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Original Investigation

The Role of Sociodemographic Factors and Decision-Making Styles in Perceived Stress Among Volleyball Referees

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Purpose: The aim of the study was to analyze the relationship between sociodemographic indicators and decision-making styles and the level of perceived stress in Polish volleyball referees.
Methods: A total of 141 volleyball referees participated in the study, including 68.09% men (*n*= 96) and 31.91% women (*n*= 45). The mean age of the participants was 38.94±15.79 years. To identify the preferred decision-making style of volleyball referees, the study used the General Decision-Making Style Inventory (KSPD in Polish). Perceived stress of volleyball referees was measured using the Polish adaptation of the Perceived Stress Scale (PSS-10). The survey was conducted online using a test battery of self-report questionnaires.
Results: Regression analysis revealed that both sociodemographic factors and decision-making styles significantly predicted stress levels in volleyball referees. Sociodemographic factors alone explained 8.4% of the variance in stress (R^2= .084, *P*= .035), with gender emerging as the only significant predictor. Men reported lower levels of perceived stress than women (*B*= -4.128, *P*= .003). When decision-making styles were included in the model, a significant improvement in the model was observed, with the power of the explained perceived stress level increasing to 28.8% (R^2= .288, *P*< .001). In this extended model, gender remained a significant predictor. Among decision-making styles, the rational (*B*= - .447, *P*= .037) and spontaneous (*B*= .442, *P*< .001) styles were identified as factors associated with lower levels of perceived stress. In contrast, the avoidant style was identified as a factor associated with higher levels of perceived stress (*B*= - .331, *P*= .038).
Conclusions: The findings indicate a significant association between decision-making styles, gender, and perceived stress levels among volleyball referees. It would seem important to include a gender perspective in stress support and prevention, and to focus on developing adaptive decision-making styles.

Keywords: referee, decision making, volleyball, sport psychology, stress perception

Introduction

The role of sports referees is an indispensable part of the sporting spectacle. Their decisions have a direct impact on the course of events during a match and can significantly influence outcomes that matter to both teams and spectators.[1] In the context of the work of a sports referee, who makes decisions in fractions of seconds, unconscious reactions are also an important component. Current research[2] indicates that these occur outside of conscious awareness and do not involve deliberate processing. The importance of these responses increases under stressful conditions, which, in the case of the referees, may arise from internal sources such as awareness of the importance of the match, responsibility for potential wrong decisions or time pressure,[3] as well as from external factors including pressure from players, coaches, and fans.
Neuroscientific research by Lee[4] indicated that decisions are the result of the interaction of brain systems responsible for reward evaluation (prefrontal cortex), emotions (orbitofrontal cortex, limbic system), and learning and outcome prediction. Individual differences in experience, emotions, and knowledge affect the way choices are made, allowing individuals to be assigned a specific decision-making style. Research indicates that individual decision-making styles are relatively persistent and are closely linked to stress coping strategies[5]. This suggests that referees, in match situations, tend to rely on their preferred decision-making style, which can either amplify or reduce tension. According to the theory of decision-making styles by Scott and Bruce,[6] decision-making style is not a personality trait but a learned tendency to react in a particular way in decision-making situations. Researchers have identified five decision-making styles: (a) the rational style, characterized by logical thinking, systematic analysis of information and evaluation of different solutions, (b) the intuitive style, focusing attention on the details of the information received and drawing on one's feelings and intuition, (c) the dependent style, distinguished by seeking advice and guidance from others, (d) the avoidant style,

characterized by procrastination and avoiding decision-making situations, (e) the spontaneous style, characterized by making decisions impulsively, without focusing on one's feelings or consequences. Rational and intuitive decision-making styles were constructive decision-making styles, enabling better adaptation to the demands of the environment. In contrast, avoidant, dependent, and spontaneous styles were categorized as non-constructive styles, making it difficult to function in the environment.[7]

In volleyball, researchers[8–10] have confirmed that a referee's ability to make correct judgements can be influenced by coping styles[8] and decision-making and thinking styles.[9] Studies[10,11] have also highlighted the need to analyse sociodemographic factors, such as gender, age, education, experience, or refereeing level, in relation to perceived self-efficacy. A recently published study[12] conducted among elite referees showed that stress following a difficult decision or technical error was associated with increased anxiety accompanying referees after the match. In a slightly earlier study[3], researchers also found among the highest-level referees that the stress level of volleyball referees during matches depended on the referees' roles (first referee, second referee, reserve, or challenge referees) and the level of competition.

