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Exploring the Impact of Participation and Engagement on Confidence, Mediated by SDQ (Symptoms of Depression)

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A B S T R A C T

Objective: This research aimed to examine how the level of participation and frequency of engagement influence symptoms of depression through sports confidence in the context of Pakistani athletes. Drawing on self-determination theory, particularly the need for competence, influences symptoms of depression via sports confidence**.**

Methods & Materials: Based on SDT, the fulfillment of the need for competence (as reflected in sports confidence) is key to positive psychological outcomes. The participants were 357 athletes (125 females, 232 males), aged between 18-65 years old, who had been registered in competitions (national, international, university, college, and club-level) in Pakistan. The results were obtained using a partial least squares structural equation modelling (PLS-SEM) approach.

Results: The results indicated that the level of participation significantly influences symptoms of depression. Furthermore, the frequency of engagement also influences symptoms of depression. However, depression has a significant mediating impact between frequency of engagement and level of participation with sports confidence. These results indicate the complexity of being involved in sport and athletes' psychological well-being in relation to obtaining confidence in their abilities and their participation in sport.

Conclusion: Building on these findings, further research is warranted to consider these relationships and the other psychological and contextual influences on athletes.

Keywords: *Participation, Exercise, Health Behavior, Depressive Disorder, Self-Efficacy.*

1. Introduction

One of the most crippling conditions that affects many people's lives is depression, which is especially dangerous for athletes Cho, Kim (1). Depression affects all ages negatively in terms of their physical and mental health, but it is especially problematic for athletes. In addition to being more susceptible to depression Zhang, Pratap (2), athletes also face social disadvantages; when their social networks decrease with age, they are more likely to feel alone, which has a detrimental impact on their mental health.

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According to Lipschitz, Van Boxtel (3) depression is the most prevalent mental health issue in the general population and the primary cause of disability adjusted life years worldwide. Regardless of diagnosis, depressive symptoms are more common among individuals with severe mental diseases than in the general population (4). Depressive symptoms can manifest at any level and are linked to deficits in several functional domains, indicating that they are more of a continuous than a categorical phenomenon (5-7). Depressive symptoms are linked to decreased quality of life and subjective perceptions of recovery (8, 9), as well as deteriorated social interactions and disengagement from daily activities. In individuals with severe mental illness, depressive symptoms have also been linked to increased healthcare use and suicide attempts (10).

Psychological and physical growth is greatly aided by sports participation for athletes. It is crucial in forming their sense of self-worth and assisting them in overcoming obstacles in their personal lives, social situations, and educational environments. The self-belief and potential are strengthened by sports, which promote self-control, teamwork, leadership, and decision-making for athletes (11). To increase the chances of leading a healthy life, it is crucial to engage in regular physical activity. There are certain recommendations for physical activity to help athletes lead healthy lives (12). International guidelines indicate that children and adolescents between the ages of 5 and 17 engage in 60 minutes of moderate-to-vigorous physical activity daily (13). Even though sport is universally accepted and acknowledged to be beneficial for mental health, competitive athletes regularly deal with unique, heightened stressors that result in rates of depression and anxiety that can be similar to or higher than those in the general population, making this relationship complicated (10). According to Panza, Graupensperger (8), physical activity levels have declined globally as athletes mature through adolescence, with women reporting much lower levels of physical activity than men in most nations.

In many nations, including Pakistan, the rate of athletic engagement is falling as athletes get older (1). There is a distinct cohort and an increasing trend of athletes who continue playing competitive sports after the normal age for peak performance (14), despite this consistent decline in participation. Master athletes are individuals, generally aged 35 years and above, who engage in continuous training and compete in age-categorized sporting events designed for athletes. Participation and engagement in sport not only provides competitive opportunities but also promotes lifelong physical activity, healthy aging, and overall well-being. Instead of being a state, it is theorized as a persistent experience grounded in fundamental dimensions that foster sustained engagement in sport (15). The belief in one's own ability to reach a particular level of performance and goals (confidence), the desire to devote time and effort to pursuing significant goals (dedication), the presence of physical, mental, and emotional energy, and the sense of enjoyment in the sporting activity (enthusiasm) are all characteristics of this optimal experience, which is a high-order construct (2, 16).

Athletes' personalities, demographic characteristics, and the organizational culture in which they participate are all factors that affect confidence in sports (17). Athletes who are self-assured are typically better equipped to finish jobs and overcome challenges than others. Additionally, they make better use of the cognitive resources needed for athletic achievement (18). Conversely, those who lack confidence in themselves do not think they have the strength or conviction to handle everyday issues, even if they are successful in doing so. Sports confidence has been defined using a variety of theoretical frameworks in sport psychology. Sports confidence, which is defined as "athletes' judgements of their capabilities to organize and execute courses of action required to attain designated types of performances," (19). Alternatively, Chun, Lee (20) created a conceptual framework of sport-confidence in an effort to examine the setting of competitive sports. This framework is described as "the belief or degree of certainty individuals possess about their ability to be successful in sport."

