitions such as retirement, loss of loved ones, living alone, mobility limitations, financial concerns, cognitive impairment, and chronic illness,²⁹ all of which can result in social withdrawal, increased loneliness, depression, physical and mental health decline, and lower subjective well-being.³⁰ In the case of ageing Veterans, such transitions often intersect with a life history marked by cumulative exposure to stress and adversity, potentially increasing the clinical and social complexity associated with ageing.³¹

A growing body of evidence shows that older adults who maintain strong social connections and engage in group-based activities experience better physical and mental health,³² better subjective and social well-being,³³ lower functional limitations over time,³⁴ and even lower mortality rates.³⁵ Moreover, longitudinal research with older adults demonstrates that greater social participation positively impacts cognitive performance³⁶ and that those with higher levels of social orientation (i.e., individuals who maintain an active interest in relationships and prioritize social goals) experience slower and less steep terminal declines in well-being.³⁷

Moreover, recent scoping reviews^{31,38} highlight that programs promoting social reintegration, peer support, and group cohesion show particular promise in preventing mental and physical health deterioration, as well as in improving quality of life and well-being among ageing Veterans with PTSD.

Taken together, these findings suggest that social cohesion, mutual support, and a shared sense of purpose can help ageing Veterans to cope with the difficulties of post-military life.³⁹ Veterans’ associations are particularly important in this regard, as they can function as a social cure for Veterans by providing emotional and practical support, as well as creating spaces where military identity is recognized and validated. In these contexts, they may help Veterans reconnect with others, co-construct shared meanings around their experiences, and feel that their experiences are valued. This sense of belonging could contribute to reducing isolation, alleviating PTSD symptoms, and improving well-being, especially among those facing socio-economic challenges.

The present research

This study aimed to analyze the impact of social determinants on the health of PCW Veterans. To our knowledge, this is the first time that such an analysis has been

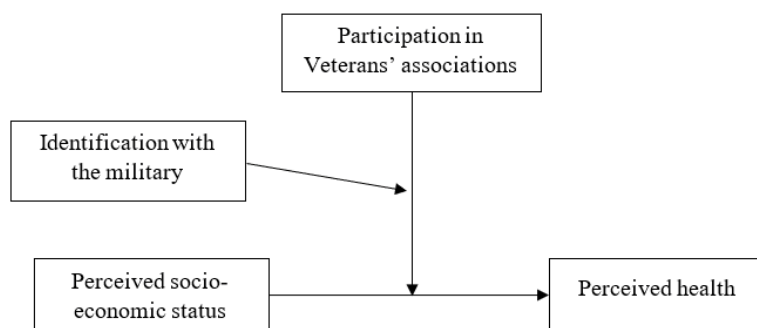


Figure 1. Conceptual model of the study

conducted in the Portuguese context, representing an important contribution. A psychosocial perspective was used to explore how participation in Veterans' associations and identification with the military may buffer the effects of perceived socio-economic status on health outcomes. Specifically, we examined a three-way interaction between perceived socio-economic status, participation in a Veterans' associations, and military identification (see Figure 1). We hypothesize that socio-economic status will impact the health of PCW Veterans (i.e., social determinants hypothesis) but that social identification with the military and participation in Veterans' associations will buffer the impact of socio-economic status on health (i.e., social identity hypothesis).

METHODS

Participants

The sample of the present study was composed of 480 Portuguese Veterans aged between 67 and 91 years (Mean = 73.24; SD = 3.74); 100% were male. Most participants were married (83.7%) and had children (96.9%), were retired (92.9%), and had completed education up to the ninth grade (70%). At the time of the study, 93.5% lived in their own homes and 87.8% lived with someone. Participants were from all regions of Portugal, with the majority residing in the northern (40.1%) and central (28%) parts of the country. Most participants served in the army (88.2%) and did not report any military-related disability (90.5%). Furthermore, 38.5% were members of a Veterans' associations, 32.1% were members of a recreational, cultural, or sports association, and only 2.4% were part of the Portuguese National Support Network. Overall, this sample can be characterized as elderly but still relatively independent. Inclusion criteria included any Portuguese Veteran who had served on active duty between 1961

and 1974 (the years of the PCW), regardless of military branch. Table 1 presents descriptive statistics for socio-demographic variables.

Measures

All measures were carefully reviewed by experts to ensure accessibility and alignment with the age group and literacy of the target population (i.e., older adults with lower levels of formal education). The questionnaire was designed to be relatively short in order to encourage participation. For this reason, short versions of scales were chosen, but for increased reliability of the measures, composite variables were created.

