Mindfulness Skills Training and Psychological Skills Training Impact on Psychological Factors and its Impact on Athletic Performance: A Case on Saudi Arabia Athletes

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Abstract

The purpose of the present study was to evaluate the effect of mindfulness and psychological skills training on Saudi Arabian athletes' athletic performance via psychological aspects. Using a convenient sampling technique, applied cross-sectional study, quantitative research approach, and structural equation modeling, a sample of 350 athletes participated (SEM). According to the survey, mindfulness and psychology skills training significantly and favorably improved athletic performance via psychological aspects. In particular, mindfulness skills training considerably enhanced psychological variables such as attention, concentration, and emotional regulation, whereas psychological skills training greatly enhanced psychological factors. This research has significant implications for athletes, coaches, and sports psychologists in Saudi Arabia, stressing the significance of incorporating mindfulness and psychological skills training into sports psychology to improve athletic performance. Future studies should investigate the impact of mindfulness and psychological skills training on sports performance in various cultural contexts using more significant sample numbers and control groups.

Keywords: mindfulness, psychological, performance, Saudi Arabia.

Introduction

Sports psychology is a rapidly emerging field that has received much attention recently (Vealey, 1994). Psychological techniques, such as mindfulness and psychological skills training, are gaining popularity as performance-enhancing aids (Kangasniemi et al., 2014). Researchers have determined that psychological factors play a significant role in determining an athlete's performance; consequently, they have emphasized the significance of incorporating psychological skills training (PST) and mindfulness skills training (MST) to enhance athletes' psychological effectiveness and well-being (Tan et al., 2022). The success of these approaches has been linked to their capacity to target critical psychological elements, such as motivation, self-confidence, anxiety, and focus, which are crucial drivers of athletic performance (Tan et al., 2022). While there has been extensive research on this efficacy in various nations, there is a dearth of data on its effectiveness in Saudi Arabia (Nararro-Haro et al., 2016). In Saudi Arabia, nothing is known regarding the effects of PST and MST therapy on athletic performance. Al-Khalifa (2022) found in one study that MST increases the athletic performance of Saudi Arabian soccer players.

Similarly, Alkhaldi (2021) discovered that PST increased the self-confidence and mental toughness of handball players in Saudi Arabia. However, there is a lack of research in this area. By providing empirical evidence of such PST and MST in the Saudi Arabian context, this study aims to fill a significant gap in the literature.

Several empirical studies have examined the effect of mindfulness and psychological skills training on athletic performance during the past decade. For example, Gross et al. (2018) discovered that mindfulness training enhanced elite athletes' flow state, leading to improved athletic performance. Gould and Whitley (2009) found several psychological characteristics shared by Olympic champions, such as self-confidence, goal-setting, and self-regulation abilities. In addition, Aljehani (2021) discovered that psychological skills training improved the athletic performance of Saudi Arabian sportsmen. In other research, the effect of PST and MST on firm performance has been widely examined, with multiple studies indicating that these interventions can improve athletes' psychological variables and performance (Aldalalah, 2021; Nararro-Haro et al., 2016). Hatzigeorgiadis et al. (2014) discovered that PST increased athletes' self-confidence, which positively affected their performance.

Similarly, Paulson et al. (2013) discovered that MST increased athletes' mindfulness, which had a good effect on their psychological aspects and performance. Thus, PST and MST have been successfully implemented in various sports; golf and tennis are individual sports, while soccer and basketball are examples of team sports. In addition, both PST and MST have proven useful for amateur and professional athletes.

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Despite the excellent results of the PST and MST on psychological aspects and physical performance, the processes behind their effects are not entirely understood. Initially, previous research has primarily focused on the direct impact of PST and MST on athletics performance (Birrer, Röthlin, & Morgan, 2012; Bühlmayer et al., 2017; Röthlin et al., 2016; Wang, Lei, & Wu, 2023b), as well as the direct effect of PST and Therefore, additional research is required to examine the effects of PST and MST on the performance of athletes via psychological aspects. In addition, it is essential to consider the cultural environment in which these PST and MST were adopted (Röthlin et al., 2020). Cultural differences may impact the acceptability and efficacy of PST and MST in various countries and areas (Röthlin et al., 2020). Therefore, it is essential to examine the effect of PST and MST on sports performance via psychological aspects in specific cultural contexts, such as Saudi Arabia. Participation in sports and funding in sports development programs have expanded dramatically in Saudi Arabia in recent years (Fakehy et al., 2021). In Saudi Arabia, it is vital to investigate the influence of PST and MST on athletic performance through psychological aspects. This study can provide light on the efficacy of PST and MST in increasing the psychological well-being and performance of Saudi Arabian sportsmen.