This study contains a noteworthy contextual gap. This study fills that gap by examining a population of athletes in Pakistan, who navigate a distinctive socio-cultural context, in which religious beliefs and traditional gender roles play an important role in the participation, access, and perception of sport (17). The theoretical significance consists of assessing whether the same mental health benefits of sport participation are recognized in the academic literature, where cultural identity (religious commitment) is the foundation of self-identity and environment (2, 16). The knowledge gap is also the discrete and sequential modeling of these two forms of engagement. Here, we offer the hypothesis that participation will have limited benefits, but sustained engagement will predict positive transformation of mental health. Existing models have not surveyed the discrete pathways of frequency of participation, quality of psychological engagement, the mediation of internalizing

problems, and the presentation of confidence in a coherent, integrated path analysis.

Although this research is based on the well-established link between sport and mental health, the study's specific mechanisms will be conceptualized through Self-Determination Theory (SDT). The premise of SDT is that motivation and psychological well-being are enhanced when three basic psychological needs (BPNs), Autonomy, Competence, and Relatedness, are satisfied. In the context of the current model, psychological engagement will serve as the functional proxy to represent BPN satisfaction; in other words, high psychological engagement suggests that one is experiencing intrinsic motivation as a direct result of having choice in their training (Autonomy), and having a good bond with peers/coach (Relatedness) (21). Further, and more significantly, the regular success and mastery experienced from deep engagement will satisfy the need for competence. In other words, the intrinsic motivation leading to the success and mastery of skills achieved through engagement will satisfy competence, which is a necessary theoretical precursor to the outcome variable of sport confidence (22).

The goal of the present study was to examine the relationship between the level of participation and frequency of engagement has impact on symptoms of depression through confidence in the context of athletes. We examined a wide range of engagement levels, including confidence and depression, as well as the frequency of participation in various activities, because previous research and conclusions have been limited in studying different types of activities both individually and collectively. We expected that a higher overall level of participation would be linked to a decreased likelihood of experiencing depressed symptoms. Furthermore, we assumed that a more varied degree of participation could be linked to a lower likelihood of experiencing depression symptoms, based on empirical results from other studies (21). Furthermore, as prior research has shown that gender is a critical component that may contribute to the positive impacts of sports confidence, we investigated the potential of SDQ in the relationship between the level of engagement and frequency of engagement (22). Lastly, we proposed that sports confidence and participation, and frequency of engagement, would act as partial mediators in the relationship between depressed symptoms.

2. Literature Review

2.1 Level of Participation and Depression

In addition, team sports in particular seem to provide some mental health benefits beyond those of individual sports as they encourage social connections, shared missions, and peer support networks that serve as protective factors against loneliness and depression (11). More hours of participation in sports have also been directly associated with lower levels of depressive symptoms for high school athletes (12). This is not always linear, nor is it a uniformly positive relationship, especially as the level of participation becomes increasingly intentional, intense, and competitive. Moderate amounts of activity are largely always beneficial, while elite and high-level athletes have some unique stressors that can sometimes increase depressive symptoms, as they experience tremendous pressure to perform, competitive failures, injury, overtraining, and often their athletic identity is tied to their successes or failures as an athlete (13, 23). The prevalence of depression among elite athletes may be similar to or higher than the general population, and there are groups of elite athletes that seem to be more vulnerable than others, such as female athletes and athletes participating in individual sports, such as track and field or wrestling. According to Panza, Graupensperger (8), users find it helpful to connect with people who have similar conditions, form social bonds, and share experiences, even though engagement in these athletes only slightly improves a variety of outcomes like anxiety, general well-being, or quality of life.

Behavioral avoidance, trouble focusing, anhedonia, and unpleasant thoughts are all signs of depression that may affect a person's participation in a mental health intervention (10). According to Moradi, Bahrami (24), depressed individuals have higher rates of medical comorbidities, interpersonal dysfunction, social impairment, and unemployment. Furthermore, engagement in sports is beneficial psychologically and socially for athletes and for general papulation such as finding a deeper purpose in life, relishing the competitive challenge, and making new friends (25). According to some research, athletes who compete in sports may exhibit more prosocial conduct, passion, community service, and travel advantages (1). These social advantages also extend to athletes' homes, as it has been noted that family members are crucial in ensuring these athletes continue to compete. According to athletes, working out with their spouse and kids can strengthen their bonds as a family and have a mutually reinforcing influence on each

other's athletic engagement (2). The degree of engagement in athletics has a complex effect on depression among athletes, with studies identifying both protective and risk factors relating to varying degrees and forms of engagement. Overall, participation in sports is related to lower depression through multiple mechanisms, such as the release of endorphins, enhanced mood management, improved self-esteem, and greater social support (3, 4, 7). Research has continually demonstrated that athletes are less likely to show extreme depression than their inactive counterparts (6).