Subjective socio-economic status: Perceived socio-economic status was assessed using two items. One question was adapted from the Survey of Health, Ageing and Retirement in Europe:⁴⁰ "How easy is it for your household to make ends meet to the end of the month?" Responses were rated on a 4-point scale ranging from 1 (extremely hard) to 4 (extremely easy). The other question focused on financial satisfaction: "How satisfied are you with your current economic status?" These responses were rated on a 4-point scale ranging from 1 (not at all satisfied) to 4 (totally satisfied).⁴¹ These two items, which were already used as indicators of subjective economic status in other studies,³² have been included in major surveys (e.g., SHARE, the European Social Survey) and frequently used in academic research. A composite variable was created joining the two items ($\alpha = 0.84$). Higher scores indicate better perceived economic situation.

Self-rated health: Perceived health was assessed using the 1-item measure:⁴² "How would you rate your general health?" Responses were rated on a 5-point scale ranging from 1 (very bad) to 5 (very good).

Table 1. Socio-demographic and military characteristics of the sample

	N = 480	%
Marital status		
Single	5	1.0
Married	401	83.7
Divorced	52	10.9
Widow	21	4.4
Descendants		
Yes	464	96.9
No	15	3.1
Education level		
Until the fourth grade	113	23.5
Fifth to ninth grade	179	37.4
Until the twelfth grade	111	23.2
Higher education	76	15.9
Occupational status		
Employed	34	7.1
Retired	443	92.9
Living situation		
Alone	58	12.2
Accompanied	417	87.8
Housing arrangement		
Own home	444	93.5
Family home	30	6.3
Senior residence	1	0.2
Area of residence		
North	189	40.1
Centre	132	28.0
Lisbon	77	16.3
South	61	13.0
Islands	12	2.6
Military branch		
Army	418	88.2
Air force	30	6.3
Navy	26	5.5
Disability associated with military personnel		
Yes	45	9.5
No	428	90.5
Participation in Veterans' associations		
Yes	183	38.5
No	292	61.5
Member of a recreational, cultural, or sports association		
Yes	140	32.1
No	296	67.9
Belongs to the Portuguese National Support Network		
Yes	11	2.4
No	452	97.6

Although self-rated health is a 1-item measure of a complex construct, it is widely used as a proxy for objective health outcomes that are more difficult to assess and is considered to reflect overall health in its broadest sense.⁴³ Importantly, it has demonstrated strong predictive validity for outcomes such as mortality,⁴⁴ functional decline,⁴⁵ and the onset of disability in older adults, even after accounting for multiple risk factors.

Other health-related variables: Additional health-related variables were included in the study to provide a more comprehensive assessment of Veterans' health status. One item was included to strengthen the physical health dimension: "Do you have any diagnosed physical condition?" Response were on a binary scale of "Yes" or "No." The mental health component was introduced with one question referring to the formal diagnosis of PTSD by the military health services: "Do you have a chronic psychological disorder resulting from exposure to traumatic stressors due to military service?" Responses to this question were also on a binary scale of "Yes" or "No." To capture the impact of these physical and emotional difficulties on daily life, an item adapted from the Health-Related Quality of Life scale⁴⁶ was included: "To what extent do your physical health or emotional problems limit your daily activities?" Responses were given on a 4-point scale, ranging from 1 (never) to 4 (always).

Identification with the military: Identification with the Portuguese Armed Forces was assessed with a previously validated 2-item measure: "Thinking about your connection to the Portuguese Armed Forces, to what extent are you proud to belong to the group of Veterans?" and "Thinking about your connection to the Portuguese Armed Forces, to what extent are you proud to belong to your battalion?"⁴⁷ This measure has been increasingly used in research on social identification, as it has demonstrated satisfactory validity and reliability across different groups and contexts.⁴⁸ Responses were given on a 4-point scale ranging from 1 (not at all) to 4 (very much). A composite variable was created based on these two items ($\alpha = 0.82$), with higher scores indicating stronger identification with the Portuguese Armed Forces.

Procedure

This study was carried out in accordance with the recommendations of the Ethics Guidelines of the Scientific

Commission of the Research Centre, in which the study was conducted, and the Declaration of Helsinki.

An online survey was created using the Qualtrics platform (Qualtrics, Inc., Provo, UT). A non-probability convenience sampling method was used, recruiting participants through Portuguese Veterans' associations and Facebook groups. Although this recruitment method limits generalizability, it provided more direct access to the target population, especially since the study was developed during the COVID-19 pandemic (September 2020 to June 2021), a difficult period to access the study population, as older adults presented particularly increased health risks and isolation rates.

