

Investigating the relationship between psychological vulnerability and psychological performance of female soccer players

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Abstract. This study aimed to investigate the relationship between psychological vulnerability and psychological performance among female soccer players. The sample comprised 129 voluntary female athletes competing in the 2nd and 3rd Leagues organized by the Turkish Football Federation. Data were collected using the Psychological Vulnerability Scale and the Psychological Performance Inventory. The analysis employed descriptive statistics, the Pearson Correlation Coefficient, and Structural Equation Modelling (SEM). The findings revealed a significant negative relationship between psychological vulnerability and several sub-dimensions of the psychological performance inventory, including self-confidence, negative energy, attention control, motivation level, positive energy, and attitude control. However, no significant relationship was observed with the sub-dimension of visualization and imagery control. Furthermore, the structural equation modelling indicated that psychological vulnerability serves as a significant predictor of the subscales for self-confidence, negative energy, and motivation level within the psychological performance inventory

1 Introduction

Vulnerability is defined as susceptibility to harm and harmful situations resulting from exposure to stress and adaptation difficulties [1, 2]. Psychological vulnerability increases an individual's risk of experiencing negative effects both psychologically and socially [3]. This concept refers to the cognitive beliefs that an individual develops based on his/her dependence on achievement or external approval, and this includes the tendency to have a negative perception of oneself and one's environment when faced with stressful situations [4]. These negative perceptions make it difficult for the individual to functionally adapt to stress and cause them to become more vulnerable to stress [5, 4, 6, 7, 8, 9]. Psychological vulnerability is considered both a genetically innate trait and a condition acquired through

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life experiences. It is also associated with exposure to traumas, natural disasters, and challenging life events such as poverty [10, 11].

Literature indicates that individuals exhibiting high psychological vulnerability often indicate diminished quality of life satisfaction and psychological resilience, along with diminished psychological coping resources [12, 13, 4]. These individuals typically encounter negative emotions more frequently while experiencing positive emotions less often. Furthermore, research has identified a negative correlation between psychological vulnerability and resilience factors, including social competence, awareness, insight, social support, and self-efficacy [14, 15, 16; 17].

Psychologically vulnerable individuals may see themselves as inadequate in their social environment and this may increase their susceptibility to various psychological disorders [18]. Mongrain and Blackburn (2005) argued that individuals' feeling of self-worth depends on others seeing them as valuable, and if they do not set high standards for themselves, they may consider themselves as second-class people, which may trigger negative schemas and increase their vulnerability to various psychological problems such as depression [19]. In this regard, psychological vulnerability can lead to maladaptive cognitive, emotional, and behavioral patterns, including passivity, self-blame, isolation, and catastrophizing. These patterns may heighten the risk of psychopathology and negatively impact psychological well-being [4].

The performance variable, another focus of this study, is often linked to the athlete. Performance is defined as an individual's capability to efficiently employ their skills and abilities to carry out a specific task at an optimal level [20]. In particular, sportive performance refers to the total efforts expended to achieve success in a specified athletic endeavour [21]. Nonetheless, competition evaluations frequently overlook the emotional and mental states, physical sensations, and environmental factors experienced by athletes both before and during competitions. It is essential to recognize that athletes engage not only in physical challenges but also in mental and emotional struggles throughout the competitive process [22].

Not only physical abilities but also psychological abilities are critical for success in sports. It has been emphasized that excellent performance depends on various psychological and mental factors and that these skills can be learned like other skills [23]. Many psychological skills affect the development of physical performance [24]. Key psychological factors influencing athletic performance include the athlete's personality, goals, self-confidence, motivation, stress management abilities, anxiety levels, attention, concentration, assertiveness, determination, and self-control. Research indicates that excessive tension, impaired concentration, low motivation, negative thought patterns, diminished self-confidence, and inadequate stress coping strategies adversely affect athletes' performance [25]. In this context, understanding the impact of psychological factors on performance is essential for devising strategies aimed at enhancing athletes' success. Thus, this research aims to comprehensively explore the connections between psychological vulnerability and psychological performance among female soccer players. Psychological vulnerability is characterized by the negative responses athletes exhibit when facing stress and pressure, while psychological performance refers to the mental toughness and performance capabilities specific to an athlete. Exploring this relationship will yield valuable insights for practitioners and coaches in the field of sport psychology, particularly concerning strategies to safeguard and enhance the mental well-being of female soccer players.

