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Associations of Perceived Stress and Team Support with Mental Toughness and Resilience among Esports Players

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Abstract

Background: Esports has developed into a highly competitive activity so that psychological pressure is experienced by players who are influenced by Perceived Stress due to a toxic online environment but can be reduced through team support. **Objectives:** Through this study, the influence of Perceived Stress and team support on the mental toughness and resilience of esports players was analyzed. **Method:** This correlational quantitative research involved 167 active esports players aged 17–25 years who were convenience sampling. Data were collected through validated online questionnaires on Perceived Stress , team support, mental toughness, and resilience which were then analyzed using multiple linear regression. **Result:** Perceived stress and team support together accounted for 73.7% of the variance in mental toughness (R^2 = .737, F(2,164) = 229.70, p < .001). Perceived stress showed a significant association with mental toughness (β = 0.494, p < .001), as did team support (β = 0.446, p < .001). For resilience, the two predictors jointly accounted for 74.6% of the variance (R^2 = .746, F(2,164) = 240.28, p < .001). However, once team support was included in the model, perceived stress was not significantly associated with resilience (β = 0.046, p = .384), whereas team support demonstrated a strong significant association (β = 0.832, p < .001). **Conclusion:** The findings of this study indicate that the psychological resilience of esports players is not only influenced by individual character but also social dynamics in a competitive environment. Therefore, mental toughness and resilience need to be strengthened through the provision of psychological support and team-based interventions to deal with competitive pressure.

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INTRODUCTION

Along with the rapid development of digital technology, esports has developed into a form of competition that is now considered equivalent to conventional sports. Esports is no longer only known as entertainment through video games but has been made into a competitive event that is organized in a structured way that combines training support, strategy, teamwork, and good cognitive abilities such as making quick decisions, maintaining concentration, and controlling emotions during matches (Imanian et al., 2025). Much like athletes in traditional sports, esports players stick to regular training schedules, compete in official tournaments, and work within structured team and coaching setups (Tang et al., 2023). Given the demands for performance,

discipline, and intense competition, esports fulfills the core elements of sport, namely skill, rules, competition, and the pursuit of achievement (Hallmann dan Giel, 2018).

Behind all these competitive demands, esports players carry a considerable psychological burden, one form of which is Perceived Stress . Because online spaces are so open, players are exposed to toxic behavior, public criticism, community pressure, and even gender-based discrimination or stereotyping about their skill (Vanteemar S. Sreeraj et al., 2019). These conditions can weigh heavily on players' emotions and affect their psychological state both in training and in competition. Team support, though things like positive communication, mutual trust, and emotional backing from teammates can act as a buffer against this pressure (Trotter et al., 2021). A supportive team environment helps players feel valued, psychologically safe, and better able to handle competitive pressure (Luo et al., 2025).

In competitive sports, where the ability to face pressure is greatly influenced by mental toughness and resilience. Mental toughness is understood as the ability to stay focused, confident, and consistent under pressure while resilience is defined as the ability to rise after experiencing failure, stress, or difficulties (Young, Poulus dan Adie, 2026). Both of these abilities are needed by esports players so that performance can be maintained during high-intensity matches, losses can be faced, and changes in game situations can be adjusted immediately (Poulus et al., 2020). Without strong mental toughness and resilience, psychological pressure can reduce concentration, emotional stability, and performance (Sehrawat, Kumari dan Nara, 2024).

Although esports psychology research continues to evolve, most of the previous research includes Pedraza-Ramirez et al., (2025) it is still focused on the direct influence of mental toughness and resilience on performance. However, the relationship cannot be fully explained by the two variables, so other factors are suspected to be contributing to the formation of players' psychological resilience. Studies that simultaneously test the influence of Perceived Stress and team support on both mental toughness and resilience among esports players remain scarce, and the joint contribution of competitive-pressure factors and social-support factors has rarely been modeled within a single quantitative framework. The present study addresses this gap by examining the simultaneous influence of Perceived Stress and team support on mental toughness and resilience in esports players, offering novelty in that it tests two psychosocial predictors against two psychological outcomes at once, using validated instruments, including Indonesian-adapted measures, within an esports-specific sample.