At the beginning of the survey, participants were informed that the study aimed to understand the current living situation of Portuguese Veterans. They were assured that the study would be non-invasive, would be done without physical, financial, social, legal, or other risks, and that the results would be analyzed anonymously. It was also explained that participants could withdraw from the study at any time by simply closing the browser, in which case their responses would not be recorded. After providing informed consent and agreeing to participate, participants were presented with the main measures. The questionnaire initially included demographic questions (e.g., year of birth, living area), followed by questions about perceived socio-economic status, physical and mental health, and identification with the military. Given the advanced age of the target population, close relatives or caregivers were allowed to respond on behalf of the Veterans.

After completion of the study, participants were thanked for their participation and informed about the purpose of the study. Contact details for the research team were provided for any questions or additional information. The average time to complete the survey was approximately 20 minutes.

Statistical Analysis

Statistical analyses were conducted using IBM SPSS Statistics, version 28 (IBM Inc., Armonk, NY). First, a descriptive analysis was performed to characterize the study population (see Table 1). Pearson correlations were subsequently calculated between all study variables (see Table 2). Then, χ^2 tests were created to examine inequalities in perceived health according to levels of perceived socio-economic status and education. To test the hypothesized moderation effect of socio-economic status on Veterans perceived health,

moderated by participation in a Veterans' associations and identification with the military, we used the PROCESS macro (Model 3, version 4.0), controlling for age and education (see Table 3 and Figure 2). The analysis was conducted with a 95% confidence level and 5,000 bootstrap resamples.

RESULTS

Results show that on average, Veterans reported a moderate level of satisfaction with their economic situation (Mean = 2.15; SD = 0.72) and perceived their health as good (Mean = 2.92; SD = 0.67). Furthermore, slightly more than half of Veterans (N = 246; 51.7%) reported having a diagnosed physical condition, while a smaller proportion reported suffering from a chronic psychological condition resulting from exposure to traumatic stressors during military service (N = 165; 34.9%).

The results showed clear inequalities in the prevalence of chronic psychological disorders related to

traumatic stress from military service. Veterans in more disadvantaged economic situations reported higher rates of chronic psychological disorders (43.3%) compared to those in more favourable situations (23.2%), $\chi^2(1, N = 473) = 20.35, p < 0.001$. A similar pattern was observed regarding education: Veterans with lower educational levels reported higher rates of chronic psychological disorders (39.7%) than those with higher educational levels (27.6%), $\chi^2(1, N = 472) = 7.31, p = 0.007$. These findings suggest that social vulnerability may approximately double the risk of experiencing chronic psychological disorders.

Moreover, Veterans reported that their physical or emotional difficulties often limited their daily activities (Mean = 2.54; SD = 0.83). This limitation was also related to socio-economic status: whereas 10% of Veterans in the more disadvantaged economic situations reported that their health problems always limited their activities of daily living, this was the case for only 5.5% of

Table 2. Descriptive statistics, bivariate correlations, and reliabilities

	Mean	SD	1	2	3	4
1. Perceived socio-economic status	2.15	0.72	(0.84)	—	—	—
2. Perceived health	2.92	0.67	0.36*	—	—	—
3. Identification with military	3.53	0.75	-0.03	0.08	(0.82)	—
4. Participation in Veterans' associations	1.61	0.49	-0.04	0.04	-0.06	—
5. Educational level	4.92	1.43	0.30*	0.19*	-0.02	0.04

* $p < 0.001$.

Table 3. Results of moderated moderation analysis

	B	SE	p	95% CI	
				Lower bound	Upper bound
Constant	3.43	0.58	<0.001	2.29	4.57
Perceived socio-economic status	0.30	0.04	<0.001	0.22	0.39
Participation in Veterans' associations	0.06	0.06	0.288	-0.05	0.18
Perceived socio-economic status * Participation in Veterans' associations	-0.05	0.08	0.576	-0.21	0.12
Identification with the military	0.07	0.04	0.067	-0.01	0.15
Perceived socio-economic status * Identification with military	-0.06	0.05	0.247	-0.17	0.04
Participation in Veterans' associations * Identification with military	0.16	0.08	0.061	-0.01	0.32
Perceived socio-economic status * Participation in Veterans' associations * Identification with military	-0.44	0.12	<0.001	-0.66	-0.21
Age	-0.10	0.01	0.215	-0.03	0.01
Education level	0.04	0.02	0.062	-0.00	0.08

Note: Participation in Veterans' associations was coded as 0 = no, 1 = yes.

