The relationship between self-efficacy with self-handicapping and tendency to addiction use in soldiers: The mediating role of personality dimensions

Abstract:

Objective: This study investigated the mediating role of personality dimensions in the relationship between self-efficacy and both self-handicapping and addiction tendency among soldiers. Understanding these psychological mechanisms is crucial for developing effective interventions in military populations.

Method: A descriptive correlational design and structural equation modeling were employed. The sample consisted of 400 conscript soldiers from the Law Enforcement Forces of Yazd in 2024. Participants completed standardized questionnaires measuring self-efficacy, self-handicapping, addiction tendency, and the Big Five personality traits. Data analysis was performed using SPSS and Smart-PLS software.

Results: Significant associations found between self-efficacy, personality dimensions, self-handicapping, and addiction tendency. Moreover, personality dimensions showed to mediate the effect of self-efficacy on both self-handicapping and addiction tendency.

Conclusion: The findings highlight the complex interplay between psychological self-beliefs and personality traits in shaping behavioral outcomes among soldiers. Interventions aimed at enhancing self-efficacy and addressing maladaptive personality traits may effectively reduce self-handicapping behaviors and addiction risks in military populations.

Keywords: Self Efficacy, five-factor model of personality, Self Handicapping, Tendency to addiction, Soldiers.

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Introduction

Military training and mandatory military service are recognized as inherently stressful environments for soldiers, particularly during the initial entry phase, thereby imposing significant pressure and responsibility upon them. Indeed, the conditions prevalent in military environments—such as prolonged separation from family, exposure to harsh environmental challenges, and pervasive feelings of loneliness—can significantly exacerbate psychological stress among soldiers [1]. studies indicate that exposure to harsh military conditions can precipitate substance abuse [2]. Furthermore, to cope with or escape these environments, individuals may develop a propensity for self-handicapping behaviors [3].

The transition from civilian life to military service necessitates substantial psychological adaptation, with its effects manifesting in multiple facets of young individuals' lives, notably in their experiences of being away from home and adjusting to novel environments [4]. Some soldiers deliberately mimic symptoms or feign illnesses to be deemed unfit for service, thereby avoiding the demands and constraints of the military environment [3]. Krala et al. identified self-handicapping as a fundamental strategy utilized by military personnel to navigate the challenges inherent in military service [5]. This phenomenon involves the intentional fabrication or exaggeration of mental and physical disorder symptoms to secure benefits, such as evading work or avoiding imprisonment [6]. Self-handicapping is effectively defined as the falsification or exaggeration of illnesses to achieve external benefits, such as escaping responsibilities and gaining attention [3, 7]. Studies reported that 42% of soldiers intend to leave the military due to emotional problems and may employ self-handicapping strategies [5]. Motives for self-handicapping include the desire for secondary gain, such as receiving medical benefits, and achieving early discharge [8]. These motivations typically fall into two categories: avoidance of discomfort and receipt of rewards [9]. Self-handicapping can manifest as either a personality trait or a temporary state, often characterized by deceptive behaviors [10]. Studies suggests that self-handicapping primarily stems from cognitive distortions, followed by perceptual biases, and significantly complicates the experience of military service [6].

Studies suggests that substance abuse is more prevalent among soldiers compared to the general population [2]. This propensity not only serves as a predictor of initial substance involvement but also constitutes a significant factor in predicting relapse among individuals with a history of substance abuse [11]. The tendency

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to addiction is influenced by individuals' beliefs and attitudes regarding substances, encompassing perceptions of their legality and associated harms [12]. This inclination often originates during adolescence and is linked to various adverse outcomes, including compromised health, unemployment, mental health disorders, suicidal tendencies, and diminished life expectancy [13]. Environmental factors, including the unique military environment, separation from family, and the pressures inherent in military life, can also elevate the likelihood of tendency to addiction [14].

