Prediction of Resilience and Social Phobia in Veterans and Disabled Individuals Based on the Level of Physical Activity

Abstract

Aims: Veterans and Disabled Individuals frequently experience psychological challenges, which adversely affect their quality of life and social reintegration. Physical activity has been proposed as a non-pharmacological intervention to improve these mental health outcomes. This study aimed to investigate The Role of Physical Activity in Resilience and Social Phobia in Veterans and Disabled Individuals.

Methodology: The present study is descriptive-correlational. The statistical sample of the present study consisted of 91 male Veterans and Disabled Individuals who did not have any acute problems in terms of physical condition and appearance and were selected using the convenience sampling method. To measure the research variables, the Connor-Davidson's resilience, Connor et al.'s phobia, and Sarkey's physical activity questionnaires were used. Data were analyzed using multivariate regression test using SPSS 25 software.

Findings: The results revealed a significant correlation between physical activity and resilience ($p < 0.01$, $r = 0.28$), physical activity and social phobia ($p < 0.01$, $r = -0.39$), and resilience and social phobia ($p < 0.05$, $r = -0.25$). Furthermore, regression analyses indicated that physical activity accounted for approximately 16% of the variance in social phobia and 8% of the variance in resilience.

Conclusion: Given that physical activity has the ability to predict psychological variables of resilience and social phobia in veterans and the disabled, it seems that integrating exercise programs tailored to the needs of these individuals into rehabilitation services can improve mental health and facilitate return to society.

Keywords: Veterans, Physical Activity, Resilience, Social Phobia

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Introduction

Following the recent war, our country has seen a significant increase in the number of individuals with war-related disabilities. This group, which actively participated in daily life prior to the war, now faces challenges that prevent them from engaging in many of their former activities(1). Additionally, there are children, the elderly, and others who experience temporary disabilities due to various circumstances(1). Consequently, a substantial portion of our population consists of veterans and people with disabilities. Veterans and people with disabilities often encounter unique psychological and physical challenges, including exposure to traumatic events, physical injuries, and the stress of reintegrating into society(2). Among the most common psychological difficulties are resilience and social phobia, which affect approximately 20–30% of veterans and people with disabilities(3). These issues manifest in symptoms such as intrusive memories, hyperarousal, and emotional numbing, significantly impairing social functioning and overall quality of life(4). According to the American Psychological Association, resilience, also referred to as psychological resilience, is defined as "the process and outcome of successfully adapting to difficult or challenging life experiences, especially through mental, emotional, and behavioral flexibility and adjustment to external and internal demands"(5). Taylor et al. highlighted the significance of psychological resilience in later life among older male veterans, noting that those with higher levels of resilience may experience less functional impairment compared to their lower-resilience counterparts(6). In their review of resilience theories, Fletcher and Sarkar categorized various subareas of resilience, which included protective factors, coping strategies for stress and adversity, as well as motivational influences(7). Isaacs et al. conducted a prospective cohort analysis utilizing data from the National Health and Resilience in Veterans Study, revealing that a majority of veterans (67.7%) exhibited minimal to no current psychological distress and were classified as psychologically resilient(8).

Another common psychological difficulty is social phobia. Social phobia, characterized by an intense fear of being observed and evaluated by others during routine activities such as eating, drinking, or public speaking, affects a significant number of individuals(9). This disorder is marked by a persistent fear of one or more specific social and performance situations, leading individuals to feel that their actions are subject to scrutiny(9). With a prevalence rate of 13%, social phobia ranks as the third most common psychiatric disorder, following depression and alcohol dependence, highlighting the need for further investigation into its contributing factors(10).

Traditional therapeutic methods, including pharmacotherapy and cognitive-behavioral therapy (CBT), have proven effective in addressing these challenges(11). However, barriers such as limited accessibility, stigma, and inconsistent adherence rates necessitate the exploration of complementary or alternative interventions(11). In recent years, physical activity has emerged as a promising non-pharmacological strategy with the potential to enhance both physical and psychological outcomes for veterans(12). Exercise induces neurobiological changes, including reduced cortisol levels and increased release of endorphins and neurotrophic factors, which contribute to improved mood regulation and stress resilience(13). Furthermore, engaging in structured physical activities—especially in group settings—promotes social interaction, peer support, and a sense of accomplishment, all of which are vital for alleviating social anxiety and fostering self-esteem(14).