It is important to distinguish Perceived Stress from the broader construct of perceived stress. Perceived stress generally reflects an individual's global appraisal of life stress regardless of its source, whereas Perceived Stress in the present study refers specifically to psychological pressure that originates from interpersonal and social sources within the esports environment, such as toxic online behavior, public criticism, community pressure, and social-evaluative threat from peers and audiences (Vanteemar S. Sreeraj et al., 2019). This distinction matters because the mechanisms through which stress affects mental toughness and resilience are theorized to differ depending on

its source. Drawing on Conservation of Resources (COR) theory (Hobfoll, 1989), repeated exposure to Perceived Stress depletes the psychological resources, such as self-confidence, emotional regulation, and motivation, that players need to sustain mental toughness and resilience under competitive pressure. Team support, by contrast, functions as a resource-replenishing mechanism: consistent with the stress-buffering hypothesis (Cohen and Wills, 1985), positive interaction with teammates supplies emotional and informational resources that offset the resource loss caused by Perceived Stress , helping players maintain focus, confidence, and the capacity to recover quickly from setbacks. Within this framework, Perceived Stress and team support are theorized as interrelated antecedents of mental toughness and resilience among esports players, yet the combined influence of these four factors has rarely been tested quantitatively.

Based on this description, this research was conducted to be able to examine the influence of social pressure and team support on mental toughness and resilience in esports players. Through this study, an understanding of the psychosocial factors that form the mental resilience of players is expected to be obtained as well as the basis for the development of psychological support programs and team coaching in esports competitions.

METHOD

This study applies the use of a quantitative approach with a correlational survey (Weyant, 2022). The design was chosen for the purpose of analyzing the influence of social pressure and team support on mental toughness and resilience in esports players. Through this design, the relationship and contribution between variables can be known without any manipulation of the condition of the research subject.

The research subjects consisted of 167 active esports players from teams, communities, squads, or esports Unit Kegiatan Mahasiswa (UKM). The subjects involved were active players aged 17–25 years. Because no complete registry of active esports players across teams, communities, squads, and UKMs was available, a fixed sampling frame could not be constructed and the total eligible population could not be precisely determined. Participants were therefore recruited through convenience sampling: the online questionnaire link was distributed openly to esports teams, communities, squads, and UKM groups, and any individual who met the inclusion criteria and was willing to participate completed the survey voluntarily. A total of 167 respondents completed the questionnaire and were included in the final sample. As participation was voluntary and the sample was not drawn through a probability-based procedure, the sample may not be fully representative of the broader population of esports players, and generalization of the findings should be made with this limitation in mind.

Data were gathered through a Likert-scale questionnaire distributed online via Google Forms, made up of four instruments. Perceived Stress was measured with the Perceived Stress Scale (PSS-10), originally developed by Cohen, Kamarack, and Mermelstein (1983) and adapted into a two-factor, 10-item form by Chiu et al., (2016) by removing items 4, 5, 12, and 13 from the original 14-item PSS. Construct validity was supported through confirmatory factor analysis, which favored the two-

factor structure (stress and counter-stress) over a unidimensional model, along with significant correlations with athlete burnout, life stress, and coping self-efficacy. Cronbach's alpha reliability ranged from .68 to .81 across validation samples. The scale consists of 10 items rated on a 0–4 response scale (0 = never to 4 = very often), with a sample item being "How often have you felt nervous and stressed?"

Team support was assessed using the Team Climate Inventory (TCI-14), a short version developed by Kivimaki and Elovainio (1999) and further examined by Ouwens et al., (2008), who reported a Cronbach's alpha of .70. The instrument consists of 14 items rated on a 0–4 response scale, covering four dimensions: vision (4 items), participative safety (4 items), task orientation (3 items), and support for innovation (3 items), with a representative item being "We have a 'we are in it together' attitude."