H1: *Level of participation has direct impact on* depression *(SDQ).*

2.2 Frequency of Engagement and Depression

In athletes, depression frequently coexist with signs of cognitive impairment (1). In individuals with mild cognitive impairment, the prevalence of depression is 40% in clinical samples and 25% in population (15). Increased depression raise the risk of dementia (14), and patients with depression frequently exhibit more severe cognitive impairment (2). Therefore, addressing depression in athletes with cognitive impairment may enhance cognitive function. Examples of such interventions include multi-component non-pharmacological interventions (16), exercise (3), psychotherapy (4), and medication (7). Interestingly, encouraging self-esteem might also lessen depression. Depression are less common in athletes who engage in physical activities (6). This is due to the fact that both physical and mental health can be enhanced by self-worth, a sense of control, and the perception of support during participation (26). Furthermore, a meta-analysis revealed preliminary evidence of their efficacy in lowering depressed symptoms (27). Engagement are said to promote empowerment, self-confidence, a sense of control, and pleasant emotions in their users in addition to having an impact on depression (28). Promoting engagement, which is defined as athletes participation in activities that enable connections with others, is widely acknowledged as a crucial protective factor among the different measures suggested to lower the risk of depression (29). According to earlier research, social networks can help athletes manage stressors in their lives and lessen feelings of loneliness; hence, increased interaction frequency is linked to a decreased risk of depression (28). The long-term effects of shifting the frequency of engagement on depression are yet unknown, despite the fact that regular social interactions are associated with a lower incidence of depression (30).

Sport participation usually supports well-being, but too much or too little can increase the risk of depression. Regular physical activity, which results from frequent athletic participation, is well known to act as an antidepressant. This is due to the physiological changes, such as endorphins, neurochemical changes for various stressors, and psychological aid through self-esteem, coping mechanisms, and social supports (8, 10, 25). Studies have evidenced an inverse relationship between the frequency of sports participation and selection of depression; this average results in more frequent sports participation resulting in less depression in athletes (9). An example of a recently created study found that high school athletes engaging in more hours of sports participation reported less depression (5). But the relationship is not always direct, especially when the frequencies of interest are very high, such as those found in elite or extremely competitive sports settings. Whereas a moderate to high frequency of training is generally correlated with improved mental well-being, there is evidence supporting a "U-shaped" or curvilinear relationship in which both low and high frequency are correlated with negative mental health outcomes (6, 7). Frequent and excessive training, commonly in combination with high intensity and inadequate recovery, can lead to overtraining syndrome and athlete burnout, both being closely related to heightened depressive symptoms, emotional exhaustion, and diminished feelings of accomplishment (4). Top performers, in spite of the overall health benefits of sport, might actually suffer greater proportions of mental illness, such as depression, because of the rigorous push and stress of their training schedules and competition calendars (3). Therefore, whereas modest and regular participation is preventative, the best frequency of participation at preventing depression among athletes is a well-balanced system that values overall wellness and does not fall into the trap of overtraining

H2: *Frequency of engagement has direct impact on* depression *(SDQ).*

2.3 Mediating Role of Depression

Depression has the greatest influence on disability. However, at least four out of five depressed athletes lack access to the bare minimum of treatment, indicating a significant treatment gap (1). Athletes are increasingly using the internet to get informal support for depression, frequently through peer-to-peer online forums (2). According to the literature, there are several reasons to join these communities: they give access to health information

(3), they enable people to share their own experiences and find motivation from like-minded individuals (4), and lower the possibility of stigmatization because of anonymity. Additionally, there is a complicated relationship between depression and engagement frequency in sports that could be influenced by a number of contextual, cultural, and personal factors. For instance, cultural norms around social interaction, the availability of social support networks, and access to medical care may differ significantly between nations, which may have an impact on the results of sports confidence as well as the frequency of engagement patterns (7). Therefore, for a more thorough understanding, it is imperative to examine this relationship in a variety of settings.

Regular physical activity can reduce depression due to a variety of influences on neurotransmitters, corresponding stressors, and overall mental health and wellness states of mind (6). The depression reduction leads to an increase in the athlete's self-image and self-confidence. Numerous studies show that those who frequently participate in physical activity demonstrate higher self-confidence levels and are more satisfied with their lives, and exhibit lower levels of depression (5). A compelling complication develops in that at extreme frequencies, but moderate and persistent is good, over-training or engagement, whether for elite athleticism with the corresponding excess training and training load/workload, can create an onset of excessive stress, fatigue, athletic burnout, and in some cases increased depression (9). In the case of elite athletes, being in such a high-stress environment and experience, it's plausible to suggest the high frequency engagement in sport or physical activity leads not to decreased confidence, but in essence, the depression correlates more closely to the gains of engagement. Thus, the mediating role of depression is significantly important in interpreting the extent and frequency of athletic engagement and how it leads to changes in an athletes' self-efficacy-based self-confidence. Competitive sport participants, for example, usually show higher levels of self-confidence than their less sport-involved counterparts through means such as mastery of skills, social support, and internal reward (17). This positive association, however, can be negated by the occurrence of depression. Depression is marked by hopelessness, worthlessness, and lack of interest, which in turn directly undermine a athletes confidence in their capability, thus affecting confidence (1). Research has clearly indicated that engagement in sports works as a protective factor in opposition to depression as well as anxiety, to some extent by enhancing self-esteem and self-confidence (22). On the other hand, when there are depression, they may weaken or even counteract the positive influence of engagement on confidence, indicating that depression is an essential psychological mechanism. For instance, higher profiles of engagement among sportspersons have been associated with greater self-esteem and fewer depression Raimundi, Celsi (14), which means that the absence or attenuation of depression plays a role in increased confidence.