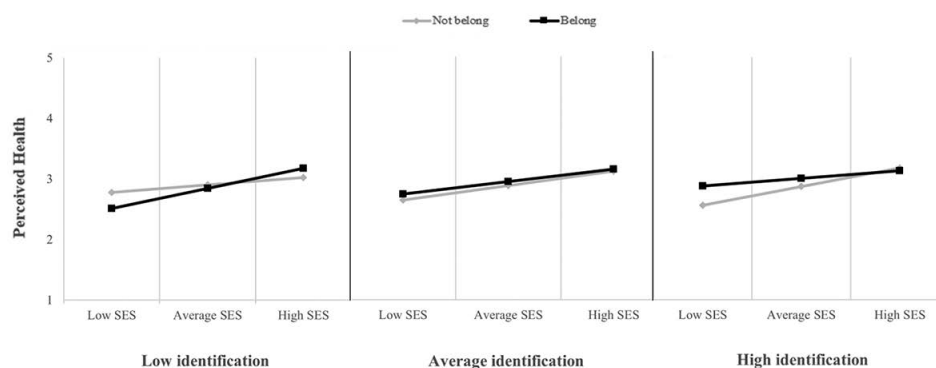


Figure 2. Triple interaction effect

those in the more favourable situations. Conversely, 7.5% of Veterans in the more favourable economic situations reported never feeling limited by their health condition, compared to 22.5% of those in the most disadvantaged economic situations, $\chi^2 (3, N = 479) = 25.51, p < 0.001$.

Veterans also reported a high level of identification with the military (Mean = 3.53; SD = 0.75). Most expressed strong pride in belonging to the Veteran group (67.9%) and in being part of their former battalion (69.7%).

To test Hypotheses 1 and 2, a moderated moderation analysis was conducted. The overall model was significant, $F(9, 446) = 11.34, p < 0.001, R^2 = 0.19$ (see Table 3). As expected, there was a main effect of perceived socio-economic status on perceived health, $B = 0.30, SE = 0.04, p < 0.001, 95\% CI, 0.22-0.39$, supporting Hypothesis 1. Specifically, Veterans in more favourable economic situations reported better perceived health. Moreover, the results showed a significant three-way interaction between perceived socio-economic status, participation in Veterans' associations, and military identification, $B = -0.44, p < 0.001, 95\% CI, -0.66$ to -0.21 , supporting Hypothesis 2. Specifically, participation in Veterans' associations buffered the negative impact of low socio-economic status on perceived health, especially among those with high levels of military identification (see Figure 2). These effects remained significant after controlling for age and education.

DISCUSSION

This study provides important evidence on the associations between social determinants and the health of PCW Veterans. As expected, our findings show that Veterans in more disadvantaged economic situations tend to report poorer health outcomes, supporting Hypothesis 1. This result aligns with previous research⁴⁹

by showing that income and education are important factors associated with health disparities in Veteran populations.

The study also offers novel insights into the potential protective role of social identity on Veterans' health. Specifically, Veterans who participate in Veterans' associations and who strongly identify with the military reported better perceived health outcomes, even when facing greater economic vulnerability, supporting Hypothesis 2. These findings support the social identity approach to health,^{18,24} which posits that a strong sense of group belonging can increase resilience, promote psychological well-being, and mitigate the effects of social stressors. Veterans' associations, in this context, may serve as meaningful social structures that provide recognition, validation, and solidarity based on shared lived experiences.

These structures are especially important for ageing Veterans who, like other older adults, face biological, psychological, and developmental changes associated with ageing, changes such as retirement, bereavement, increased health problems, living alone, and reduced autonomy.^{50,51} However, they may also experience additional and compounding stressors related to military service (e.g., difficulty reintegrating into civilian life, combat-related trauma, and loss of military camaraderie),^{52,53} the effects of which can persist well into older adulthood.⁵⁴ These challenges can exacerbate symptoms of PTSD and other service-related psychological conditions while simultaneously reducing opportunities for social interaction — and consequently, reducing risks of loneliness and social isolation — when compared with civilian populations.⁵⁵ As a result, there is a growing body of literature highlighting the importance of specialized approaches to address the need for social integration among military Veterans.⁵⁶

Consistent with socioemotional selectivity theory,⁵⁷ older adults tend to prioritize emotionally close, positive ties in later life. Close family connections, volunteering, and participation in community or peer-based groups have all been identified as protective against loneliness. In particular, peer-support programs that foster social reintegration and group cohesion represent a vital resource for this population.^{31,38}

Thus, by offering opportunities to share narratives, foster mutual support, and reconnect with a valued social identity, participation in Veterans' associations may be associated with lower social isolation and better reintegration into civilian life. Feeling understood by others who have faced similar challenges, particularly in contexts marked by trauma, stigma, or loss, may be essential for restoring psychological well-being and rebuilding identity.^{58,59} These psychosocial dynamics appear particularly relevant for Veterans in more disadvantaged economic situations who may lack access to other formal or informal support.