2 Method

2.1 Sample

This study was conducted on 129 volunteer female football players playing in the 2nd and 3rd Leagues organized by the Turkish Football Federation.

2.2 Data Collection Tools

The Psychological Performance Inventory, originally developed by Loehr J.E. and subsequently adapted into Turkish by Sucan (2012), was utilized as the data collection instrument for this study [26]. This scale comprises 42 items distributed across seven sub-dimensions: “self-confidence, negative energy, attention control, visualization and imagery control, motivation level, positive energy, and attitude control”. The inventory employs a 5-point Likert-type format with response options of “always,” “often,” “sometimes,” “rarely,” and “never.” Reliability analysis for the Turkish version of the scale yielded Cronbach's Alpha internal consistency coefficients of 0.70 for self-confidence, 0.63 for negative energy, 0.43 for attention control, 0.53 for visualization and imagery control, 0.62 for motivation level, 0.53 for positive energy, and 0.65 for attitude control.

The second instrument utilized in this study is the Psychological Vulnerability Scale, which was initially developed by Sinclair and Wallston (1999) and subsequently adapted into Turkish by Akın and Eker (2011) [4,27]. This scale comprises six items, each rated on a 5-point Likert scale (“1 = not applicable to me, 5 = absolutely applicable to me”). The total score for the scale ranges from 5 to 35, with higher scores reflecting increased psychological vulnerability. The factor loadings of the scale ranged from .34 to .58, and the corrected item-total correlation coefficients varied between .26 and .44. The internal consistency reliability, assessed using Cronbach's alpha, was found to be .75.

2.3 Data Analysis

The data were analyzed using descriptive statistics, the Pearson Correlation Coefficient, and Structural Equation Modelling (SEM).

SEM serves as a multivariate statistical technique that facilitates the identification of both observable and latent variables within a causal framework informed by specific theoretical constructs [28]. This study assessed a structural model grounded in theoretical predictions. In this model, the relationships between latent and observed variables imply causality, necessitating an evaluation of the significance of these relationships as well as the overall goodness of fit [29]. Goodness of fit was analyzed using various indices, including χ^2/df , Comparative Fit Index (CFI), Normed Fit Index (NFI), Goodness of Fit Index (GFI), Root Mean Square Error of Approximation (RMSEA), and Root Mean Square Standardized Residuals (SRMR). The acceptable criteria for these indices are as follows: $\chi^2/df \leq 5$, CFI and IFI $\geq .90$, GFI $\geq .85$, and RMSEA and SRMR $\leq .10$ [30, 31, 32, 33, 29].

In this research, the items associated with self-confidence, negative energy, and motivation level-sub-dimensions of the psychological vulnerability and psychological performance inventory were categorized into two dimensions employing the parceling method. This technique involved dividing the items based on item-total correlation values, with the aggregate scores from both groups incorporated into the model as observed variables. The parceling approach was selected due to its ability to enhance the normality of data distribution and yield improved fit indices [34]. Data analysis was performed using SPSS version 22 and Amos version 22.0, with the significance threshold established at .05.

3 Findings

Of the female soccer players who participated in the study, 80 (62%) were under the age of 18. 73 (56.6%) of them stated their educational status as secondary education. 65 (50.4%) evaluated their financial status as medium. 128 (99.2%) were single. 57 (44.2%) have been playing soccer for 1-3 years.