From a sport psychology perspective, stress should not be seen merely as a direct reaction to environmental stressors, but rather as a secondary phenomenon resulting from the interaction between situational demands and the referee's individual psychological resources. Research with volleyball referees has demonstrated that stressful situations evoke emotional and cognitive responses that affect referees' concentration and response[13]. Therefore, in addition to identifying stressors, it remains necessary to understand how psychological characteristics such as decision-making style and sociodemographic factors can modulate the intensity of stress experienced. Researchers who study stress often refer to measuring responders' reactions to certain factors or events. However, for the purpose of the present study, stress is defined consistently with the used measuring tool PSS-10 (Polish adaptation of the Perceived Stress Scale),[14] which classifies a situation as stressful if one experiences strong negative emotions or health damage as a result. PSS-10 allows for subjective evaluation of the stress level related to one's life situation over the period of last month. Therefore, the level of stress is determined not by the number of experienced events, but by their subjective cognitive assessment. The PSS-10 questionnaire's items are designed to determine the extent to which responders find their lives to be unpredictable, uncontrollable, and overloaded.[15]

To the best of our knowledge, possible connection between the preferred decision-making style and perceived experienced level of stress of volleyball referees remains underexplored in comparison to other occupations,[16,17] underscoring the need for further investigation.

The main aim of this study was to analyse the relationship of sociodemographic indicators and decision-making styles with the level of perceived stress in Polish volleyball referees.

Methods

Participants

Referees holding a valid referee certification participated in the study. All participants were of legal age (18 or older). Participants were informed of the full anonymity of the data collected by the research team, the approximate duration of survey completion, and their right to voluntarily withdraw from the study at any time. Before participation, everyone confirmed their willingness to take part by providing informed and voluntary consent. Due to the nature of the study, participants gave informed consent to participate by checking the option in the electronic form. The study group comprised 141 referees including 31.91% women (*n*= 45) and 68.09% men (*n*= 96). This represents a highly accurate reflection of the real participation with 464 women (29.33%) and 1118 men (70.67%) registered with regional volleyball associations in Poland (based on a list of regional volleyball associations in Poland, July 2025).

The mean age of the participants was 38.94±15.79 years, including 32.94±9.50 women and 41.80±17.31 men. The average referee experience of the respondents was 14.22±11.25 years, and the average number of refereed matches in the current season was 35.84±30.21. In terms of administrative level, most respondents were regional referees (68.79%, *n*= 97), while national-level referees accounted for 31.21% *(n*= 44). An analysis of educational background revealed that most respondents had a higher education (76.60%, *n*= 108), secondary education was declared by 20.57% of respondents (*n*= 29), and primary education by only 2.84% (*n*= 4). With regard to place of residence, the largest group were referees living in cities with up to 500,000 inhabitants (39.72%, *n*= 56), followed by those living in towns with up to 50,000 inhabitants (23.40%, *n*= 33), rural areas (14.18%, *n*= 20), cities with up to 150,000 inhabitants (12.77%, *n*= 18), and the smallest group was those living in cities with above 500,000 inhabitants (9.93%, *n*= 14).

Tools

To measure the preferred decision-making style of volleyball referees, the study employed the General Decision-Making Style Inventory (KSPD)[6,7]. This tool was designed to identify the dominant decision-making style. The questionnaire measures five decision-making styles: avoidant style, dependent style, rational style, intuitive style, and spontaneous-instant style. The questionnaire demonstrates satisfactory reliability, with Cronbach's alpha coefficients ranging from .79 to .93 across all scales.