Research conducted by Samadi et al. examined the impact of sports activities on cognitive emotion regulation strategies, perceived psychological stress, and psychological hardiness among veterans and individuals with disabilities. Their findings indicated that veteran and disabled athletes experienced lower perceived stress and maladaptive emotion regulation strategies, alongside higher levels of psychological hardiness compared to non-athletes(12). Additionally, Parra et al demonstrated in their study that exercise and physical activities positively influence psychological well-being and mitigate medical disorders(15).

Despite the study of the benefits of physical activity (16), the impact of physical activity on important psychological variables, including resilience and social anxiety, has not yet been investigated among veterans and disabled individuals (16). Therefore, it is essential to examine the relationship between these variables.

This current study aims to address gaps in existing research by examining the relationship between physical activity and resilience variables and reducing social phobia among veterans and people with disabilities.

Understanding these relationships is crucial for developing tailored rehabilitation programs that meet the complex needs of veterans and people with disabilities, ultimately aiding their recovery and reintegration into society. Also, the research will provide empirical evidence to support the inclusion of physical activity in standard care practices for veterans and people with disabilities, contributing to better mental health outcomes and an improved quality of life.

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Materials and Methods

Study Design and Participants

The methodology used in this study was descriptive-correlational. The statistical population consisted of veterans and individuals with disabilities in Yazd Province in 2022-2023. A total of 91 participants (68 veterans and 23 individuals with disabilities) were selected using a convenience sampling method. The sample size was determined using G*Power software, with an effect size of 0.15, a Type I error rate of 0.05, and a statistical power of 0.95. After making the necessary arrangements with the provincial sports board for veterans and the disabled, the researchers attended the relevant centers and provided the necessary explanations on how to fill out the questionnaires for subjects. The inclusion criteria for the study included completing an informed consent form, not taking psychiatric medications, not having mental retardation, no severe inability to perform daily tasks, and not having very severe physical disorders (upper or lower limb amputation). The exclusion criteria for the study included unwillingness to fill out the questionnaires.

The research tools included the following:

Personal Characteristics Questionnaire: This questionnaire collected data on participants' age, height, weight, medical conditions, and types of physical issues.

Social Phobia Questionnaire: Developed by Connor et al, this questionnaire assesses social anxiety by measuring three clinical domains of social phobia: fear, avoidance, and physiological symptoms. Connor's Social Phobia Questionnaire is a self-report scale consisting of 17 items(19). The validity and reliability of this scale have been established in various studies. The reliability of the questionnaire in the study by Ghasemi et al. was obtained using Cronbach's alpha coefficient of 0.75(20).

Resilience Questionnaire: This instrument was developed by Connor and Davidson based on a review of resilience research literature from 1979 to 1991(21). The short version comprises 10 items from the Connor and Davidson Resilience Questionnaire, rated on a Likert scale ranging from zero (never) to five (almost always). Connor at al confirmed the convergent and divergent validity of the instrument, achieving a reliability coefficient of 0.87 through the test-retest method. The reliability of the questionnaire in the study by Tavan et al. was obtained using Cronbach's alpha coefficient of 0.73 (22).

Sharkey Physical Activity Questionnaire: The standardized Sharkey Physical Activity Questionnaire was employed to assess individuals' levels of physical activity (23). The questionnaire comprises five questions, structured and scored according to a Likert scale. Each question is assigned a score ranging from a minimum of 1 to a maximum of 5. The overall score for the questionnaire is calculated by summing the scores of the individual questions, resulting in a total score ranging from 5 to 25 for each participant. This questionnaire has been widely utilized in numerous studies (24).