Table 1. The relationship between psychological vulnerability and psychological performance

| <i>Psychological Performance Inventory Subtests</i> | | Psychological vulnerability |
|---|------------------|------------------------------------|
| Self-confidence | Correlation (r) | -.432** |
| | Significance (p) | ,000 |
| | N | 129 |
| Negative energy | Correlation (r) | -.442** |
| | Significance (p) | ,000 |
| | N | 129 |
| Attention control | Correlation (r) | -.381** |
| | Significance (p) | ,000 |
| | N | 129 |
| Visual and imagery control | Correlation (r) | -.073 |
| | Significance (p) | ,413 |
| | N | 129 |
| Motivation level | Correlation (r) | -.287** |
| | Significance (p) | ,001 |
| | N | 129 |
| Positive energy | Correlation (r) | -.293** |
| | Significance (p) | ,001 |
| | N | 129 |
| Attitude control | Correlation (r) | -.371** |
| | Significance (p) | ,000 |
| | N | 129 |

Not. ** p <.01

An analysis of Table 1 reveals a significant negative correlation between psychological vulnerability and various sub-dimensions of the psychological performance inventory, including self-confidence, negative energy, attention control, motivation level, positive energy, and attitude control. Conversely, no significant relationship was identified between psychological vulnerability and the sub-dimensions of visualization and imagery control within the psychological performance inventory.

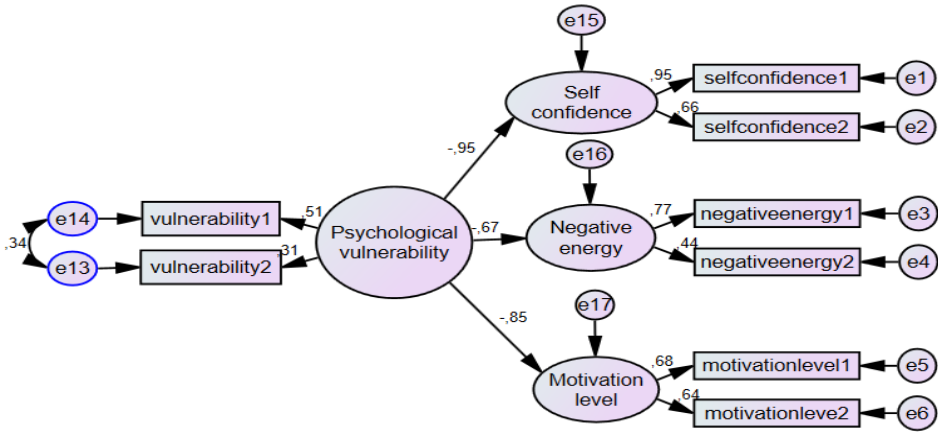


Figure 1. Examination of the sub-dimensions of psychological vulnerability and psychological performance inventory with SEM

As depicted in Figure 1, the structural model developed to examine the relationship between psychological vulnerability and the sub-dimensions of psychological performance inventory specifically self-confidence, negative energy, and motivation level-produced significant findings. The sub-dimensions of attention control, positive energy, and attitude control were excluded from the model due to their lack of significant results. The goodness of fit statistics for the model assessing the predictive impact of psychological vulnerability on the aforementioned sub-dimensions were $\chi^2= 32.948$, $df= 16$, $\chi^2/df = 2.05$, $IFI= 0.93$, $CFI= 0.93$, $GFI= 0.94$, $RMSEA= 0.091$, and $SRMR= 0.072$, suggesting a good fit for the model. These results indicate that psychological vulnerability is a significant predictor of self-confidence, negative energy, and motivation levels within the psychological performance inventory.

4 Discussion

The findings of the study suggest that high levels of psychological vulnerability can negatively affect individuals' self-confidence, make it difficult to control attention, and generally lower their motivation and energy levels. Moreover, psychological vulnerability may also have negative effects on individuals' attitude control.

In the literature, there are no studies examining the relationship between psychological vulnerability and performance. The studies were mostly conducted on physical education teachers, athletes and coaches. Accordingly, in a study evaluating the level of self-confidence and psychological vulnerability of amateur football players according to the positions they played, it was determined that the position of football players did not affect their psychological vulnerability levels [35]. A study examining physical education teachers revealed a significant negative correlation between the teachers' psychological vulnerability and their levels of learned resilience [3]. Similarly, research involving coaches indicated that the participants exhibited below-average levels of psychological vulnerability, alongside a weak negative relationship between social well-being and psychological vulnerability [36].