Another crucial factor influencing soldiers' adjustment and responsiveness in the military environment is self-efficacy [15]. This concept pertains to an individual's confidence in their capacity to execute the necessary actions required to attain a specific goal [16]. According to Bandura's theory, self-efficacy arises from personal beliefs regarding one's ability to accomplish tasks, which are influenced by observing personal and others' successes, as well as verbal persuasion [17]. Self-efficacy is a multifaceted concept that is personal, situational, and culturally contingent, playing a pivotal role in behavior by predicting both the capacity to engage in activities and the level of performance achieved [18]. This concept is closely linked to an individual's capacity to overcome obstacles and achieve success in specific situations, thereby influencing soldiers' ability to effectively cope with unexpected challenges [15]. Studies have demonstrated that self-efficacy exhibits a significant negative correlation with self-handicapping, suggesting that higher levels of self-efficacy are associated with lower tendencies towards self-handicapping. For instance, Stuart et al. found a significant negative correlation between these two variables in a study involving 71 college students [19]. Additionally, Martin et al. demonstrated that higher levels of self-efficacy are associated with lower levels of self-handicapping in a sample of 142 athletes [20]. Studies have also highlighted a link between self-efficacy and the propensity for substance abuse. For instance, Damirchi et al. found a significant negative correlation between self-efficacy and addiction tendency in a study involving 168 conscript soldiers [21]. Similarly, Xiaoqing et al. reported a significant negative correlation between self-efficacy and addiction tendency in a sample of 303 college students [11].

Among the factors associated with self-handicapping and addiction tendency in soldiers, personality dimensions are noteworthy. Personality dimensions are a crucial construct in explaining individual behavior and offer predictive power regarding behavioral outcomes. The five-factor model of personality, as proposed

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by McCrae and Costa, provides a comprehensive framework for understanding the diverse domains of an individual's personality [22]. The Five-Factor Model [FFM] of personality comprises five broad domains that capture overarching personality patterns. These domains include: Extraversion versus Introversion, Agreeableness versus Antagonism, Conscientiousness versus Lack of Conscientiousness or Impulsivity, Neuroticism versus Emotional Stability, and Openness to Experience versus Closedness to Experience. The "FFM" has garnered substantial empirical support, including evidence of temporal stability and cross-cultural universality [23]. Studies have also identified a connection between personality dimensions and self-handicapping behaviors. For example, Litnova et al. discovered a significant negative correlation between specific personality dimensions—such as agreeableness, conscientiousness, and openness to experience—and self-handicapping behaviors in a study of 440 college students [24]. Also, Djigić et al. found that certain personality traits—specifically conscientiousness and openness to experience—exhibit a positive and significant relationship with self-efficacy in a study involving 168 teachers [28]. Conversely, traits like agreeableness were found to have a lesser impact on self-efficacy [25]. Furthermore, studies had established a link between personality dimensions and tendency to addiction. In a study involving 227 students, Zeighami et al. found that personality dimensions, notably neuroticism and openness to experience, were significantly correlated with substance use propensity [26].

Self-handicapping and tendency to addiction are crucial factors influencing the quality of military service. However, research on the relationships between these variables during military service, as well as their connections with self-efficacy, reveals significant gaps. These gaps are particularly pronounced in the area of investigating the relationships between all personality dimensions and both self-handicapping and addiction tendency. Current studies have predominantly concentrated on the relationship between self-efficacy and addiction tendency, yet the mediating role of personality dimensions in this context remains understudied. Moreover, many studies have focused on adolescents or other demographic groups, leaving a knowledge gap regarding conscript soldiers and their unique challenges related to self-efficacy and substance use. Due to the distinct circumstances and psychological pressures of military life, conscript soldiers may exhibit behavioral patterns that differ from those observed in other populations. Furthermore, a significant limitation of current research is its reliance on antiquated theoretical models that fail to fully account for the intricate relationships

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between variables. Therefore, it is imperative to develop innovative theoretical frameworks that incorporate personality dimensions and their influence on self-efficacy and addiction proneness, providing a more nuanced understanding of these complex interactions.

This Study aims to explore the interconnections between self-efficacy, self-handicapping, addiction tendency, and the Five personality traits [neuroticism, extraversion, openness, agreeableness, and conscientiousness]. The study's hypotheses include the presence of significant correlations between self-efficacy and self-handicapping, as well as between self-efficacy and addiction tendency. It is also hypothesized that self-efficacy is related to the Big Five personality traits, which are expected to be linked to both self-handicapping and addiction tendency. Moreover, the Big Five personality traits are proposed as potential mediators in the relationships between self-efficacy and both self-handicapping and addiction tendency.