In the Saudi Arabian context, however, empirical evidence regarding the effects of PST and MST on sports performance via psychological aspects was scant. In this light, this research was essential since it can provide actual data on the effectiveness of MST and PST in Saudi Arabia for boosting athletic performance via psychological variables. Significant findings from this research will contribute to the growing body of knowledge on sports psychology and our understanding of its usefulness in various cultural contexts. This study's findings will be valuable to sports psychologists, coaches, and athletes in Saudi Arabia and elsewhere who aim to improve athletic performance psychologically. PST and MST are efficient methods for increasing athletes' psychological elements and performance. However, the processes underlying their effect on athletic performance are not yet fully understood, and additional study is required to examine their efficacy in various cultural situations. This research is significant because it can lead to the development of more successful training programs that emphasize increasing the psychological abilities of athletes, enhancing their performance and well-being as a whole. Introduction, literature review, research methodology, data analysis and findings, and discussion and conclusion comprised the study's five sections.

Literature Review

Mindfulness skills training, psychological factors and athletics performance

In recent years, training in mindfulness skills has received considerable attention in psychology. Mindfulness refers to the practice of observing the present moment without judgment. It involves paying attention to one's thoughts, emotions, and bodily sensations in a nonjudgmental and nonreactive manner. Buddhist mindfulness meditation is the theoretical foundation for mindfulness skills training. According to this theory, mindfulness meditation can help people become more aware of their thoughts and emotions and ultimately assist them in altering their behavior. The idea also posits that mindfulness meditation can improve emotional control, self-awareness, and interpersonal interactions.

Many empirical studies have been conducted on the influence of mindfulness skills training on psychological factors. In a meta-analysis, Khoury et al. (2013) discovered that mindfulness training programs appeared useful in reducing symptoms such as anxiety, sadness, and stress. Mindfulness training and therapies were useful in reducing indications of sadness and fear, with moderate effect sizes, according to an analysis of 39 randomized controlled studies with 1,140 individuals. Another study by Hofmann et al. (2010) assessed the effectiveness of mindfulness training programs and therapies in reducing the symptoms of depression and anxiety in persons with anxiety disorders. The analysis of 15 randomized controlled trials involving 1,387 individuals revealed that mindfulness training programs effectively lower anxiety and depression symptoms with substantial effect sizes. A study by Garland et al. (2015) examined the impact of mindfulness training programs on anxiety and well-being in 155 participants. This study examines the efficacy of mindfulness training programs and therapies in reducing stress and improving well-being. In addition, new research indicates that adding PST and MST into sports training programs can positively influence athletes' psychological variables and performance. For instance, Gardner and Moore (2012) and Gucciardi et al. (2018) discovered that PST increased athletes' confidence, motivation, and anxiety management skills, which had a favorable effect on their performance. Similarly, Williams and Kabat-Zinn (2013) and Chiesa and Serretti (2010) discovered that MST enhanced athletes' mindfulness, which positively affected their psychological variables and performance.

Conversely, mindfulness training programs benefit and substantially impact athletic performance (Zuckerman et

al., 2021). According to other research, mindfulness training programs have a good and significant impact on athletic performance (Goisbault et al., 2022). In contrast, other researchers have demonstrated that when mindfulness training programs expanded, psychological elements also rose, improving athletic performance (Wang, Lei, & Fan, 2023a). According to additional research (Röthlin et al., 2020), mindfulness training programs significantly affect athletics via moderating and mediating variables. The current study, therefore, has the following research hypothesis:

H1: *Mindfulness training programs positively and significantly influence athletics performance.*

H2: *Mindfulness training programs positively and significantly influence psychological factors.*

H3: *Mindfulness training programs positively and significantly influence athletics performance through psychological factors.*

Psychological training, psychological factors and athletics performance

Psychological training factors refer to various strategies designed to enhance psychological health. They include cognitive-behavioral therapy, positive psychology, and mindfulness-based interventions. Many psychology theories serve as the theoretical foundation for psychological training components. For instance, cognitive-behavioral therapy is founded on cognitive theory, which posits how we think influences how we feel and act. Positive psychology is grounded in a humanistic approach, which sets that individuals have the potential for growth and self-actualization. Programs that teach awareness are based on the Buddhist notion of mindfulness meditation.

