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RESEARCH ARTICLE / ARAŞTIRMA MAKALESİ

The Moderating Role of Sports Participation in the Relationship between Adolescent Strengths Use Levels and Psychological Resilience

Ergenlerin Güçlü Yönlerini Kullanım Düzeyleri ile Psikolojik Sağlamlık Arasındaki İlişkide Spora Katılımın Düzenleyici Rolü

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Abstract:

This study is grounded in the assumption that adolescents' use of their strengths supports their mental health. Within this framework, the relationship between the use of strengths and psychological resilience is examined, with participation in sports considered as a potential moderating variable. The primary aim of the study is to investigate the moderating role of sports participation in the relationship between adolescents' use of strengths and psychological resilience. The study group consisted of 389 adolescents from six provinces located in the Black Sea region of Turkey. Data were collected using a personal information form, the Strengths Use Scale for Adolescents, and the Psychological Resilience Scale for Children and Adolescents. Following these analyses, the arithmetic means and standard deviations of the participants' responses were determined. Pearson correlation analysis was used to report the correlation coefficients between the scales. Finally, Model 1 of the PROCESS Macro 4.2 was used in SPSS 27 to test the moderating role of sports participation. The findings revealed that adolescents reported moderate levels of psychological resilience and of strengths use. A significant moderate positive correlation was found between strengths use and psychological resilience ($r = 0.54$; $p < .01$). In line with this finding, strengths use was found to significantly predict resilience ($R^2 = 0.31$; $p < .01$). Moreover, sports participation was found to have a moderating effect on the relationship between strengths use and resilience. In other words, the relationship between strength use and psychological resilience was stronger among adolescents who participated in sports compared to those who did not.

Keywords: Sport, Mental health, Adolescent strengths, Psychological resilience.

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Öz:

Bu çalışma, ergenlerin güçlü yönlerini kullanmalarının ruh sağlıklarını desteklediği varsayımına dayanmaktadır. Bu bağlamda, güçlü yönlerin kullanımı ile psikolojik sağlamlık arasındaki ilişki incelenmekte; spora katılım ise bu ilişki üzerinde potansiyel bir düzenleyici değişken olarak ele alınmaktadır. Çalışmanın amacı, ergenlerin güçlü yönleri kullanma düzeyleri ile psikolojik sağlamlıkları arasındaki ilişkide spora katılımın düzenleyici rolünü ortaya koymaktır. Çalışma grubunu Karadeniz Bölgesi'nde yer alan 6 ilden 389 ergen birey oluşturmaktadır. Veri toplama araçları olarak kişisel bilgi formu, Ergenlere Yönelik Güçlü Yönleri Kullanma Ölçeği ve Çocuk ve Genç Psikolojik Sağlamlık Ölçeği kullanılmıştır. Ön analizlerden sonra katılımcıların vermiş oldukları yanıtlara ait aritmetik ortalamalar ve standart sapma değerleri belirlenmiştir. Ölçekler arasındaki korelasyon değerleri Pearson korelasyon analizi ile rapor edilmiştir. Son aşamada ise SPSS 27 programı ile PROCESS 4.2 Macro analizi kullanılarak (Model 1) spora katılımın düzenleyici rolü analiz edilmiştir. Ergenlerin psikolojik sağlamlık ve güçlü yönleri kullanma düzeylerinin orta düzeyde olduğu görülmüştür. Güçlü yönler ile sağlamlık arasında pozitif yönde orta düzeyde anlamlı bir ilişki bulunmaktadır ($r=0.54$; $p<0.01$). Bu bulguya paralel olarak, güçlü yönler sağlamlığı anlamlı bir şekilde etkilemektedir ($R^2 = 0.31$; $p < 0.01$). Spora katılım, güçlü yönler ile sağlamlık arasındaki ilişkide düzenleyici bir etkiye sahiptir. Bir diğer ifadeyle, spor yapan ergenlerin güçlü yönleri ile sağlamlıkları arasında, spor yapmayan ergenlere göre daha güçlü bir ilişki söz konusudur.

Anahtar Kelimeler: Spor, Mental sağlık, Ergenlerin güçlü yönleri, Psikolojik sağlamlık.

Introduction

It is essential to provide support for adolescents through both family involvement and school-based educational initiatives. By providing these supports, adolescents can experience improved mental health. Adolescence is also viewed as a critical period for developing skills related to psychological resilience (Niu, Jiang, Jiang, 2021). One of the most effective ways to cope with the challenges that adolescents may face is to develop psychological resilience.

Psychological resilience refers to an individual's ability to adapt to life changes in the face of adversity (Ağırkaya & Erdem, 2023). The detrimental effects of life experiences on mental health can be significantly mitigated by resilience (Erbekir, 2025; Petzold et al., 2020), indicating a favorable psychological attribute for advancing both physical and mental well-being (Ma et al., 2022). Teenagers who don't have enough resilience may have symptoms like excessive anxiety, gaming addiction, academic pressure, delayed mental and social development, or even a lack of independence and responsibility (Vatan & Battaloğlu, 2024; Zhai and Ji, 2022). Teenage sadness, anxiety, and stress levels are gradually and significantly rising, according to research (Tang et al., 2021). With resilience, adolescents can adapt and recover more quickly from such negative emotional states.