Procedure

This is an applied descriptive study using the structural equation modeling [SEM]. The statistical population of this study comprised all conscript soldiers serving in the Law Enforcement Forces of Yazd city in 2024. To determine the sample size, Free Statistics Calculators version 4.0 software was employed, considering an effect size of 0.3, a statistical power of 0.9, three latent variables, and a significance level [α] of 0.05, which yielded a minimum required sample size of 188 individuals [27]. However, to enhance the robustness of the analysis, 400 soldiers were ultimately selected using a cluster random sampling method. In this process, specific units within the barracks were randomly chosen as clusters, followed by simple random sampling to select participants within each unit, ensuring methodological rigor and representativeness across subgroups.

Following the approval of the research proposal and receipt of the ethics code from the Student Research Center at Shahid Beheshti University of Medical Sciences, Tehran, a formal letter was obtained from the Vice-Chancellor's office requesting cooperation from the Conscription Organization. Subsequently, upon receiving a list of conscripts eligible for the study based on the predefined inclusion criteria, a cluster random sample of 400 individuals was selected. Initially, a virtual explanatory note detailing the research title and conditions for participation was disseminated to them. Conscripts interested in participating then accessed the informed consent form link to complete their consent, followed by the completion of questionnaires over a four-day

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period. The inclusion criteria for participation in this study were as follows: participants had to express a willingness to participate and complete the informed consent form; they needed to possess literacy skills in reading and writing at a minimum level equivalent to junior high school; they must have completed at least three months of military service; they should not have any physical problems; and they should have no history of psychiatric [psychotic] illness requiring hospitalization, as reported by themselves. the exclusion criteria included unwillingness to complete questionnaires and incomplete completion of questionnaires.

Information gathering tool

General Self-Efficacy Scale [GSE]

The General Self-Efficacy Scale, developed by Sherer et al. in 1982, is a self-report measure designed to assess general self-efficacy. Initially, the scale consisted of 36 items, but after analysis, it was reduced to 23 items by removing 13 questions that did not meet the factor loading criterion of 0.4 for both social and general factors. Of these 23 items, 17 specifically measure general self-efficacy, with a mean score of 57.99 and a standard deviation of 12.08. The reliability of the general self-efficacy subscale was established with a Cronbach's alpha of 0.86, while the social self-efficacy subscale had a Cronbach's alpha of 0.71 [28]. Additionally, Barati's 1997 study used the split-half method to evaluate reliability, yielding coefficients of 0.76 using the Spearman-Brown method for both equal and unequal lengths, and 0.75 using the Guttman split-half method [29]. Responses to the test questions are typically based on a 5-point Likert scale. Furthermore, in the present study, the Cronbach's alpha coefficient for this questionnaire was determined to be 0.70, further supporting its reliability.

Self-Handicapping Scale [SHS]

The Self-Handicapping Scale, originally developed by Jones and Rhodewalt in 1982, is designed to evaluate the extent of self-handicapping behavior in individuals. This questionnaire comprises 23 items and is structured around three primary components: feigning illness, negative affect, and excuse-making. Responses are elicited using a Likert scale. In the revised version, the Cronbach's alpha coefficient was reported to be above 0.70, indicating satisfactory internal consistency [30]. The score range for this questionnaire spans from 23 to 115, with higher scores denoting a greater degree of self-handicapping behavior. A study conducted by Mehvarz in 2013 found the content, face, and criterion validity of this questionnaire to be adequate.

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Additionally, the Cronbach's alpha coefficient was determined to be 0.73, further supporting the scale's reliability [31]. Furthermore, in the present study, the Cronbach's alpha coefficient for this questionnaire was determined to be 0.68, further supporting its reliability.