Many empirical studies have been conducted on the effect of psychological training elements on psychological factors. In a meta-analysis, Cuijpers et al. (2016) found that cognitive-behavioral therapy effectively reduced anxiety, depression, and tension. Cognitive-behavioral treatment was beneficial in lowering anxiety and depression symptoms with substantial effect sizes, according to a meta-analysis of 92 randomized controlled trials, including 6,702 participants. Another study by Seligman et al. (2005) demonstrates the effectiveness of positive psychology in enhancing happiness and well-being. Positive psychology helped boost happiness and well-being with moderate effect sizes, according to an analysis of 51 studies, including 4,266 participants. In a survey of 1,097 adults conducted by Chiesa, Calati, and Serretti (2011), researchers examined the impact of mindfulness training programs on anxiety and well-being. The research demonstrates that mindfulness training program therapy effectively reduced stress and boosted well-being for six months. Theoretical and empirical data imply that psychological training components may significantly impact psychological variables such as anxiety, depression, stress, and well-being.

Alternatively, empirical research demonstrates that psychological training favorably and considerably impacts athletic performance (Birrer & Morgan, 2010). According to additional research, psychological training has a beneficial and significant impact on athletic performance (Dongoran et al., 2019; Goisbault et al., 2022; Röthlin et al., 2020). At the same time, other researchers have demonstrated that psychological training improved, and psychological elements also increased, enhancing athletic performance (Wang et al., 2023a). According to additional research (Röthlin et al., 2020), mindfulness training programs significantly affect athletics via moderating and mediating variables. The current study, therefore, has the following research hypothesis:

H4: *Psychological training have a positive and significant influence on athletics performance.*

H5: *Psychological training have a positive and significant influence on psychological factors.*

H6: *Psychological training positively and significantly influence athletics performance through psychological factors.*

Psychological factors and Athletics performance

Sports psychology is the study of how psychological factors affect athletic performance. Performance can be affected by psychological elements such as motivation, self-confidence, anxiety, and concentration. From a theoretical standpoint, or to comprehend the impact of psychological aspects on athletic performance, many psychological theories are utilized. According to the self-determination theory, people are driven by three important psychological components: autonomy, competency, and close relationships. The cognitive-behavioral theory posits that an athlete's thoughts and beliefs might influence performance. According to the social learning theory, athletes can learn by seeing and imitating the behavior of others.

Much empirical research has investigated the effect of psychological variables on athletic performance. Vealey and Chase (2008) investigated the correlation between self-confidence and athletic performance among 231 athletes. The study demonstrated a positive correlation between self-confidence and performance, indicating that more confident athletes tend to perform better. Ntoumanis and Biddle (1999) examined the relationship between motivation and athletic performance in 274 athletes. The study indicated that athletes with higher levels of self-determination had higher performance levels, suggesting that motivated athletes tend to

perform better. Hanton, Fletcher, and Coughlan (2005) investigated the effect of anxiety on the athletic performance of 122 athletes. The study revealed that anxious athletes performed less well, demonstrating that worry can deleteriously affect athletic performance. In this sense, the following study hypothesis applies:

H7: *Psychological factors have a significant and positive effect on athletic performance.*

Research Methodology

Quantitative and qualitative research methodologies exist (Apuke, 2017). The quantitative method is preferable when study objectives are formed based on prior theory (Allwood, 2012). A self-administered survey tool was provided to Saudi Arabian athletes to collect data. The five-point liker scale survey was delivered to 450 respondents using a convenient sampling technique. 350 questionnaires were returned, representing a satisfactory response rate of 78% (Daikeler, Bošnjak, & Lozar Manfreda, 2020). Because a one-time distributed survey acquired the data, the cross-sectional research design is appropriate for the current research approach (Wang & Cheng, 2020).