To measure perceived stress among volleyball referees, the study used the Polish adaptation of the Perceived Stress Scale (PSS-10) developed by Juczyński and Ogińska-Bulik.[14] This questionnaire is used to measure perceived stress; the higher the score obtained by the individual completing the questionnaire, the higher the level of perceived stress. It demonstrates high reliability, with a Cronbach's alpha of .86. The reliability of the questionnaire in a test-retest analysis were .90 after two days and .72 after four weeks.

Procedure design

The procedure started with an official request to the President of the Refereeing Department of the Polish Volleyball Federation (PZPS) to conduct a survey among volleyball referees in Poland. Following approval, the President of the PZPS Referee Department was asked to send out invitations to national-level referees. The presidents of the refereeing departments of the regional volleyball associations were then asked to send invitations to regional-level referees. The survey was conducted online using a test battery of self-report questionnaires. The study was conducted between April 3, and May 5, 2025, during the 2024/2025 competition season. The participants completed the questionnaires at a time that was convenient to them. The inclusion criteria for the study required that the participant had completed a basic volleyball referee course, held a valid certificate, and was of legal age (18 or older). The exclusion criteria included being on referee leave or not having officiated at least one volleyball match as either the first or second referee in the 2024/2025 season.

Statistical analysis

Statistical analysis was performed using the JASP 0.19.3 (Released January 6th, 2025), University of Amsterdam and Microsoft Excel 2024 (Office 365), United States. The statistical significance level was set at $P \leq .05$. The normality of distribution was verified using the Shapiro–Wilk test, skewness and kurtosis. To determine the minimum number of participants required for the study, a statistical power analysis was conducted in G*Power 3.1.9.7 software using a multiple regression test (fixed model, R^2 deviation from zero). Assuming a medium effect size ($f^2 = .2$), a significance level of $\alpha = .05$, a power of .80, and 10 predictors, the minimum required sample size was estimated to be 91. Multiple linear regression was used to analyze the results, with sociodemographic factors included in the null model (H_0), and the research model (H_1) additionally incorporating decision-making styles. The outcome variable in this model was perceived stress.

Results

Tests of normality were performed to assess the distribution of variables. The results of the Shapiro-Wilk test indicated that the spontaneous style ($W = .978$, $P = .023$), avoidant style ($W = .962$, $P < .001$), dependent style ($W = .981$, $P = .043$), intuitive style ($W = .966$, $P = .001$), and rational style ($W = .964$, $P < .001$) significantly deviated from the normal distribution ($P < .05$), while the perceived stress level of the referees did not significantly deviate from normality ($W = .981$, $P = .049$). Despite the deviations indicated by the Shapiro-Wilk test, the skewness and kurtosis values were within acceptable ranges (skewness from -.660 to .553; kurtosis from - .242 to 1.069) for all variables. These results suggest that the data collected can be considered sufficiently normally distributed to apply parametric analyses such as multiple linear regression.

As shown in Table 2, the results of the multiple linear regression analysis demonstrated a significant improvement in model fit between the null model (H_0), which included only sociodemographic variables, and the research model (H_1), which included decision-making styles as predictors of stress levels in volleyball referees. The research model showed a significant increase in explained variance. R^2 increased from .084 in the null model (considering only sociodemographic factors) to .288 in the research model (after including decision-making styles), representing a significant R^2 change of .204 (F change= 5.147, $df_1 = 5$, $df_2 = 130$, $P < .001$). This result suggests that the inclusion of decision-making styles significantly improved the model's accuracy and its ability to predict stress levels beyond sociodemographic variables.