The findings of this study emphasize how psychological vulnerability negatively affects individuals' psychological performance and reveal the importance of taking psychological vulnerability levels into account when developing strategies to improve individuals' performance. Furthermore, these results may support the positive effects of intervention programs aimed at reducing psychological vulnerability on individuals' performance and overall psychological well-being.

References

1. W.N. Adger, Vulnerability. *Glob. Env. Change*, **16**, 268-281 (2006).
<http://dx.doi.org/10.1016/j.gloenvcha.2006.02.006>
2. R. E. Malone, Dimensions of vulnerability in emergency nurses' narratives. *Adv. in Nurs. Sci.* **23**(1), 1-11 (2000).
3. H. Akdeniz, The investigation of the relationship between psychological vulnerability and learnt resourcefulness in physical education teachers, Ph.D. thesis, University of Sakarya, Department of Physical Education and Sports (2018).
4. V. G. Sinclair, K. A. Wallston, The development and validation of the Psychological Vulnerability Scale. *Cogn. Ther. and Res.* **23**(2), 119- 129 (1999).
5. D. O. Clark, T. E. Stump, D. K. Miller, J. S. Long, Educational disparities in the prevalence and consequence of psychological vulnerability. *The Journals of Gerontology Series B: Psych. Sci. and Soc. Sci.* **62**(3), 193-197 (2007).
6. V. G. Sinclair, K. A. Wallston, Psychological vulnerability predicts increases in depressive symptoms in individuals with rheumatoid arthritis. *Nurses Res.* **59**(2), 140-146 (2010).
<https://doi.org/10.1097/nnr.0b013e3181d1a6f6>
7. A. Mehrabian, Theory and evidence bearing on a scale of trait arousability. *Curr. Psych.* **14**(1), 3–28. (1995).
<https://doi.org/10.1007/BF02686870>.
8. M.J. Nogueira, L. Barros, C. Sequeira, Psychometric Properties of the Psychological Vulnerability Scale in Higher Education Students. *J Am Psychiatr Nurses Assoc.* **23**(3), 215-222 (2017).
doi: 10.1177/1078390317695261. Epub 2017 Mar 21. PMID: 28510509.
9. A. M. Raines, M. E. Oglesby, A. S. Unruh, D. W. Capron, N. B. Schmidt, Perceived control: A general psychological vulnerability factor for hoarding. *Pers. and Individ. Differ.* **56**, 175-179 (2014).
<https://doi.org/10.1016/j.paid.2013.09.005>.
10. R. E. Ingram, D.D. Luxton, Vulnerability-Stress models, (In B. L. Hankin, & J. R. Abela (Eds.), *Development of Psychopathology: A Vulnerability-Stress Perspective* (pp. 32-46). SAGE Publications, Inc. 2005).
<https://doi.org/10.4135/9781452231655.n2>
11. J. Zubin, B. Spring, Vulnerability: A new view of schizophrenia. *J. of Abn. Psych.* **86**(2), 103-126 (1977).
<https://doi.org/10.1037/0021-843X.86.2.103>
12. Z. Akkuş Çutuk, R. Aydoğan, Emotional self-efficacy resilience and psychological vulnerability a structural equality modeling study. *J. of Edu. Sci. and Psych.* 106-114 (2019).
13. H. Bayrı, A. Sapancı, Üniversite öğrencilerinin psikolojik iyi oluş düzeylerinin yordanmasında öz-düzenleme ve psikolojik kırılğanlığın rolü. *Elekt. Sosy. Bil. Der.* **21**(84), 1446-1464 (2022).
<https://doi.org/10.17755/esosder.1067433>
14. U. Akın, The predictive role of the self-compassion on psychological vulnerability in Turkish university students. *Inter. J. of Soc. Scie. & Edu.* **4**(3), 693-701 (2014).