H3: Depression *(SDQ) has mediating role among level of participation and confidence.*

H4: Depression *(SDQ) has mediating role among frequency of engagement and confidence.*

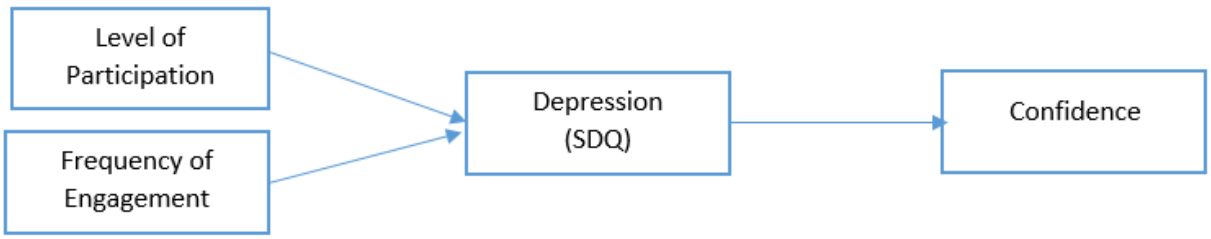

Figure 1. Conceptual Framework

3. Methods and Materials

3.1 Study Design

This study utilized a cross-sectional, quantitative design. Because of the unique cultural and linguistic situation of the study participants, careful preparation of the instruments was required. The original English research instruments were translated into Urdu following procedures used in previous studies, including the translation and back-translation protocol described by (31). To ensure appropriate cultural and linguistic fits, a group of experienced academics

reviewed the translations, and a pilot study with 40 Muslim athletes was carried out. This process ensured that the instruments made sense culturally and conveyed the intended constructs in the Pakistani athlete. Before examining the relationships proposed by the hypothesis, the validity and reliability of the measurements were assessed to ensure the questionnaires adequately and consistently measured the intended variables, particularly sports confidence, that were used to conduct the structural equation modeling analysis in subsequent steps.

3.2 Ethical Approval

This study has also been approved through the University of Malaya's Research Ethics Committee (UM. TNC2/UMREC-841) before collecting any data.

3.3 Participants

The selection criteria for the participants were: 1) aged at least eighteen years old, 2) engaged in any organized sports, and 3) adherents of a particular religion. It's important to note that one needs to ensure the data meets the minimum sample size thresholds in the PLS-SEM approach (Hair et al., 2019). An online power analysis tool was used to determine the minimum sample size (N = 115) for this study (32). This analysis involved 17 latent variables, 89 observable variables, a moderate effect size ($f^2 = 0.3$), a level of significance ($\alpha = 0.05$), and a power of .80 (Hair et al., 2019). A total of 380 individuals responded to the survey. 23 responses were deleted due to incompletion, leaving 357 respondents (125 women and 232 men) aged 18 - 65 (M = 29.39; SD = 10.04) in the final analysis. The demographic information of the participants is detailed in Table 1.

Table 1. Demographic Characteristics of the Participants (N = 357)

Demographic	Value	Percentage
Gender	Male	65.0
	Female	35.0
Religion	Islam	100
Age	18-24	43.7
	25-35	37.5
	36-45	10.9
	46-55	3.9
	56-65	3.9
Sports	Athletics	6.4
	Badminton	17.6
	Basketball	4.8
	Cricket	22.1
	Soccer/Football	13.7
	Gymnastic	5.6
	Handball	1.1
	Hockey	4.8
	Kabaddi	1.4
	Karate	1.4
	Polo	0.3
	Rugby	0.8
	Squash	0.6
	Table tennis	3.4
	Volleyball	9.2
	Other	6.8
Level of Participation	International	1.4
	National	10.4
	University	19.6
	College	14.6
	Club	51.3
	Other	2.8
Frequency of Engaging in Sports	1-3/days	39.5
	4-7/days	60.5

3.4 Measures

3.4.1 Depression Questionnaire (SDQ; Pedrelli et al., 2014)

The Symptoms of Depression Questionnaire (SDQ) was created by Pedrelli et al. (2014) as a 44-item measure designed to assess the intensity of symptoms associated with different forms of depression. The instrument is structured into five subscales: SDQF-1 with 18 items (e.g., "How has your mood been over the past month?"), SDQF-2 with 13 items (e.g., "How agitated have you felt over the past month?"), SDQF-3 with 6 items (e.g., "Have you had pains or aches over the past month?"), SDQF-4 with 3 items (e.g., "How has your sexual functioning been over the past month?"), and SDQF-5 with 4 items (e.g., "How guilty have you felt over the past month?"). Responses are recorded using a six-point Likert scale. The SDQ has demonstrated strong reliability, with a Cronbach's α of 0.94, confirming its validity as a research tool (33).