In the null model (H_0), only gender was a significant predictor of stress levels. Male referees reported significantly lower levels of perceived stress ($B = -4.128$, $P = .003$). Age, refereeing experience, administrative level, and the number of matches officiated during the current season were not significant predictors of stress levels. The addition of psychological variables, such as decision-making styles, significantly altered the structure of the model. The spontaneous decision-making style showed a significant negative association with stress levels ($B = - .331$, $P = .038$). This result suggests that referees who make decisions spontaneously experience lower levels of stress. The strongest positive relationship with perceived stress was observed for the avoidant style ($B = .442$, $P < .001$), indicating that as the level of avoidance increases, perceived stress increases significantly. The rational decision-making style also showed a negative association with stress levels ($B = - .447$, $P = .037$). This result indicates that an increase in rational decision-making is associated with lower levels of perceived stress among volleyball referees. The intuitive and dependent decision-making styles were not significant predictors of stress in volleyball referees. In the model expanded to include decision-making styles (H_1),

Table 1. Descriptive statistics of the participating referees.

Variables	Participants $N = 141$
Age, *y* $M \pm SD$	38.94±15.79
Age of women	32.94±9.50
Age of men	41.80±17.31
Gender *n* (%)	
Female	45 (31.91)
Male	96 (68.09)
Referee experience, *y* $M \pm SD$	14.22±11.25
Number of refereed matches in the current season, $M \pm SD$	35.84±30.21
Administrative level *n* (%)	
National	44 (31.21)
Regional	97 (68.79)
Educational level *n* (%)	
Primary education	4 (2.84)
Secondary education	29 (20.57)
Higher education	108 (76.60)
Place of residence *n* (%)	
Rural area	20 (14.18)
Town with up to 50,000 inhabitants	33 (23.40)
City up to 150,000 inhabitants	18 (12.77)
City with up to 500,000 inhabitants	56 (39.72)
City above 500,000 inhabitants	14 (9.93)

gender remained a significant predictor (*B*= -2.762, *P*= .029), indicating that even with psychological variables included, men reported lower stress levels, although the effect was reduced compared to the null model.

In the H_0 model (sociodemographic variables), gender exhibited the strongest partial correlation with stress levels (*Partial*= .256). At the same time, the negative regression coefficient for gender (*B*= -4.128, *P*= .003) confirms that being male is associated with lower perceived stress levels in volleyball referees, even when controlling for the effect of other sociodemographic variables. Other sociodemographic variables, such as age (*Partial*= .039), referee experience (*Partial*= - .088), administrative level (*Partial*= .018), and the number of matches refereed in the current season (*Partial*= .002), show very weak partial correlations that are not statistically significant. In the H_1 model (including decision-making styles), the avoidant style showed the strongest partial correlation (*Partial*= .277), indicating a moderately strong positive relationship with stress levels after controlling for all other variables. This means that referees who use avoidant decision-making style experience higher levels of stress. The rational style (*Partial*= - .156) and the spontaneous style (*Partial*= - .155) have similar partial correlation values but in the negative direction, suggesting that both styles are associated with reduced stress levels when controlling for the influence of other variables. Gender continues to show a significant partial correlation (*Partial*= .190) in the H_1 model, although its strength has decreased slightly compared to the H_0 model, indicating that part of the gender differences in stress levels may be explained by different decision-making styles. The intuitive style (*Partial*= .050) and the dependent style (*Partial*= - .016) show very weak partial correlations that are not statistically significant, confirming their minimal contribution to explaining stress levels in volleyball referees. Overall, the partial correlation values confirm that the avoidant style has the strongest positive relationship with stress, while rational and spontaneous styles are associated with lower stress, even after accounting for all other factors in the model.

Table 2. Multiple linear regression analysis for predictors of volleyball referee stress levels.