Analysis and Findings

The majority of athletics respondents in Saudi Arabia were male (70.2%), and the most significant age group was between 25 and 34 years (42.7%), as shown in Table 1. The majority of responders were amateur athletes (75.8%), and football was the most popular sport (31.5%). Moreover, the sample may not represent the overall Saudi Arabian athletics responder community and may contain biases. The projected outcomes are shown in Table 1 below.

Table 1

Demographic Characteristics of Athletics Respondents in Saudi Arabia

Variable	Category	Frequency	Percentage
Gender	Male	125	70.2%
	Female	53	29.8%
Age Group	18-24	47	26.4%
	25-34	76	42.7%
	35-44	37	20.8%
	45 and above	18	10.1%
Athletic Level	Amateur	135	75.8%
	Professional	43	24.2%
Sport	Football	56	31.5%
	Basketball	34	19.1%
	Running	23	12.9%
	Swimming	15	8.4%
	Other	50	28.1%

Source: Own Research Illustration

Construct reliability and validity

The researcher has employed the Structural Equation Modeling (SEM) method for convergent and discriminant validity. In convergent validity, the construct's reliability and validity are examined. In general, the reliability and validity analysis in AMOS gives a more comprehensive evaluation of the reliability and validity of a scale or questionnaire by considering the underlying factor structure and assessing both internal consistency and convergent validity. Consider the factor loadings, Cronbach's Alpha, composite reliability (CR), average variance extract (AVE), and item-specific reliability when interpreting the results of a reliability and validity analysis in AMOS (Hair & Alamer, 2022). A CR value of 0.7 or higher and an AVE value of 0.5 or higher are appropriate for most research applications (Hair et al., 2017). Among these factor loadings for reliability analysis are the estimated coefficients representing the strength of the association between each item and its respective factor. These loadings should be significant and preferably greater than 0.5 to confirm the factor's validity (Hair et al., 2017). All values in Table 2 are more than 0.5, as indicated by the Table's output. Cronbach's alpha measures the internal consistency of the scale's items. It is computed using the item's factor loadings and residual variances, and its value must be at least 0.7 (Hussain et al., 2018; Tavakol & Dennick, 2011). Table 2's predicted values reveal that all construct values are more significant than 0.70, demonstrating the construct's internal consistency. Composite Reliability (CR), an alternate measure of internal consistency based on factor loadings and residual variances, is calculated in contrast (Ahmad et al., 2020; Hair & Alamer, 2022). Generally, it is considered more resilient than Crohnbach's Alpha, particularly for complicated models, and values should be greater than 0.70. All values were more than 0.70, indicating that the construct satisfies the composite reliability requirement (Hair & Alamer, 2022). In addition, Average Variance Extracted (AVE) is a measure of convergent validity that reveals the amount of variation shared by the scale's items. AVE values of 0.5 or greater are deemed acceptable (Ahmad, Mohammad, & Nordin, 2019; Hair & Alamer, 2022). All scores were more than 0.5, indicating convergent validity for the construct. The projected outcomes are shown in Table 2 below.

Table 2

Construct reliability and validity

Construct	Mean	Loadings	AVE	Alpha
Mindfulness Skills Training			0.78	0.879
I can manage my emotions effectively.	3.63	0.561		
I can cope with stress and pressure.	3.84	0.892		
I can set and achieve specific goals.	3.94	0.784		
I can communicate effectively with my coach and teammates.	3.70	0.893		
I feel more confident in my abilities after practicing psychological skills.	3.89	0.673		
Psychological Skills Training			0.783	0.834
I can set and achieve specific goals.	3.82	0.731		
I can manage my emotions effectively	3.88	0.642		
I can cope with stress and pressure.	3.34	0.932		
I can communicate effectively with my coach and teammates.	3.45	0.892		
I feel more confident in my abilities after practicing psychological skills.	3.98	0.683		
Athletic Performance			0.734	0.856
I can perform at my best during competitions.	4.06	0.673		
I can maintain my focus and concentration during competitions.	3.91	0.780		
I can recover quickly after physical exertion.	3.81	0.756		
I can execute my skills and techniques effectively.	3.79	0.832		
I am satisfied with my overall athletic performance.	3.95	0.783		
Psychological Factors			0.831	0.875
I feel confident in my athletic abilities.	3.83	0.782		
I feel motivated to improve my athletic performance.	3.97	0.899		
I can manage my anxiety effectively.	3.85	0.741		
I feel anxious before and during competitions.	3.98	0.673		
I can maintain my focus and concentration during competitions.	3.51	0.845		