3.4.2 State Sport Confidence Inventory (SSCI; Vealey, 1986)

The State Sport Confidence Inventory (SSCI), developed by Vealey (1986), is designed to measure athletes' state confidence levels in sport. This unidimensional instrument consists of 13 items, for example, "Compare your confidence in your ability to perform the skills required for success with that of the most confident athlete you know." Athletes respond by rating their confidence relative to the most confident athlete they are familiar with, using a nine-point Likert scale ranging from 1 (*lowest*) to 9 (*highest*). The SSCI has demonstrated strong psychometric properties, with a reported Cronbach's alpha coefficient of 0.95 (34).

3.5 Procedure

The study received ethical clearance from the appropriate institutional research ethics committee (UM.TNC2/UMREC–841). Following approval, data were collected through online questionnaires designed using Google Forms. An online survey method was selected to secure participant anonymity and to facilitate access to a wide and diverse group of respondents. Recruitment efforts focused on athletes affiliated with universities, colleges, sports clubs, and community organizations, and were expanded using digital platforms such as Facebook, e-mail, and WhatsApp. Each prospective participant was provided with a cover letter, an information sheet, and a consent form along with the survey link. These documents explained the aims of the research, described the measurement tools, and outlined the requirements for completing the survey. Participants were assured that participation was voluntary, that they could omit any items they were uncomfortable answering, and that all responses would remain strictly confidential and anonymous. It was also communicated that completing the survey would require approximately 15–20 minutes.

3.6 Data Analysis

This research utilized the partial least squares structural equation modelling (PLS-SEM) approach. Variance-based PLS-SEM aims to maximize explanatory power as compared to the covariance-based SEM, which aims to confirm the congruence of theory with the model. Moreover, PLS-SEM gives researchers the flexibility to work with smaller sample sizes (35). This flexibility in sample size does not limit the analytical ability of the research into complex multi-group networks. It includes single-item tests and a mixture of formative and reflective model approaches (35).

4. Results

4.1 Measurement Model/Confirmatory Factor Analysis

The measurement model was examined for internal consistency, convergent validity, and inter-item reliability (35). Inter-item reliability was established through the examination of factor loadings from the items, and a cutoff of 0.60 was used to analyze the factor loadings. Convergent validity was established by analyzing the average variance extracted (AVE); all AVE values exceeded the cutoff of 0.50 (35). Similarly, internal consistency reliability was evaluated through the use of composite reliability estimates and a cutoff score of 0.70 (35). The results for the measuring model are presented in Table 2.

Table 2. Measurement Model/Confirmatory Factor Analysis

Variables	Items	Factor Loading	Cronbach's alpha	Composite reliability (CR)	Average variance extracted (AVE)
Confidence	SSCI-1	0.748	0.93	0.94	0.55
	SSCI-2	0.737			
	SSCI-3	0.753			
	SSCI-4	0.749			
	SSCI-5	0.694			
	SSCI-6	0.775			
	SSCI-7	0.710			
	SSCI-8	0.798			
	SSCI-9	0.740			
	SSCI-10	0.741			
	SSCI-11	0.737			
	SSCI-12	0.720			
	SSCI-13	0.722			
SDQF-1	F1-2	0.77	0.96	0.97	0.64
	F1-3	0.78			
	F1-5	0.78			
	F1-7	0.77			
	F1-16	0.803			
	F1-17	0.797			
	F1-18	0.730			
	F1-19	0.812			
	F1-20	0.82			
	F1-22	0.81			
	F1-35	0.846			
	F1-36	0.811			
	F1-37	0.796			
	F1-38	0.824			
	F1-39	0.793			
	F1-40	0.767			
	F1-41	0.795			
	F1-42	0.865			
SDQF-2	F2-4	0.77	0.95	0.95	0.63
	F2-6	0.78			
	F2-8	0.75			
	F2-21	0.85			
	F2-23	0.777			
	F2-24	0.825			
	F2-25	0.762			
	F2-26	0.782			
	F2-27	0.835			
	F2-32	0.812			
	F2-33	0.815			
	F2-34	0.792			
	F2-43	0.73			
SDQF-3	F3-1	0.90	0.94	0.95	0.76
	F3-9	0.92			
	F3-10	0.859			
	F3-11	0.869			
	F3-12	0.834			
	F3-44	0.84			
SDQF-4	F4-13	0.915	0.90	0.93	0.83
	F4-14	0.905			
	F4-15	0.924			
SDQF-5	F5-28	0.865	0.84	0.88	0.66
	F5-29	0.766			
	F5-30	0.757			
	F5-31	0.874			