15. O. Gruebner, S.R. Lowe, L. Sampson, S. Galea, The geography of post-disaster mental health: spatial patterning of psychological vulnerability and resilience factors in New York City after Hurricane Sandy. *Inter. J. of Health Geogr.* **14**(1), (2015).
16. A. Kiamarsi, A. Abolghasemi, The relationship of procrastination and self-efficacy with psychological vulnerability in students. *Proc.-Soc. and Behav. Scie.* **114**, 858-862 (2014).
17. B. Satici, M. Saricali, S.A. Satici, B. Çapan-Eraslan, Social competence and psychological vulnerability as predictors of Facebook addiction. *Studia Psych.* **56**(4), 301-308 (2014).
18. R. E. Ingram, J.M. Price (Eds.), *Vulnerability to psychopathology: Risk across the lifespan* (Guilford Press 2010).
19. M. Mongrain, S. Blackburn, Cognitive vulnerability, lifetime risk, and the recurrence of major depression in graduate students. *Cog. The. and Rese.*, **29**(6), 747-768 (2005).
<https://doi.org/10.1007/s10608-005-4290-7>
20. E. Başer, *Futbolda psikoloji ve başarı, sorsal kuram dizisi-4 (2.Baskı)* (Bağırman Yayınevi 1996).
21. B. Bayraktar, M. Kurtoğlu, *Sporda performans ve performans artırma yöntemleri* (T. Atasü, İ. Yücesir (Ed), *Doping ve futbolda performans artırma yöntemleri*, T.F.F. Yayınları 2004).
22. S. Bozkurt, Sportif performansa psikolojik bakış. *Bed. Eğt. ve Sp. Bil. Derg.* **5**: 29-35 (2010).
23. J.E. Loehr, *Mental toughness training for sports* (The Stephen Grene Press 1986).
24. C. İkizler, C. Karagözoğlu, *Sporda başarının psikolojisi (3.Baskı)* (Alfa Basım Yayım Dağıtım 1999).
25. J. Ekstrand, J. Karlsson, A. Hodson A, *Football medicine* (Taylor and Francis Group 2003).
26. S. Sucan, *Ferdi ve takım sporcularının yaşam kalitesinin psikolojik performans üzerindeki etkisi*, Ph.D. thesis, University of Erciyes, Department of Physical Education and Sports (2012)
27. A. Akın, H. Eker, Turkish version of the Psychological Vulnerability Scale: A study of validity and reliability, in *Proceedings of 32th International Conference of the Stress and Anxiety Research Society*, Münster, Almanya, July 18-20 (2011).
28. B. M. Byrne, *Structural equation modeling with Amos* (Routledge, New York 2010).
29. R. Schumacher, R. Lomax, *A beginner's guide to structural equation modelling* (Lawrence Erlbaum Associates, Publishers. 2004).
30. L. T. Hu, P.M. Bentler, Cut off criteria for fit indexes in covariance structural analysis: conventional criteria versus new alternatives. *Struct. Equ. Model.* **6**(1), 55-65 (1999).
31. G. Marcoulides, R. Schumacher, *New developments and techniques in structural equation modelling* (Lawrence Erlbaum Associates, Publishers 2001).
32. A. Maydeu-Olivares, D. Shi, Y. Rosseel, Assessing fit in structural equation models: A monte-carlo evaluation of RMSEA versus SRMR confidence intervals and tests of close Fit. *Str. Equ. Model.: A Multidis. J* **25**(3), 389-402 (2018).
<https://doi.org/10.1080/10705511.2017.1389611>
33. K. Schermelleh-Engel, H. Moosbrugger, Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Meth. of Psych. Res. Onl.* **8**(2), 23-74 (2003).

34. D. L. Bandalos, S. J. Finney, Item parceling issues in structural equation modelling (In M.G. A. & S. R. E. (Eds.), *New developments and techniques in structural equation modeling* (pp. 269-296). NJ: Lawrence Erlbaum Associates, Inc. 2001).
35. C. Yılmaz, Ö. Bostancı, Amatör futbolcularda özgüven düzeyinin psikolojik kırılmağa etkisi. *SPORMETRE Bed. Eğt. ve Sp. Bil. Der.* **22**(2), 25-34 (2024).
<https://doi.org/10.33689/spormetre.1317049>
36. K. S. Bayraktar, V. Temel, Antrenörlerin sosyal iyi oluş düzeylerinin psikolojik kırılmağa olan etkisi. *J of Int. Soc. Res.* **13**(69) (2020).