Source: Own Research Illustration

Discriminant Validity

Discriminant validity is a statistical concept that evaluates whether the constructs in a research study are distinct. In other words, it examines if a measurement of one construct does not also measure another (Fornell & Larcker, 1981; Henseler, Ringle, & Sarstedt, 2015). Using AMOS software, the Fornell-Larcker criterion is one technique to measure discriminant validity in structural equation modeling (SEM) (Fornell & Larcker, 1981). In the Fornell-Larcker, compare the square root of the AVE of each construct to its connection with other constructs. If the square root of the AVE is greater than the correlation with other constructs, then the constructs have discriminant validity (Fornell & Larcker, 1981). The projected results in Table 3 imply that the construct has discriminant validity.

Table 3

Discriminant Validity

Constructs	MST	PST	PSF	ATP
MST	0.74			
PST	0.43	0.84		
PSF	0.41	0.48	0.86	
ATP	0.43	0.41	0.52	0.88

Source: Own Research Illustration

Hypothesis testing

For testing hypotheses, regression was utilized. Regression analysis is a statistical method that evaluates the association between a dependent variable and one or more independent variables (Chukhrova & Johannssen, 2019). Regression analysis could analyze the association between mindfulness skills training and psychological skills training, and athletic performance via psychological components. The regression results reveal that mindfulness skills training positively and substantially affects athletic performance and psychological variables, indicating that mindfulness skills training improves psychological factors and athletic performance. Similarly, the coefficient of psychological training has positive and substantial effects on psychological factors and athletic performance, indicating that psychological training is an essential predictor of psychological factors and athletic performance. Conversely, mindfulness skills training and psychological training variables have excellent and substantial effects on athletic performance via psychological aspects. Moreover, psychological elements have a favorable and significant impact on athletic performance. All of the hypotheses proposed are supported. The projected outcomes are displayed in Table 4 below.

Table 4

Direct and Indirect Hypothesis

	Beta	Standard Error	T Statistics	Sig. level	Decision
MST-> ATP	0.462	0.059	7.835	0.000	Accepted
MST ->PSF	0.309	0.053	5.887	0.000	Accepted
PST-> ATP	0.144	0.054	2.696	0.000	Accepted
PST ->PSF	0.267	0.054	4.916	0.000	Accepted
PSF-> ATP	0.138	0.052	2.673	0.008	Accepted
MST ->PSF-> ATP	0.439	0.061	7.249	0.000	Accepted
PST ->PSF-> ATP	0.095	0.026	3.687	0.000	Accepted