Note. SSCI = State Sports Confidence Inventory; SDQF-1 = lassitude, mood, and cognitive functioning under the SDQ (Symptoms of Depression Questionnaire); SDQF-2 = anxiety, agitation, irritability, and anger; SDQF-3 = suicidal ideation; SDQF-4 = disruptions in sleep quality; SDQF-5 = changes in appetite and weight

4.2 Discriminant Validity

We calculated the HTMT.$_{85}$ to evaluate discriminant validity. The evaluation of discriminant validity confirms that a reflecting construct has the strongest associations with its own measures (36). According to Fornell and Larcker (36), one criterion for evaluating discriminant validity should be a Heterotrait-Monotrait ratio of correlations (HTMT) of less than 0.85, this is because the PLS algorithm may overestimate indicator loadings and underestimate correlation coefficients among each of the constructs. Table 3 displays the HTMT. The results of these criteria are located in Table 4. Both the HTMT criterion and Fornell-Larcker criterion were passed, and demonstrated that we had an adequate, valid measurement model.

Table 3. Fornell-Larcker Criterion

Male	1	2
SDQ	0.813	
SSCI	0.734	0.828
Female	1	2
SDQ	0.775	
SSCI	0.665	0.798
International	1	2
SDQ	0.879	
SSCI	0.561	0.816
National	1	2
SDQ	0.863	
SSCI	0.585	0.866
University	1	2
SDQ	0.755	
SSCI	0.549	0.811
Collage	1	2
SDQ	0.864	
SSCI	0.542	0.875
1-3 Days	1	2
SDQ	0.800	
SSCI	0.764	0.819
4-7 Days	1	2
SDQ	0.779	
SSCI	0.661	0.716

4.3 Structural Model

In the next phase, through the recommended procedures (35), we assessed the structural model with bootstrapping using 5,000 subsamples.

The R-Square of Depression (0.327) shows that the predictor variables of Level of Participation and Frequency of Engagement explain about 32.7% of the total variance in athletes' depression. This is a good effect size in psychological research and offers further confirmation that involvement in sport is a strong predictor of internalizing problems. The R-squared for sports confidence (0.418) is an even stronger value, indicating that the participation/engagement variables and the mediating variable (depression) together explain 41.8% of the variance in the athletes' self-belief, providing considerable utility in predicting the main variable of interest. Importantly, the Standardized Root Mean Square Residual (SRMR) of 0.068 is also well below the 0.08 threshold.

Table 4. R-Square and SRMR values

	R Square	SRMR
Symptoms of Depression	0.327	0.068
Sports Confidence	0.418	

Our data fully support H1-H4, as demonstrated by our structural model results presented in Tables 4 and 5. The sample size for each group, in the context of this suggestion, appears acceptable. In this case, we assess the measurement models of the two data groups independently to check that all indicators in the model are the same, following the procedures of (35). The two-step approach was used as per the guidelines. Hair, Sharma (35) indicate multi-group modelling requires 100 per group.

Table 5. Measured direct relationship

Direct Relationship	Original Coefficient	T-values	P-values
H1: Level of Participation-> Depression (SDQ)	0.329	4.787	0.000
H2: Frequency of Engagement-> Depression (SDQ)	0.187	2.624	0.000

The results of the direct effects provide initial support for the core hypothesis of the study, which is the psychological benefits of sport participation. Hypothesis 1 and Hypothesis 2 indicated significant relationships with P-values of 0.000, thereby suggesting that there exists a strong and reliable relationship between the study constructs. Interestingly, the path from the level of participation effect on depression has a stronger coefficient (0.329, T=4.787), and with the path frequency of engagement (0.187, T=2.624). This finding is somewhat surprising since it explicitly shows that a higher volume of participation (i.e., present in the sport context) has a stronger direct relationship to depression than the measure of psychological investment in sport (engagement). It could be assumed that engagement would provide more value, but this has shown that direct structural exposure to high participation is the primary contributor associated with lower depression in athletes.

We then moved on to the last step of assessing the degree of mediating effects can be assessed using the coefficient of determination analysis (35). The mediating role of SDQ in the relationship with the level of participation and frequency of engagement in sports confidence was evaluated through SmartPLS.

Table 6. Measured In-direct relationship

Structural Path	Original Coefficient	T-values	P-values
H3: Level of Participation-> Depression (SDQ)-> Sports Confidence	0.532	11.274	0.000
H4: Frequency of Engagement-> Depression (SDQ)-> Sports Confidence	0.412	2.692	0.000

The strongly supported structural path results affirm the mediating function of the study, confirming the function of the proposed SDT framework. The P-values (P=0.000) for both Hypothesis 3 and Hypothesis 4 clearly demonstrate reduced internalizing depression (SDQ) as a crucial non-negotiable step. The depression experienced by participants will clear a pathway toward belief in their own capabilities, effectively building the competence needed to increase Sports Confidence. Both the participation and engagement paths are significant, but confirming the mechanism implies that the benefit of the sport is not only direct it's especially through the reduction of internal psychological barriers (1, 19).