From a practical standpoint, the observed associations between participation in Veterans' associations, military identification, and Veterans' health have several important implications: Veterans who report lower levels of participation in Veterans' associations or weaker identification with the military also tend to report lower levels of well-being. In light of these findings, the present study reinforces the need for measures that address Veterans' concerns, not only in clinical or medical terms, but also in social and identity-based terms.

In this context, supporting and expanding the reach of Veterans' associations, particularly for those in economically disadvantaged situations, may represent a promising strategy to reduce health inequalities and promote sustained well-being among ageing Veterans.

Limitations

Despite the valuable contributions of this study, several limitations should be acknowledged. First, the cross-sectional nature of the study prevents conclusions about causal relationships among variables. Future longitudinal and experimental research is needed to clarify the direction of the observed associations.

A second limitation concerns the convenience nature of our sample. Although the sample was relatively large, participants were recruited primarily through Portuguese Veterans' associations and online platforms, a factor which likely limits the representativeness of the sample for the broader Veteran

population in Portugal or globally. This recruitment method was motivated by the challenges of accessing Veterans, particularly during the COVID-19 pandemic. However, it is possible that most of the sample was constituted by Veterans from these associations, and particularly by those who identified strongly with the military, potentially underestimating the negative health outcomes among those less identified. Moreover, the COVID-19 pandemic itself posed an additional stressor, potentially exacerbating vulnerabilities related to physical and mental health of Veterans, who had already been shown to be at increased risk of adverse mental health outcomes, including heightened PTSD symptoms, loneliness, and difficulties in accessing health services.^{60,61} Furthermore, the sample was predominantly composed of autonomous Veterans living independently, married, with children, and likely having higher educational attainment than the overall Portuguese Veteran population. Consequently, institutionalized, widowed, or dependent Veterans may experience worse health outcomes than those observed in this study. Moreover, our sample consisted exclusively of Portuguese male Veterans, reflecting the historical reality of the Portuguese Colonial War, in which military conscription applied only to men, with women participating in very specific and exceptional support roles (e.g., nurses).⁶² This limits the generalizability of our findings to contemporary Veteran populations that include women. Future research should aim to recruit more gender-diverse samples and expand representativeness across other sub-groups and countries. Additionally, the use of online surveys introduces the possibility of fraudulent or inattentive responses, which could affect the reliability of the data. To mitigate the risk of fraudulent or inattentive responses, we monitored response times, excluded incomplete surveys, and cross-checked inconsistencies in the data set.

A third limitation relates to the fact that some constructs were assessed using very few items. This was done to minimize the length of the survey and increase participation and completion. Nevertheless, the internal consistency of the scales for socio-economic status and identification with the Portuguese Armed Forces was very good, supporting their adequacy. Furthermore, the self-rated health construct was assessed using a 1-item measure. This is unlikely to be problematic, as the item has been extensively validated in previous research and is considered a reliable proxy for broader health assessments.

Finally, data were collected through participants' self-reports, which may have led to an overestimation of the associations due to shared method variance.

Nonetheless, this study provides an important starting point for further research into the SDH among Veterans across diverse countries and contexts (e.g., Veterans living in institutional care), as well as military personnel deployed in peacekeeping, combat, or humanitarian missions. Future research could also explore whether other social groups, such as family, recreational, cultural, or sports groups, provide similar protective effects.

Conclusion

To the best of our knowledge, this is the first study to examine the impact of social determinants on the health of PCW Veterans. This study highlights the importance of Veterans' associations as identity-based support networks that can help promote their health and well-being. Indeed, our findings revealed that being a member of Veterans' associations makes a difference in the perceived health status of the most economically vulnerable Veterans, particularly when they have a strong identification with the military. We hope that these results provide both theoretical and practical insights to inform the development of policies and interventions aimed at reducing health disparities and enhancing support for ageing Veterans. Additionally, we hope that they will inform future research on identity-based support networks across different operational and cultural contexts, considering the increasing prevalence of continuous wars and protracted armed conflicts worldwide.

AUTHOR INFORMATION

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COMPETING INTERESTS

The authors have nothing to disclose.

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ETHICS APPROVAL

This study was approved by the Iscte-IUL Psychology Ethics Committee, Lisbon, Portugal.

INFORMED CONSENT

N/A

REGISTRY AND REGISTRATION NO. OF THE STUDY/TRIAL

N/A

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PEER REVIEW

This manuscript has been peer reviewed.

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