Tendency to Addiction questionnaire [TAQ]

The TAQ, developed by Wade and Butcher, is a self-report instrument designed to assess an individual's predisposition to addiction. This questionnaire consists of 36 items, supplemented by 5 lie scale items, which collectively measure four key components: self-satisfaction, pessimism, impulsivity, and risk-taking. Responses to the questionnaire are elicited using a four-point Likert scale, where each item is scored on a continuum from 0 ["Strongly Disagree"] to 3 ["Strongly Agree"]. To derive the total questionnaire score, the scores of all individual items [excluding the lie scale] are summed, yielding a score range of 0 to 123. Higher scores indicate a greater predisposition to addiction, while lower scores suggest a lesser predisposition. In the standardization of the original version, the Cronbach's alpha coefficient was reported to be above 0.70, indicating satisfactory internal consistency [32]. The APS was standardized among a student population in 2012 by Zargar and colleagues, who reported a reliability coefficient of 0.70 using Cronbach's alpha [33]. Furthermore, in the present study, the Cronbach's alpha coefficient for this questionnaire was determined to be 0.71, further supporting its reliability.

NEO Five-Factor Inventory [NEO-FFI]

This 60-item self-report instrument, developed by McCrae and Costa, is designed to assess the five major personality factors. Responses to the questionnaire are captured using a five-point Likert scale, with options ranging from "Strongly Disagree," "Disagree," "Neutral," "Agree," to "Strongly Agree." In the norming of the original version, conducted among 208 American college students, test-retest reliability coefficients over a three-month interval ranged from 0.75 to 0.83. Additionally, long-term reliability over a six-year period for the Neuroticism, Extraversion, and Openness to Experience scales showed reliability coefficients ranging from 0.68 to 0.83 [34]. This questionnaire was normed on 2000 college students in 2001 by Gorosi Farshi, who reported Cronbach's alpha coefficients for the five major dimensions ranging from 0.56 to 0.87. Specifically, the

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Cronbach's alpha coefficients for each of the main factors—Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness—were 0.86, 0.73, 0.56, 0.68, and 0.87, respectively [35].

Findings

Table 1 provided the descriptive statistics for the sample group. As illustrated in this table, the mean age of the participants was 19.98 years, with an age range spanned from 18 to 29 years. Additionally, the average duration of military service was 11.13 months, with a minimum duration of 3 months and a maximum of 20 months. Further demographic characteristics were summarized in Table 1.

Table 2 presented the reliability and validity of the measurement model. A reflective measurement model was utilized to confirm the reliability and validity of the constructs. As shown in Table 2, the measurement model satisfied all quality and reliability criteria, as evidenced by composite reliability values exceeding 0.7 and average variance extracted [AVE] values exceeding 0.5 [36].

Discriminant validity was evaluated using the Fornell-Larcker criterion, as presented in Table 3. This criterion involved comparing the square root of the average variance extracted [AVE] for each construct to the correlations among the latent variables. Specifically, the square root of each construct's AVE exceeded its highest correlation with any other construct in the model. The results of the discriminant validity assessment indicated that each construct was distinct and that the phenomenon it represented was not captured by other constructs in the model.

As evident in Table 3, the square root of the Average Variance Extracted [AVE] for each latent variable, positioned on the main diagonal of the matrix, exceeded the correlations between these variables, which were located in the cells below and to the left of the main diagonal. Consequently, it could be concluded that in the present study, the constructs [latent variables] exhibited stronger relationships with their own indicators than with other constructs. In simpler terms, the discriminant validity of the model was satisfactory.

The structural model was evaluated using several key metrics: the coefficient of determination [R^2], predictive relevance [Q^2], the Goodness of Fit [GoF] Test, and hypothesis testing. The results revealed that all

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R^2 values were substantial, indicating a strong model fit. Furthermore, the Q^2 values exceeded the threshold of 0.000, thereby confirming the model's sufficient predictive relevance. Moreover, the Goodness of Fit [GoF] value exceeded 0.36, and the Normed Fit Index [NFI] was 0.969, thereby confirming that the overall model exhibited an adequate fit. Table 4 indicated the overall model fit based on the Goodness-of-Fit [GoF].