5. Discussion and Conclusion

The study results suggest that confidence in sports plays an important role in considering participation in and engagement in sports positively correlated with the absence of depression. Regular participation in sports positively affects mental health. Confidence in one's sports abilities tends to yield lower levels of depression, and self-efficacy

and self-competence, like phenomena, prove to be facilitators of the activity well-being relationship.

These results are consistent with the basic premises of Self-Determination Theory (SDT) (22), in that participation in sport has been shown to enhance psychological well-being through the satisfaction of basic psychological needs. The strong mediating role of sports confidence provides empirical support for the idea that satisfied competence and an athlete's belief in their capabilities play a pivotal protective role against depression. For Pakistani athletes, these results show that depression can be most effectively reduced when participation occurs regularly in social and training environments that intentionally satisfy or support the basic psychological needs of competence, autonomy, and relatedness for the athlete.

The level of an athlete's participation plays an important role in their psychological wellness, particularly depression and its related symptoms. Applying Self-Determination Theory (SDT), increased participation in sport enhances the experience of basic psychological needs. For instance, regular contacts and a sense of belonging provide opportunities for relatedness; the opportunity to engage meaningfully with their playing or training, and choice within training to enhance the experience of autonomy; and engagement and enjoyment of their sporting experience that provides them with a sense of competence and accomplishment. Together, participation creates a supportive, motivational environment that protects athletes' mental health from adverse effects. This protective role has been documented consistently. Panza, Graupensperger (8) reported in their systematic review that athletes who participated in regular sport had a significant impact on depression. For instance, other studies demonstrated that consistent participation is linked to a decrease in stress and depression, with frequency and duration positively associated with psychological benefits to an athlete's mental health (1, 2, 15, 37).

Notably, the level of participation, particularly in team sports, contributes to an increased sense of social connectedness and social support from peers, which directly satisfies one of the needs for relatedness, which then mediates the decreased depression. It is also helpful to note research conducted during the COVID-19 pandemic, which demonstrated the crucial importance of basic psychological needs; for instance, athletes who suddenly lost their sporting environment reported increased depression and anxiety, indicating a significant frustration due to a lack of organized physical activity and social connectedness (38). Whereas maintained physical activity had more stable mental health outcomes. Longitudinal evidence also supports that being involved in sport early on results in lasting mental health benefits for athletes and a reduced risk of depression, and increases in self-reported well-being (39). Together, this evidence highlights the level of participation in a competitive sport environment that not only meaningfully reduces current psychological distress but also increases longer-lasting feelings of relatedness, competence, and self-esteem.

Moreover, the frequency of engagement in sports has higher benefits for an athlete's well-being by enhancing exposure to a supportive environment. A higher frequency means a repeated opportunity for athletes to feel achievement (competence) and create stable, social bonds (relatedness). The literature shows a consistent relationship between increased participation frequency and improved mental and emotional health. For example, the frequency of engagement in sports and social activity also appears to play a significant role in the onset of athletes' mental health issues (12). Contexts, or learning environments, that encourage frequent student engagement and active learning (e.g., frequent practice schedules) were observed to promote emotional regulation and fewer behavioural challenges (7). As such, an athlete's frequency of engagement serves as an important proxy for ongoing psychological need satisfaction, which in turn has consequences for mitigating depressive risk factors.

Depression can mediate the impact of participation on an athlete's self-confidence. Previous research suggests that improvements in an athlete's mental and behavioural health, observed with depression, are fundamental precursors to building self-confidence. Specifically, sportsmen reported a decrease in emotional and behavioural problems they reported a higher sense of self-efficacy and self-esteem (17). The depression aligns with that meditating role. When a sportsman is experiencing positive participation that is also supported, there is less anxiety and social difficulties (the depression "difficulties" score is a major measure of these issues). These issues represent the internal and external issues that connect participation to self-confidence. Thus, the depression not only relates to an outcome but also serves as an indicator of the psychological underpinning that connects the mechanism of participation to self-confidence.

The findings also indicate that depression serves as an important mediator between frequency of engagement and sports confidence. From the perspective of self-determination theory, frequent engagement provides athletes

multiple opportunities to satisfy the basic psychological needs over repeated cycles, which translates to reducing the experience of frustration (i.e., depression). This is an important process because previous research suggests the relationship between frequency of participation and confidence is more obscured (18). However, engagement under high frequency, positively satisfying experiences, relates to the verification of a positive sense of self when athletes actually engage (19). Thus, frequency of engagement is key for satisfaction and ultimately influences psychological health (i.e., reduced depression), which reduces a psychological constraint and encourages improvement in the athlete's sense of competence while differing between either aspect of sports confidence.