Mental toughness was measured using the Indonesian version of the Mental Toughness Questionnaire (MTQ-18), originally developed by Dagnall et al. (2019) and adapted for the Indonesian population by Yudiarso et al., (2025) using the Rasch model. Validity was established through Rasch analysis, which confirmed a unidimensional structure (Martin-Loef likelihood-ratio test, p = 1.0) with acceptable item fit statistics (infit/outfit MNSQ between .5 and 1.5). Cronbach's alpha reliability was .83, although the validation study reported a notably low person separation reliability (.352) and identified gender-based differential item functioning on four items (Q8, Q11, Q15, and Q18). The scale comprises 18 items, nine of which are reverse-scored, rated on a 1–5 Likert scale ranging from strongly disagree to strongly agree.

Resilience was measured using the Indonesian version of the Connor-Davidson Resilience Scale (CD-RISC-10), adapted and validated by May Rauli Simamora, (2024). Construct validity was demonstrated through confirmatory factor analysis, which supported a unidimensional model fitting the empirical data ($\chi^2 = 36.01$, df = 35, p = .42, RMSEA = .022), with factor loadings ranging from .43 to .70 and all T-values exceeding 1.96, indicating that no items required elimination. Cronbach's alpha reliability was .82. The scale consists of 10 unidimensional items rated on a 1–5 Likert scale, with a representative item being "I am able to deal with whatever comes."All four instruments had already been checked for validity and reliability on the study sample before any further analysis was done.

The implementation of the research began with a request for permission from coaches and team managers or the esports community. Furthermore, where the purpose and procedure of the research are explained to the prospective respondents before approval through informed consent is obtained. The link to the online questionnaire is then given to respondents who have met the criteria to fill out independently. The responses received are checked for completeness, then the data is downloaded and cleaned by deleting duplicate data or incomplete data.

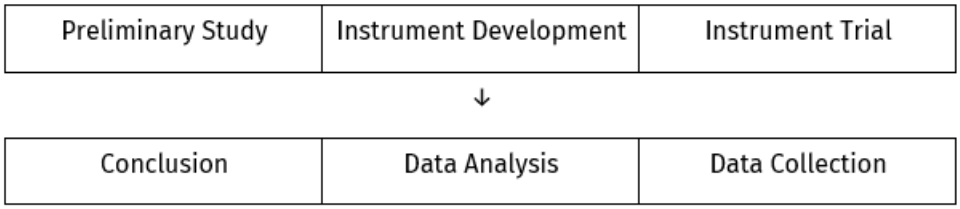


Figure 1. Research Analysis Flow

The distribution of social pressure scores, team support, mental toughness, and resilience is first explained through descriptive statistics. Furthermore, the influence of social pressure and team support was analyzed using linear regression based on the model of mental resilience and resilience. Hypothesis testing was carried out with a t-test to assess the influence of each independent variable and an F test to be able to determine its influence in a simultaneous way on the bound variable.

RESULT AND DISCUSSION

Result

Table 1 has indicated that this study involved 167 esports players. Respondents were dominated by 112 men (67.07%) while women amounted to 55 people (32.93%). These results indicate that male participation is higher than female.