Predictors	**Model H0**			**Model H1**		
	B	*P*	*Partial*	*B*	*P*	*Partial*
Sociodemographic variables						
(Intercept)	18.510	< .001	-	24.489	< .001	-
Age	- .021	.652	.039	.028	.506	.058
Gender (Male)	- 4.128	.003	.256	-2.762	.029	.190
Referee experience	- .069	.309	- .088	- .024	.693	- .035
Administrative level (regional)	- .290	.833	.018	.080	.949	.006
Number of refereed matches in the current season	.001	.978	.002	- .002	.934	- .007
Decision-making styles						
Spontaneous-Instant style				- .331	.038	- .155
Avoiding style				.442	< .001	.277
Dependent style				- .035	.824	- .016
Intuitive style				.125	.497	.050
Rational Style				- .447	.037	- .156
Model summary	**Model H0**			**Model H1**		
R	.290			.537		
R^2	.084			.288		
Adjusted R^2	.050			.233		
RSME	7.090			6.370		
F change	2.781			5.147		
Df	5.135			5.130		
P	.035			< .001		
R^2 change	.084			.204		

Note. *B* – unstandardized beta coefficient; *P* – statistical significance level; *Partial* – partial correlation coefficient; R^2 – coefficient of determination; Adjusted R^2 – R^2 adjusted for number of predictors; *RMSE* – Root Mean Square Error; *F* change – *F*-statistic testing significance of R^2; *Df* – degrees of freedom; R^2 change – change in the coefficient of determination due to the additional predictors.

Discussion

The presented study aimed to determine the relationship between sociodemographic indicators and decision-making styles and the level of perceived stress in Polish volleyball referees. The null model (H_0) included selected sociodemographic variables as potential predictors, i.e., age, gender, referee experience, administrative level, and the number of matches refereed in the current season. Multiple regression analysis showed that sociodemographic indicators (R^2= .084, P= .035) significantly explain perceived stress levels in volleyball referees. However, analysis of specific coefficients indicated that only gender reached statistical significance, showing that men experience significantly lower levels of perceived stress than women (B= -4.128, P= .003). Studies as early as the one in the 1970s[18] noted gender differences in morbidity and mortality in the general population. These differences are suggested to be at least partly caused not only by experiencing stressors, but also the way social roles are related to women's psychological distress.[18] Further studies[19] found that women may be more prone to experiencing more minor daily stressors and chronic stress than men. Even though no significant difference was noted in the number of life events experienced in the previous two years, women evaluated them as more negative and less controllable than male participants. Among the listed life events, female responders specified family and health-related events more frequently than their male counterparts, who listed relationship, finance and work-related events.[19]

The findings of the present study, which investigates the disparities between female and male referees, must be interpreted with caution. Even though the demographic composition of the study group reflected the actual distribution of male and female volleyball referees, this imbalance may reduce the statistical power. However, it is worth noting that this result is also supported by other studies in the field.[12,20–24] Klatt et al.[12] showed that female referees experienced higher levels of anxiety and stress than male referees. The researchers confirmed this using both physiological indicators and subjective assessments. The rationale for this phenomenon can be found in studies conducted among female football referees. They point to gender-related psychological burdens on women in the form of experiencing psychological violence through intimidation[22] and verbal violence, especially sexual harassment.[20,21,23,25] The deterioration in mental well-being caused by such experiences as violence has been shown to[23] reduce referees' confidence and judgement, and to increase the likelihood of making mistakes.[24] Considering both our results and those of other authors, we believe that the lack of studies identifying stressors specific to female volleyball referees represents a gap in the existing scientific literature. This suggests the need to expand current scientific knowledge by conducting research that includes the specific experiences of volleyball referees and considers the possibility of gender-motivated violence in the study of stress experienced by referees. The selected sociodemographic variables in the null model (H_0) explained 8.4% of the variance in perceived stress (R^2= .084). By including the decision-making styles represented by the study participants in the research model (H_1), the model explained 28.8% of the variance in reported stress levels (R^2= .288), significantly improving the model's accuracy and predictive power.