The study determines that the level of participation and frequency of engagement have a significant impact on depression, through sports confidence in the context of Pakistani athletes. The purpose of this research was to explore the relationship between variables related to sport confidence in the unique population of Pakistani religious athletes. The findings show that the level of participation has a significant impact on depression. Also, the frequency of engagement has a significant impact on depression. Furthermore, the study indicates that the frequency of engagement and level of participation with sports confidence and depression have a strong mediating relationship. This would imply that while engagement and participation are positive, they only have a partial positive impact on an athlete's confidence because they reduce depression. To put it another way, increased sports confidence is simply the consequence of feeling less depressed due to active and regular engagement. This mediating role illustrates not only how religious athlete wellness is, but it also demonstrates how mental distress can hinder the development of sports confidence.

5.1 Theoretical Implications

The Self-Determination Theory (SDT) is supported by these results which argue that basic psychological needs (autonomy, competence, and relatedness) results in internal motivation and psychological well-being, both of which improve performance and confidence (21). Athletes who participate consistently and actively feel more competent and related, both of which reduce their depression. They subsequently feel more confident in their physical performance due to their improved mental state, which is a central tenet of SDT, with perceived competence yielding positive outcomes (22). This indicates that the formally structured, social nature of athletes' participation in sport, paired with reduced symptoms of depression are important pathways to developing strong sporting confidence in Pakistani athletes. As a vital component in the development of self-assured athletes, future interventions for targeting the development of sports confidence in this population should focus on actively addressing and reducing depression while ensuring participation and engagement.

5.2 Practical Implications

Active participation in sports or other social activities can help reduce stress and depression, ultimately enhancing athletes' self-confidence. Confidence is vital for athletes, sports organizations, and policymakers should prioritize programs that integrate participation opportunities with mental health support, ensuring that reducing depression becomes a core strategy for building athletes' confidence. Secondly, the identified mediation effect of depression justifies the argument for integrating mental health support within sports programs. In addition to the capacity to refer players to mental health professionals, coaches and team personnel should consider training on identifying early warning signs of depression. It is important to create an open and non-stigmatizing environment where athletes can discuss mental health issues freely. This could involve a peer support network, some training for athletes in stress management or emotional control, or by embedding sports psychologists or counselors in athletics departments. To conclude, the report weaves together two lines of reasoning that serve to bolster sports confidence. Engaging in sports can add experience and skill, however, the benefit to confidence will be more pronounced when depression is reduced. Therefore, the interventions designed for increasing sports confidence should not be only focused on skill/competition outcomes (17, 20). If we appreciate that an athlete without depression is more likely to take ownership of wins, responsibly identify losses, and ultimately establish more confidence/self-efficacy related to their sport, then they should prioritize more mental health within their responsibility initiative. This would suggest that in order to create more adaptive and resilient athletes, multi-faceted athlete development programs should place an equal emphasis on mental health and skill development.

The study emphasis that athlete psychological health is not solely linked to an increased training load, but rather is dependent on the quality of their experience of participating

in sport. In light of the mediation we observed, practitioners in sport and physical activity should focus more on developing a need-supportive environment capable of purposely re-engaging the SDT needs for relatedness and competence. To do this in practice, mental health screening should occur consistently within a training framework to help mitigate and identify any early depression, which operates as a barrier psychologically to fostering confidence.

5.3 Limitations and Future Research

While the current study offers valuable information regarding the connections among participation, depression, and confidence for Pakistani athletes, the findings must be interpreted in light of the following limitations. First, the data gathered were cross-sectional; therefore, we are unable to show any causation. While we observed some significant mediating effects, we cannot definitively conclude any causal directional influences. Longitudinal research is needed to investigate how changes in participation and engagement ultimately change depression and confidence in sport over time.

Second, the measures were entirely self-reported and thus could have been affected by response biases such as memory or social desirability responses. Future research might want to utilize a multi-method approach to objectively evaluate and observe engagement or conduct clinical evaluations of depression when possible.

Third, and most importantly, the sample was narrowly defined from only a group of religious Pakistani athletes. While this adds valuable knowledge for an under-researched population, its cultural context and performance expectations, as well as particular religious coping strategies, greatly limit the external validity and transferability of the findings to athletes in different cultural contexts or sporting populations.

Finally, future research could address these limitations by considering additional mediating or moderating variables, such as coaching support, peer dynamics, or a family's cultural expectations, which may account for these complex relationships. Additionally, qualitative inquiry, using focus groups or interviews, would provide helpful context in investigating "how" and "why" the statistical relationships occurred in order to develop substantial evidence-based intervention studies aimed at improving athlete well-being.

Authors' Contributions

Z S., the main author, designed the study, conducted the Urdu translation and validation procedures, collected and analyzed the data, and wrote the complete manuscript. The main author prepared all tables, figures, and statistical results and finalized the manuscript for submission. S.Kh. PhL., the corresponding author, provided overall guidance for study conceptualization, research design, and methodological rigor. She critically reviewed the manuscript, contributed to the refinement of each section, ensured academic quality, and approved the final version. Y-Y C., the co-author, contributed to instrument development, statistical guidance, and interpretation of findings. The co-author reviewed the manuscript for intellectual accuracy and provided critical feedback, and approved the final version.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

This study has also been approved through the University of Malaya's Research Ethics Committee (UM. TNC2/UMREC-841) before collecting any data

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