Statistical analysis of data

Descriptive statistics, including the mean and standard deviation, were used to summarize the research variables and create tables. After verifying data normality, the information was analyzed using Pearson's correlation coefficient to assess the relationships between variables and multivariate regression to predict variables based on levels of physical activity. A significance level of $\alpha = 0.01$ was maintained for all statistical tests.

Findings

To check the normality of the data, the Kolmogorov-Smirnov test was used, which showed that all variables had a normal distribution. Consequently, Pearson's correlation coefficient was utilized to investigate the relationships between the variables. The findings showed a significant positive relationship between physical activity and resilience ($p < 0.01$, $r = 0.28$), as well as a significant negative relationship between physical activity and social phobia ($p < 0.01$, $r = -0.39$).

To investigate the possibility of predicting the variables of resilience and social anxiety based on physical activity level, multivariate regression was used. However, before using regression, the regression assumptions were tested in detail. The results of the multiple regression analysis are presented below.

Table 1. Regression analysis to predict the variables of resilience and social phobia of veterans and disabled people based on physical activity

Criterion Variable	Model	B	SE	Beta	T	Sig.	R	R^2	F	Sig.
Resilience	**Constant**	**53.05**	**2.67**		**19.88**	**0.001**	**0.28**	**0.08**	**7.35**	**0.008**
	Physical activity	0.4	0.15	0.28	2.71	0.008				
Social Anxiety	**Constant**	**35.35**	**1.29**		**27.33**	**0.001**	**-0.39**	**0.16**	**16.4**	**0.001**

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Physical activity	-0.29	0.07	-0.39	-4.05	0.001

As shown in Table 1, approximately 16% of the variance in social phobia and 8% of the variance in resilience is explained by the variable physical activity level. Examination of regression coefficients shows that physical activity levels with beta coefficients -0.۳۹ and ۰.۲۸ (p<0.01) have a significant contribution in predicting the variables of social phobia and resilience in veterans and disabled people. In other words, physical activity scores were significantly negatively predictive of social phobia (p < 0.01) and, conversely, were significantly positively predictive of resilience among veterans and people with disabilities (p < 0.01).

Discussion

Attention to psychological issues has consistently been a significant focus for researchers, resulting in extensive efforts to enhance psychological well-being. Recognizing the particular importance of these issues among veterans and disabled Individuals (12, 13,). This study aimed to predict social phobia and resilience in veteran and disabled populations based on levels of physical activity. The findings indicated that physical activity accounts for approximately 16% of the variance in social phobia and 8% of the variance in resilience.

Given the increasing prevalence of mental disorders, one area that has recently attracted attention for enhancing psychological well-being is the role of exercise and physical activity as a non-pharmacological treatment(3, 14). This approach has been shown to assist veterans and disabled Individuals by reducing stress, fear, and anxiety while also increasing self-confidence, self-esteem, self-belief, and, consequently, resilience. Engaging in physical activity can encourage individuals to connect with a network of complex social relationships, fostering the development of significant behaviors, attitudes, values, and representations that motivate, inspire, and cultivate a sense of community(25).

The present study provides compelling evidence for the beneficial impact of physical activity on enhancing resilience and reducing social phobia among veterans and disabled Individuals. Regression analyses revealed that physical activity significantly predicts resilience (β=0.28, p<0.01) and social phobia (β=−0.39, p<0.01), accounting for 8% and 16% of the variance in these psychological constructs, respectively. These findings align with prior research indicating that physical activity serves as a critical protective factor against the psychological consequences in veterans and people with disabilities (26, 27).

The positive correlations between physical activity (PA) and resilience are supported by established neurobiological and psychosocial mechanisms (28). Regular exercise enhances neuroplasticity by increasing levels of brain-derived neurotrophic factor (BDNF), which improves cognitive flexibility and stress adaptation—essential components of resilience(29, 30). A narrative review of extant studies provides encouraging evidence that exercise interventions alone or as an adjunct to standard treatment may positively impact PTSD symptoms. Potential mechanisms by which aerobic exercise could exert a positive impact in PTSD include exposure and desensitization to internal arousal cues, enhanced cognitive function, exercise-induced neuroplasticity, normalization of hypothalamic pituitary axis (HPA) function, and reductions in inflammatory markers(31). On a social level, group-based PA programs foster camaraderie and peer support, which are crucial for veterans and Disabled Individuals. For example, A study by Aghdasi et al. showed that Iranian veterans who participated in team sports reported stronger social networks and enhanced emotional stability compared to their sedentary peers(32).