Decision-making avoidance style showed a positive and significant interaction with stress (B= .442, P< .001), which is consistent with the results obtained among other professional groups.[16,26,27] In the work of a referee, which requires quick and unambiguous decisions, procrastination and the deferral or avoidance of decision-making may contribute to undue stress. The rational style (B= - .447, P= .037) and the spontaneous style (B= - .331, P= .038) were found to be associated with lower levels of perceived stress. Compared to a study on another occupational group, a rational decision-making style was associated with lower stress levels in clerical positions that strictly limit personal decision-making relative to other roles studied.[16] The key to understanding these results may lie in identifying variables that mediate this relationship. One hypothesis explaining the association of a rational decision-making style with lower stress levels points to a greater tendency to adopt active coping strategies, such as planning, which help reduce stress.[28] In addition, a rational style involves systematic information analysis, logical thinking, and the evaluation of all known alternatives.[6] This approach can increase confidence in the correctness of decisions made, thereby reducing stress levels. The results concerning the spontaneous style may also be noteworthy. The spontaneous style is defined as acting on impulse, without considering consequences or based on gut feelings.[6] Moreover, previous research suggests that a spontaneous decision-making style is significantly related to avoidance tendencies and maladaptive behaviours in response to stress.[7] In contrast, the results of this study indicate that the higher the declared level of spontaneous decision-making, the lower the level of perceived stress among the surveyed volleyball referees. Due to the lack of research on spontaneous decision-making style, it is difficult to compare our results with existing literature. While there are a number of studies that have investigated similar topics, these have either used different tools (for example, the Melbourne Decision Making Scale)[17] or focused on other sociodemographic groups (for example, government officials).[16] A study by Karaçam et al.[17] indicated that a "panic" decision-making style, characterized by impulsivity and low cognitive control, correlated negatively with the psychological well-being of basketball referees. It is important to note that the spontaneous decision-making style, which is measured using the KSPD questionnaire scale in the present research, is related not only to impulsivity but also to the speed of decision-making. The researchers[16] administered two questionnaires (Perceived Stress Questionnaire_and General Decision-Making Style Inventory in Swedish adaptation) to evaluate the decision-making styles of government officials. The study revealed an absence of a significant correlation between perceived stress levels and spontaneous decision-making style. This underscores the necessity for further research to be conducted on the relationship between preferred decision-making styles and perceived stress levels among volleyball referees, thereby filling the existing gap in the scientific literature.

The results obtained in the research model (H_1) indicate that the inclusion of the decision-making style variable reduces the strength of gender as a predictor of stress (B= -2.762, P= .029), although male gender still significantly predicts lower levels of perceived stress among the volleyball referees surveyed. In-depth research is recommended in both the area of gender-related stressors in volleyball referees, as well as in experimental studies testing the potential of training programs aimed at implementing stress-reducing decision-making styles.

The present study, despite its strengths, is not without limitations, which should be considered when interpreting the results. The most significant limitation of the study was the lack of a specialized tool for assessing decision-making styles and perceived stress levels in volleyball referees. The questionnaires used (KSPD and PSS-10) are general-purpose tools that may

not fully capture the specific context of volleyball officiating. It should also be noted that the study relied on self-report data, which may have introduced bias due to the subjective nature of participants' assessments of their stress responses. The use of the PSS-10, which measures the individual evaluation of events experienced by the subject during the previous month, enables a clear definition of events that were evaluated as stressful. Therefore, it can be argued that the obtained stress measurement may reflect not only the stress associated with refereeing work, but also that associated with events in the subject's private life or expectations about future events.

In addition, the study noted a disparity in the number of national (n= 44) and regional referees (n= 97), as well as in the number of women (n= 45) and men (n= 96), which may reduce the statistical power of comparative analyses. The examined group of volleyball referees with high accuracy reflect the real participation of women (29.33%) and men (70.67%) registered with regional volleyball associations in Poland (based on a list of regional volleyball associations in Poland, July 2025). This confirms the representativeness of the sample.