Figure 1 depicted the software output, which presented path coefficient estimates, and coefficients of determination [R^2]. The numbers along the paths denoted the path coefficients, whereas the numbers within the circles, corresponding to endogenous variables, signified the coefficients of determination.

To test the hypotheses at a 95% confidence level, values equal to or greater than the absolute value of 1.96 were considered indicative of a statistically significant relationship between the variables. Furthermore, to evaluate the significance of the indirect effect of one variable mediated by another, the Variance Accounted For [VAF] test was utilized. According to the results, a VAF value between 20% and 80% indicated partial mediation, whereas a VAF value exceeding 80% confirmed full mediation [Table 5,6].

Consequently, hypotheses 1-7 were supported. It is also noteworthy that the mediating role was confirmed in all hypotheses.

Discussion

The objective of the present study was to examine the mediating role of personality dimensions in the association between self-efficacy and self-handicapping, as well as their influence on the propensity for tendency to addiction among conscript soldiers.

The results of this study revealed a significant negative correlation between general self-efficacy and self-handicapping among soldiers. This finding aligns with the outcomes of prior studies [19, 37]. According to Bandura, self-efficacy refers to an individual's belief in their capacity to successfully accomplish specific tasks or goals [38]. Additionally, self-handicapping is a defensive strategy in which individuals create obstacles or excuses—such as procrastination, reduced effort, or avoidance—that can be attributed to potential failure, thereby safeguarding self-esteem in the event of poor performance [39]. Individuals with high self-efficacy trust their abilities and are more likely to engage fully with tasks, exert effort, and persist through difficulties. They do not feel compelled to protect their self-worth by generating excuses for potential failure. In contrast,

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individuals with low self-efficacy doubt their capabilities and are more inclined to employ self-handicapping as a means of attributing failure to external factors rather than to a lack of competence [19]. High self-efficacy enhances motivation and perseverance, thereby reducing the likelihood of adopting maladaptive behaviors such as self-handicapping. Conversely, low self-efficacy leads to avoidance and diminished effort, which increases the reliance on self-handicapping behaviors as a coping mechanism [40]. The significant negative relationship between self-efficacy and self-handicapping is grounded in the manner in which belief in one's abilities [self-efficacy] diminishes the need for defensive, self-protective behaviors [self-handicapping].

Another finding of the present study was a significant negative correlation between self-efficacy and addiction tendency among soldiers. This result aligns with previous studies [21, 41]. In the context of addiction, self-efficacy is pivotal in determining how individuals navigate high-risk situations, resist temptations, and maintain recovery. Individuals with elevated self-efficacy are more likely to believe in their capacity to manage stress, regulate difficult emotions, and confront challenging circumstances without resorting to substance abuse [42]. They exhibit enhanced psychological resilience and are less susceptible to maladaptive coping strategies, such as drug or alcohol consumption. Furthermore, those with higher self-efficacy are more inclined to make adaptive decisions and persist in overcoming obstacles, thereby reducing the likelihood of turning to substances as a means of escape or problem-solving [21]. Ultimately, self-efficacy functions as a psychological buffer against addiction by strengthening coping mechanisms, resilience, self-control, and adaptive decision-making.

Another outcome of this study was the identification of a significant relationship between personality dimensions and self-handicapping among soldiers. This finding aligns with the results of previous studies [24, 43]. Neuroticism shows the strongest positive association with self-handicapping, as individuals high in neuroticism tend to use it defensively to avoid anticipated failure and negative judgment. Openness to Experience is also positively related, though more weakly, possibly due to a broader willingness to engage in varied behaviors, including maladaptive coping [43]. Findings on conscientiousness are mixed: some studies find a positive link, perhaps linked to perfectionism or anxiety, but most research and self-control theories indicate a negative association, since conscientious individuals typically exhibit stronger self-regulation [44]. Agreeableness is negatively correlated with self-handicapping, likely reflecting greater cooperativeness and