The inverse relationship between PA and social phobia may stem from PA's ability to reduce avoidance behaviors(33). Veteran and Disabled Individuals with social phobia often exhibit heightened physiological reactivity in social situations, which PA can help mitigate by regulating cortisol and adrenaline levels(34). A 2021 meta-analysis of 15 studies published in PubMed found that veterans engaging in at least 150 minutes of moderate PA weekly reported 27% lower levels of social anxiety symptoms compared to their inactive peers(35). Furthermore, structured activities such as yoga and martial arts enhance mindfulness and self-efficacy, enabling veterans to reframe anxiety-inducing social interactions(18). For instance Research has shown that tai chi program resulted in a 41% reduction in social phobia severity among veterans, with effects maintained at a 6-month follow-up(36).

The relationship between physical activity, resilience, and social phobia in veterans and individuals with disabilities is supported by a growing body of research, though nuances exist in the mechanisms and population-specific outcomes. Studies consistently demonstrate that adaptive sports and regular physical

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activity correlate with reduced social phobia and enhanced resilience in these populations. For example, veterans participating in adaptive sports exhibit lower perceived stress, improved emotion regulation, and higher psychological hardiness compared to non-athletes(12). These benefits are linked to physiological mechanisms such as increased endorphin release and reduced cortisol levels, which mitigate stress responses. Also, social support gained through sports and exercise further reinforces resilience by fostering camaraderie and reducing isolation(4). However, the mediating role of social networks presents complexities. While larger social networks partially mediate the inverse relationship between resilience and social phobia in clinical groups, the diversity and activity levels of these networks show weaker associations(37). This suggests that the quality of social interactions (e.g., shared experiences in adaptive sports) may matter more than sheer.

Despite the above, key gaps remain in understanding longitudinal effects and optimal activity thresholds. Future research should explore whether sustained physical activity yields cumulative resilience benefits or primarily offers short-term symptom relief. Emerging evidence indicates a U-shaped relationship between exercise frequency and prevalent psychological challenges, such as resilience and the severity of social phobia symptoms(38). Moderate exercise (1–6 days per week) is associated with a reduction in symptoms, while daily intense exercise (7 days per week) correlates with an increase in re-experiencing symptoms. This may indicate physiological stress overload and insufficient recovery, emphasizing the need for personalized exercise prescriptions that effectively balance intensity, duration, and rest. Also, it should be noted that when comparing populations, conflicting findings may emerge. For example, studies of college students without disabilities show similar correlations between resilience and social phobia, but these results may not fully generalize to veterans or individuals with physical disabilities who face unique stressors (39, 40).

Limitations and Future Directions

The limitations of this study include its correlational and cross-sectional design, which restricts the ability to draw definitive conclusions. Additionally, the sample comprised only veterans and disabled individuals from Yazd province, and the convenience sampling method employed necessitates caution when generalizing the findings to other populations. Furthermore, the exclusive reliance on questionnaires and self-reports for data collection represents another limitation. Future research should also examine the relationship between other psychological constructs and physical activity.

Conclusion

This study contributes to the growing evidence demonstrating that physical activity serves as an effective strategy for enhancing resilience and mitigating social phobia among veterans and disabled individuals. By addressing both physiological factors (e.g., neuroendocrine regulation) and psychosocial aspects (e.g., social connectedness), physical activity offers a comprehensive approach to improving mental health outcomes within this population. It is imperative that clinicians and policymakers prioritize the development of accessible, veteran and disabled individuals-centered physical activity programs to promote psychological well-being and facilitate societal reintegration.

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