Table 1. Sociodemographic Characteristics of the Sample

Characteristic	n	%	Total n	%
Gender				
Male	112	67.07	167	100.00
Female	55	32.93		
Age				
17–19 years	79	47.43	167	100.00
20–22 years	65	38.92		
23–25 years	23	13.77		
Tournament/Competition Experience				
<3 months	24	14.37	167	100.00
3–6 months	58	34.73		
>6 months	76	45.51		
Several years	9	5.39		
Esports Title				
Mobile Legends	58	34.73	167	100.00
Point Blank	6	3.59		
Free Fire	39	23.35		
PUBG	31	18.56		
Dota 2	20	11.98		
Other	13	7.78		
Playing Mode				
Solo rank/player	61	36.53	167	100.00
Full team (group play)	99	59.28		
Flexible	7	4.19		

Based on age, where respondents were dominated by 79 people (47.43%), followed by 65 people (38.92%) in the 20-22 years age group (38.92%), while the 23-25 year age group amounted to at least 23 people (13.77%). Therefore, most of the respondents are in the category of late adolescents to early adulthood.

The composition of respondents based on experience in tournaments or competitions has indicated that experience with more than six months is shared by 76 people (45.51%), followed by 3–6 months of experience by 58 people (34.73%), less than three months by 24 people (14.37%), and several years by 9 people (5.39%). Therefore, most of the respondents have had competent experience.

The composition of respondents based on esports games has indicated that Mobile Legends is played by 58 people (34.73%), followed by Free Fire 39 people (23.35%), PUBG 31 people (18.56%), Dota 2 20 people (11.98%), other games 13 people (7.78%), and Point Blank 6 people (3.59%).

Based on the play mode where 99 respondents (59.28%) played in a team or group, 61 respondents (36.53%) used the solo rank/player mode, and 7 respondents (4.19%) played both. These results indicate that most of the respondents are more accustomed to playing in groups, so team interaction and support are important aspects of this study.

Table 2. Descriptive and Correlational Analysis

Variable	Mean	SD	1	2	3	4
Perceived Stress	26.168	8.463	–			
Team Support	37.922	13.348	.666**	–		
Mental Toughness	67.222	15.242	.791**	.775**	–	
Resilience	37.982	9.754	.600**	.863**	.817**	–

*Note: * p < 0.005, ** p < 0.001*

Table 2 has indicated that the mean values of social pressure and team support were 26,168 (SD = 8,463) and 37,922 (SD = 13,348) respectively. Meanwhile mental toughness had an average of 67,222 (SD = 15,242), while resilience reached an average of 37,982 (SD = 9,754).

The results of the correlation test are an indication where all variables have a positive and significant relationship at $p < 0.001$. Strong associations were found between Perceived Stress and team support ($r = 0.666$), mental toughness ($r = 0.791$), and resilience ($r = 0.600$). Team support also had a strong association with mental toughness ($r = 0.775$) as well as a very strong association with resilience ($r = 0.863$). In addition, a strong positive relationship was found between mental toughness and resilience ($r = 0.817$). In general, all variables are significantly interrelated in the strongest correlation shown by team support and resilience.

Regression Model I: Influence of Perceived Stress Experience and Team Support on Mental Toughness

Table 3. Coefficient t-test

Model				Standardized Coefficients	t	Sig.
				Beta		
1	(Constant)	24.612	2.084		11.807	0.000
	Perceived Stress	0.890	0.097	0.494	9.204	0.000
	Team Support	0.510	0.061	0.446	8.314	0.000

Table 3 presents the regression coefficients for the model predicting mental toughness from Perceived Stress and team support. Both predictors contributed significant unique associations: Perceived Stress (B = 0.890, β = 0.494, t = 9.204, p < .001) and team support (B = 0.510, β = 0.446, t = 8.314, p < .001). Based on the standardized coefficients, Perceived Stress showed a marginally stronger association with mental toughness than team support did.

Table 4. F-test ANOVA type

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28590.321	2	14295.160	229.698	.000[b]
	Residual	10206.481	164	62.235		
	Total	38796.802	166			

Table 4 shows that the overall regression model predicting mental toughness from Perceived Stress and team support was statistically significant, F(2, 164) = 229.698, p < .001, indicating that the two predictors jointly accounted for a significant proportion of variance in mental toughness.