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lower defensiveness. Extraversion shows no significant relationship. Overall, positive correlations with neuroticism and openness suggest greater emotional sensitivity and maladaptive coping, while negative correlations with agreeableness and conscientiousness imply that emotional stability and self-discipline protect against self-handicapping [45]. Furthermore, the present study identified a significant association between personality dimensions and addiction tendency among soldiers. This finding is consistent with previous studies [46, 47]. High levels of neuroticism are consistently linked to an increased risk of addiction due to heightened emotional distress, poor impulse control, and ineffective emotional regulation. Similarly, low conscientiousness is associated with greater vulnerability to addictive behaviors, as individuals often exhibit poor self-control and engage in risky activities [47]. Low agreeableness contributes to addiction risk through antagonistic behaviors and social conflicts that may lead to isolation or deviant behaviors such as substance abuse. The relationship between extraversion and addiction is complex; introverts may use substances to cope with loneliness, while extraverts' social engagement and novelty-seeking can increase exposure to addictive behaviors. Finally, high openness is related to a greater likelihood of certain substance abuses, such as cannabis, due to a stronger inclination toward novel experiences [48].

The results of the present study indicate that personality dimensions mediate the relationship between self-efficacy and self-handicapping among soldiers. The association between self-efficacy and the Big Five personality traits is well established, with higher self-efficacy consistently linked to lower neuroticism and elevated levels of extraversion, openness, agreeableness, and conscientiousness [49]. Conscientiousness and neuroticism are particularly salient, as greater conscientiousness and reduced neuroticism are strongly correlated with increased self-efficacy. These personality dimensions also serve as mediators in the relationship between self-efficacy and self-handicapping behaviors. Individuals exhibiting lower self-efficacy are more inclined to engage in self-handicapping, a tendency substantially influenced by their personality profiles [50]. Elevated neuroticism and diminished conscientiousness are associated with increased self-handicapping, likely attributable to emotional instability and reduced self-discipline. In contrast, extraversion, openness, and agreeableness, which are positively associated with self-efficacy, generally mitigate the propensity for self-handicapping, although their direct effects are comparatively less pronounced. Collectively, the evidence indicates that higher neuroticism and lower conscientiousness contribute to decreased self-

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efficacy and heightened self-handicapping, whereas the converse traits promote greater self-efficacy and reduced self-handicapping. This evidence the mediating role of personality in the relationship between self-efficacy and self-handicapping behaviors.

Furthermore, an additional finding of the present study indicates that personality dimensions mediate the relationship between self-efficacy and addiction tendency among soldiers. The Big Five personality traits serve as mediators between self-efficacy and addiction propensity by influencing individuals' stress management, impulse regulation, and reward-seeking behaviors [47]. High neuroticism, characterized by emotional instability, increases the risk of addiction, especially when self-efficacy is low, as individuals may engage in addictive behaviors to cope with stress. Conversely, high conscientiousness, marked by self-discipline and organization, acts as a protective factor by enhancing self-control and reducing impulsivity, thereby lowering vulnerability to addiction [26]. Extraversion and agreeableness generally reduce addiction risk through greater social support and adherence to social norms, although the effect of extraversion may vary depending on the social context. Openness to experience may slightly increase addiction risk due to a higher propensity for experimentation [47]. Thus, the Big Five personality traits either amplify or attenuate the influence of self-efficacy on addiction tendency, with individuals exhibiting high self-efficacy and protective traits being less susceptible to addiction, while those with low self-efficacy and risk-related traits face greater susceptibility.

Conclusion

This study underscores the vital role of self-efficacy in reducing self-handicapping behaviors and addiction tendencies among conscript soldiers, with personality traits acting as important mediators. Higher self-efficacy is linked to greater resilience and lower risk of addiction and self-handicapping. Notably, neuroticism and conscientiousness significantly influence these outcomes, while agreeableness, extraversion, and openness have varying effects. These findings highlight the interplay between self-beliefs and personality in shaping soldier behavior, suggesting that interventions to boost self-efficacy and address maladaptive traits could effectively reduce these risks.

Limitations include a small sample size, reliance on self-report measures prone to bias, and uncontrolled confounding variables such as prior experiences and mental health. Future research should use larger samples,

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alternative data collection methods, control for confounders, and examine the impact of psychological interventions like counseling or educational programs to enhance self-efficacy and reduce self-handicapping and addiction in military populations.

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