Source: Own Research Illustration

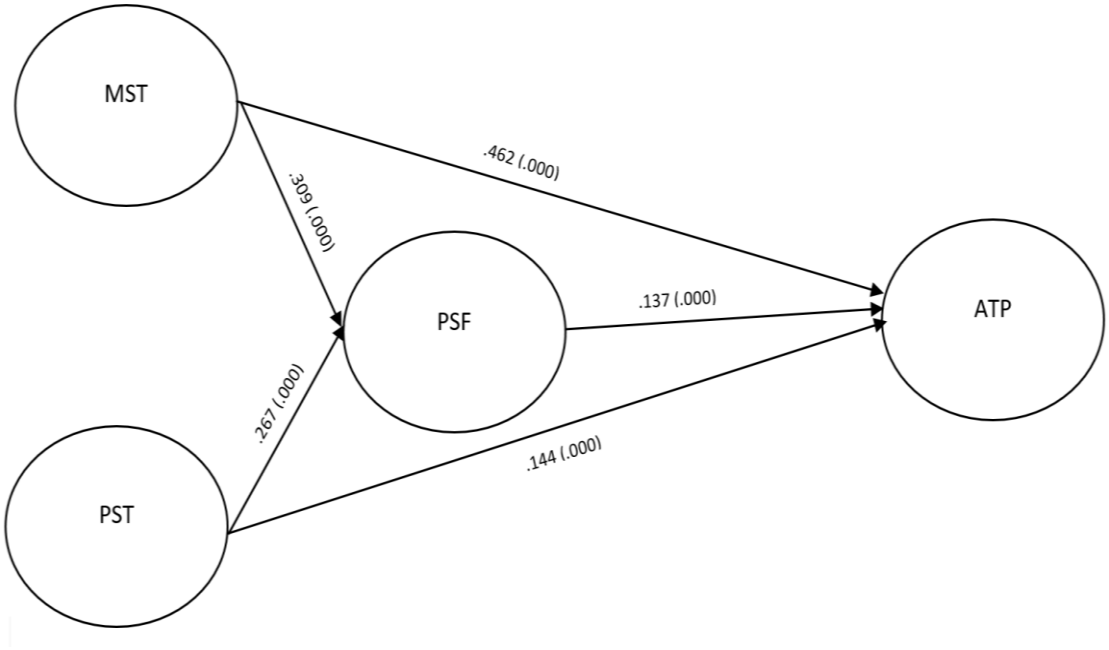

Figure 1. P values and Coefficients

Note: MST-mindfulness skills training, PST-psychological skills training, PSF-psychological factors, ATP-athletics performance.

Discussion

This article aimed to investigate the effect of mindfulness skills training (MST) and psychological skills training (PST) on sports performance in Saudi Arabia via psychological aspects. The empirical investigations demonstrated that combining PST and MST into sports training regimens can improve athletes' psychological variables and performance. According to prior research, PST boosted athletes' confidence, motivation, and anxiety management abilities, which had a favorable effect on their performance (Gardner & Moore, 2012; Gucciardi et al., 2018). Similarly, MST enhanced athletes' mindfulness, which benefited their psychological variables and performance (Chiesa & Serretti, 2010; Paulson et al., 2013). These findings support using PST and MST into sports training programs to boost athletes' performance and psychological well-being. These studies demonstrate that introducing PST and MST into sports training regimens in Saudi Arabia can enhance athletes' psychological health and performance. In conclusion, this paper's findings imply that combining PST and MST into sports training programs can positively affect the psychological variables and performance of Saudi Arabian athletes. Consequently, it is believed that incorporating PST and MST into sports training programs can improve players' psychological health and performance, thereby contributing to the success of sports in Saudi Arabia.

Implications and future directions

Preliminary research in Saudi Arabia was one of the significant obstacles in the study of PST and MST on athletic performance. Most research on PST and MST in

sports has been undertaken in the West, and Saudi Arabia has a limited grasp of their effectiveness. Hence, this study added a body of literature to the Saudi Arabian sports business context with noteworthy discoveries that could aid future exploration of new research areas.

Furthermore, the present study's findings are noteworthy for Saudi Arabian athletes, coaches, and sports psychologists since they indicate that mindfulness skills training and psychology skills training can be helpful methods for boosting athletic performance via psychological aspects. Consequently, the findings of this study suggest that Saudi Arabian athletes should have access to mindfulness skills training and psychological skills training programs to enhance their psychological well-being and, subsequently, their athletic performance. The outcomes of this study also have relevance for Saudi Arabian sports psychologists. This study emphasizes incorporating mindfulness and psychological skills training into sports psychology to improve athletic performance. Sport psychologists can use mindfulness and psychological skills training to improve psychological aspects in athletes, leading to improved performance outcomes. The current research shows that sports psychologists should include mindfulness and psychological skills training in their intervention strategies for Saudi Arabian athletes.

However, despite the encouraging results, this study has several limitations that must be considered. Second, the study's small sample size may have hampered the applicability of its findings. Future studies should utilize a larger sample size to ensure their findings are generalizable. Second, the investigation's lack of a control group made it difficult to demonstrate causality. Future studies should include control groups to determine the causality of the reported effects. Lastly, the fact that the study was conducted in a specific cultural context may have limited the applicability of the results.

Conclusion

In conclusion, the present study provides evidence that mindfulness and psychology skills training have a significant and favorable effect on boosting athletic performance in Saudi Arabia through psychological variables. In light of these findings, athletes, coaches, and sports psychologists in Saudi Arabia should consider including mindfulness and psychological skills training programs in their training and intervention strategies. The significance of this study's findings for future research on mindfulness and psychological skill training in sport psychology are also discussed.

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