Table 5. Coefficient of Determination Test (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.858[a]	0.737	0.734	7.889

Table 5 indicates that the model explained a substantial proportion of variance in mental toughness (R = .858, R^2 = .737, adjusted R^2 = .734), meaning that Perceived Stress and team support together accounted for approximately 73.7% of the variance in players' mental toughness scores (SE = 7.889).

Regression Model II: Influence of Perceived Stress Experience and Team Support on Resilience

Table 6. Coefficient t-test

Model				Standardized Coefficients	t	Sig.
				Beta		
2	(Constant)	13.536	1.312		10.318	0.000
	Perceived Stress	0.053	0.061	0.046	0.873	0.384
	Team Support	0.608	0.039	0.832	15.762	0.000

Table 6 presents the regression coefficients for the model predicting resilience. Team support was a significant predictor (B = 0.608, β = 0.832, t = 15.762, p < .001), whereas Perceived Stress was not significantly associated with resilience once team support was accounted for (B = 0.053, β = 0.046, t = 0.873, p = .384). This pattern suggests that, in this model, team support is the dominant correlate of resilience.

Table 7. F-test ANOVA type

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	11844.686	2	5922.343	240.278	.000[b]
	Residual	4042.260	164	24.648		
	Total	15886.946	166			

Table 7 shows that the overall regression model predicting resilience from Perceived Stress and team support was statistically significant, $F(2, 164) = 240.278$, $p < .001$.

Table 8. Coefficient of Determination Test (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.863[a]	0.746	0.742	4.965

Table 8 indicates that the model explained a substantial proportion of variance in resilience ($R = .863$, $R^2 = .746$, adjusted $R^2 = .742$), meaning that Perceived Stress and team support together accounted for approximately 74.6% of the variance in players' resilience scores (SE = 4.965).

Discussion

The Role of Perceived Stress in Mental Toughness and Resilience

These findings reinforce the view that Perceived Stress is not only seen as an emotional burden during competitions but is also associated with mental toughness and resilience in esports players. Given the cross-sectional nature of this study, this association should not be interpreted as evidence that stress causes changes in mental toughness or resilience; the direction of this relationship cannot be established from the present data. These results are in line with research Poulus et al., (2020), which indicates that psychological pressure in esports matches is closely related to the coping strategy and mental toughness of athletes. Therefore, strains not only need to be suppressed but can also be used to develop more adaptive coping skills. That way, Perceived Stress is understood to have two impacts. On the one hand, emotional control and self-confidence can be weakened. On the other hand, exposure to competitive pressure that occurs in a repetitive way can form a psychological learning process so that player resilience is increasingly developed.

These findings also broaden the view Young et al., (2026), which indicates that mental toughness and resilience that are measured in general cannot necessarily explain the competitive performance of esports players directly. The results of this study do not contradict these findings but indicate that both constructs are more precisely understood as the result of psychosocial processes than the main predictors of performance. Therefore, before mental toughness and resilience are used to predict player achievement, the process of forming these two psychological capacities needs to be understood first. In the context of digital competition, the process seems to be heavily influenced by Perceived stress.

Perceived Stress in esports players has also indicated different characteristics compared to conventional sports. In traditional sports itself, pressure generally comes from coaches, teammates, or spectators who are directly present. On the other hand, in esports, the pressure is more formed by the digital environment with toxic behavior, public criticism, and stereotypes against playability as explained by Vanteemar S. Sreeraj et al., (2019) in mental health studies.

Because it appears online and often anonymous where the pressure is more likely to be difficult to avoid and last longer than conventional sports. This condition may help explain the strong association observed between Perceived Stress and mental toughness and resilience in this study, although the cross-sectional design does not allow this to be confirmed as a causal pathway. The findings also strengthen the research Pedraza-Ramirez et al., (2025) that the digital social environment needs to be considered in understanding the mental readiness of esports players.