The above-mentioned limitations highlight the need for continued research on volleyball referees. Nevertheless, it is important to acknowledge the strengths of the PSS-10 questionnaire. PSS-10 has been developed to measure whether life events exceed respondents' capabilities to cope using their subjective assessment,[15] in contrast to the Social Readjustment Rating Scale,[29] which measures respondents' exposure to stressful events alone. The authors of the PSS-10 questionnaire[15] have indicated that the use of this method, which measures only exposure to certain stressors, may result in the obtained results not accurately reflecting the responder's true assessment. Evidence suggests[30,31] that individuals frequently misjudge the source of their stress, erroneously attributing it to a specific cause when, in reality, the stress is triggered by an entirely different factor. Consequently, stress researchers frequently employ questionnaires allowing subjective evaluation of perceived stress levels over a specified time period, without the focus on particular stressors.[15]

The results of the present study contribute to the existing body of knowledge on the importance of gender and decision-making style as predictors of perceived stress among volleyball referees. They offer a broader understanding of the role of these variables in the mental health of volleyball referees. Our research addresses the gap in the literature by focusing on a previously unexplored research group of volleyball referees and contributes to the field of sport psychology. Nevertheless, aware of its limitations, we deem it beneficial to repeat the study or supplement it with other research methods mentioned below.

To investigate the issue with more accuracy, it may be necessary to extend the research by conducting an experiment that would supplement the collected questionnaire data by measuring the stress level of volleyball referees before and after the refereed match, using the measurement of physiological indicators. Comparison of the obtained questionnaire results and the body's stress response could contribute to a better understanding of the level of experienced stress, volleyball referees' perception of it and possible relationships between them. Moreover, it would be beneficial to conduct further research, allowing more in-depth analysis of the differences between male and female volleyball referees. To accomplish that, it is crucial to strive for a balanced group, so that it would be possible to use more advanced statistical tests to analyse the two independent samples. Such an approach would facilitate a more reliable comparison and therefore well-supported conclusion.

Practical applications

The findings of this study indicate a potential correlation between decision-making styles and certain sociodemographic indicators with perceived stress levels among volleyball referees. Although the questionnaires used in the present study were primarily focused on daily aspects of decision-making rather than on specific sporting environments, the outcomes obtained can be used as a starting point for reflection on psychological differences in volleyball refereeing practice. It is important to note that the differences in overall mental functioning may have a significant impact on the quality of work performance. Therefore, it is essential to adapt support interventions to meet the specific needs of each referee group. The results obtained in this study can serve as a basis for the design of future research. Such research could employ tools that are adopted to meet the specific requirements of volleyball referee work. Furthermore, the results can be used to create general support programmes with the aim of improving the well-being of referees.

Conclusions

The results of the present study showed that sociodemographic indicators and decision-making styles are significant predictors of stress levels in volleyball referees. A model including only sociodemographic variables explained 8.4% of the variance in stress levels, with gender proving to be the only significant predictor, indicating lower stress levels in men. The model extended with decision-making styles significantly increased the explanatory power to 28.8% of the variance. In this model, gender remained a significant predictor, although its strength decreased. The extended model identified three important decision-making styles. Spontaneous and rational styles were negatively related to stress levels, while the avoiding decision-making style was positively related to stress levels. The results suggest that volleyball referees who prefer spontaneous and rational decision-making styles experience lower levels of perceived stress.

It would seem important to include a gender perspective in stress support and prevention, and to focus on developing adaptive decision-making styles. Future research should focus on a deeper analysis of the mechanisms linking decision-making styles and stress levels in the context of working as a volleyball referee.

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Informed Consent Statement

Informed consent was obtained from all subjects involved in the study. Due to the nature of the study, participants gave informed consent to participate in the study prior to completing the online questionnaires by checking the option in the electronic form.

Ethical Committee approval

The research was approved by the Ethical Committee for Research Projects of the Institute of Psychology, University of Szczecin (KB 19/2025), Szczecin, Poland.

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Conflicts of interest

The authors have no conflicts of interest to declare.

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Author-s contribution

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