The Role of Team Support in Shaping Mental Toughness and Resilience

The association between team support and mental toughness and resilience found in this study is in line with the findings Trotter et al., (2021), which indicates that social support, self-regulation, and psychological skills are related to higher game rankings in e-athletes. The study also reported that the level of social support for e-athletes is lower than that of conventional sports athletes because of the limited formal organizational structure of many esports teams. The findings of this study further strengthen these results. When team support is well available, its association with mental toughness and resilience is seen to be stronger than what was previously found in the general e-athlete population. This indicates that strengthening team structure and support can provide real psychological benefits for the players themselves.

This finding also matches the meta-analysis by Luo et al., (2025) on athletes in general, which concluded that social support has a positive effect on psychological well being and is negatively correlated with anxiety and stress symptoms. Interestingly, Luo et al., (2025) found that support from family and friends tended to be more strongly linked to reduced depressive symptoms than support from teammates. The opposite pattern showed up in the present study, where team support was particularly strongly linked to resilience among esports players. That difference makes sense, though, given that teammates in esports especially those who play collectively or in groups are often the most intense and frequent source of social interaction players have, both in training and competition, which lets their role as a protective psychological factor outweigh other support sources outside the team.

It is important to note that, because this study used a cross-sectional design, the associations reported above cannot be interpreted as evidence of a one-directional causal effect of stress and team support on mental toughness and resilience. An alternative explanation is also plausible: players who already possess greater mental toughness or resilience may perceive, evaluate, or report their social environment, including perceived stress and the level of team support they receive, differently than players with lower mental toughness or resilience. In other words, reverse causality cannot be excluded, and the possibility of a bidirectional relationship should be acknowledged. Accordingly, the discussion above should be read as describing an observed association between these constructs, rather than as confirmation of the psychological mechanism proposed to explain it; the proposed mechanism remains a plausible interpretation that requires longitudinal or experimental data to be tested directly.

Taken together, the pattern of relationships among Perceived stress, team support, mental toughness, and resilience found in this study broadens the existing understanding of esports psychology research, which, according to Pedraza-Ramirez et al., (2025), has largely been dominated by topics around cognitive-motor processes and training structure, while team dynamics and social environment have gotten comparatively less attention. The findings of this study indicate that Perceived Stress and team support both have a role in the formation of players' psychological conditions. Based on this empirical evidence, the attention of the team and the e-sports community not only needs to be focused on technical playing skills but also on strengthening the team environment that is more supportive to strengthen the mental resilience of players in the face of increasingly high competitive pressure.

CONCLUSION

The results of this study indicate that Perceived stress and team support are significantly associated with the mental toughness and resilience of esports players, so that the objectives of this study have been achieved. The findings suggest that players' mental resilience is related not only to individual characteristics but also to the social conditions they face, whether in the form of competitive pressure or support from teammates. Given the correlational design of this study, these findings should be interpreted as significant associations rather than causal relationships; psychological resilience in esports players therefore appears to be linked to the interplay between competitive challenges and social support, rather than developing independently of team and community influence.

The findings of this study have implications for coaches, team managers, and the esports community. Attention not only needs to be focused on the technical abilities and strategies of the players but also on the formation of a more supportive team environment and the provision of psychological support so that social pressure can be dealt with in a healthy manner. Coaching programs through emotional regulation training, positive team communication, and support mechanisms between players can be applied to strengthen mental toughness and resilience while reducing the negative impact on competitive pressure in esports.

The study then suggested the use of longitudinal design to be able to observe changes in the influence of Perceived stress and team support on the mental resilience of players over time. The type of game, level of competition, and organizational structure of the team can also be considered as a moderator or mediator variable. In addition, qualitative approaches or mixed methods can be used to explore social dynamics in esports teams so that the factors that form players' mental resilience can be understood in a more in-depth way.

AI DISCLOSURE STATEMENT

The authors declare that no generative AI tools were used to generate, analyze, interpret, synthesize, or write the scientific content of this manuscript.

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