Strengths (also referred to as character strengths in the literature), which are considered an effective factor in the development of resilience and serve as the independent variable in this study, constitute a key area of study in positive psychology. A comprehensive term that encompasses the positive aspects of character is virtue. In this sense, virtue is the idea that results from combining many character traits. Being amiable, connected to others, and having strong interpersonal skills are all examples of human virtues. Strengths of character that might be seen as components of virtue include lovingness, kindness, and social intelligence (Peterson & Seligman, 2004). Character strengths are evident in people's attitudes (such as looking forward to the future), emotions (such as appreciating assistance), and actions (such as cooperating effectively with others in a group) (Harzer, 2016). Adolescent pupils' character strengths are now identified and developed as part of the educational process. Strengths, in particular, start to show during adolescence (Park & Peterson, 2009; Vijaykumar et al., 2018). When adolescents' strengths are supported in their development, both their academic performance and happiness will increase. Additionally, this will help adolescents recognize themselves and safeguard their mental health (Demir, Murat, & Arslan, 2024).

Moreover, it can be argued that a character strengths-based curriculum has an empirical impact on students' psychological robustness and well-being by enhancing behavioral traits like inventiveness, curiosity, courage, honesty, integrity, taste, kindness, social intelligence, teamwork, justice, self-control, appreciation of beauty, thankfulness, hope, and religiosity, as well as cognitive traits like wisdom, courage, humanity, justice, and temperance (Ebrahimi & Esmaeili, 2023). That is, young people's well-being is enhanced when they utilize their abilities. A common theme across theories and opinions in the literature is that individuals' mental health can improve through the development of their strengths. Based on this, the following hypothesis was developed:

H_1: Adolescents' level of using their strengths has an impact on their resilience.

It is considered valuable to identify an individual's strengths and use them effectively in their life. To help students find and use their strengths, sports practices are recommended throughout the school and in extracurricular sports clubs. The development of sporting performance and excellence can be achieved through strength-based approaches (Bradley & Worth, 2017). The idea is that by combining sporting skills and abilities with strengths, teams can achieve higher levels of individual success and happiness (Barnes & Larcus, 2015). Therefore, there may be a bidirectional relationship between strengths and participation in sports.

It can be said that individuals who participate in sports, particularly children and young people, tend to be more psychologically resilient (Long et al., 2019; Zhang et al., 2021). In other words, participation in sports is one factor that contributes to psychological resilience. On the contrary, physically inactive students may be more likely to experience mental problems and have low levels of resilience (San Román-Mata et al., 2020). Therefore, participation in sports is seen as an effective factor in students' mental development.

The relationship between adolescents' use of their strengths and their psychological resilience may vary depending on their participation in sports. The relationship between strengths and resilience among adolescents who participate in sports may be much stronger than among those who do not. Based on this situation, the following hypothesis was developed:

H_2: Sports participation moderates the effect of adolescents' strengths on resilience.

Present Study

Developing young people's strengths and competencies, and creating environments that foster their healthy development and pro-social participation, should be a key endeavor among academics, practitioners, and policymakers (Drescher et al., 2018). In this way, it can contribute to raising a generation with high mental health and self-efficacy. When the literature was examined, it was seen that studies are addressing the relationship between strengths and resilience (Demirci, Ekşi, & Kaya, 2021; Ebrahimi & Esmaeili, 2023; Harzer, 2016; Zimmermann., 2013), but studies addressing the relationship between sport and the use of strengths (Barnes & Larcus, 2015; Bradley & Worth, 2017) are limited. Again, no studies simultaneously addressed the relationship among strengths, resilience, and sport, or examined the moderating role of sport participation. In light of existing theoretical knowledge and literature, this study is expected to help fill this gap in the field. In light of these views, the current study aims to examine the moderating role of sports participation in the relationship between adolescents' strengths, use levels, and resilience.

Methods

Research Model

In this research model, the conceptual model in Figure 1 was developed to determine the moderating role of sports participation in the relationship between adolescents' levels of using strengths and resilience. Age and gender were controlled for in the model.

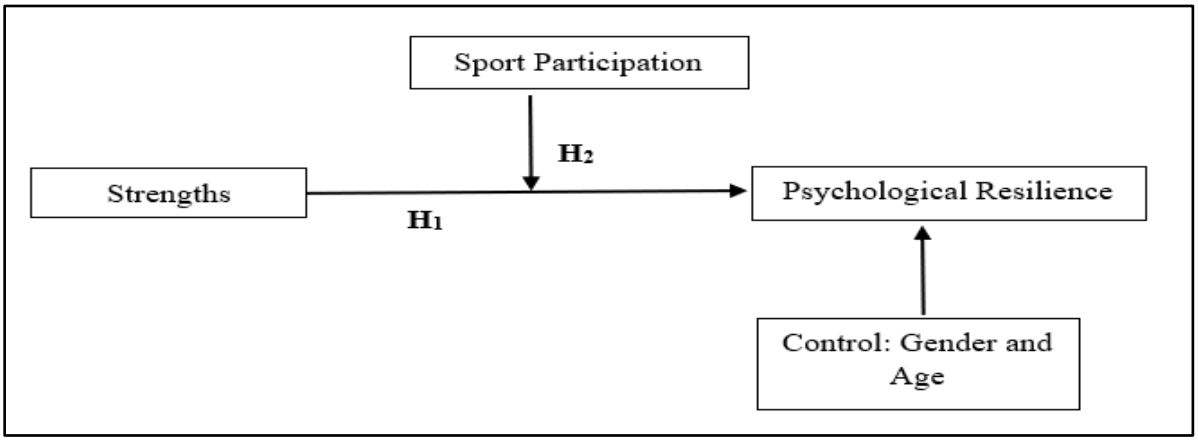

Figure 1. *Research Model*

Participants and Procedure

For the study, data were collected from 450 adolescent participants. Responses from 9 participants (2.0%) under the age of 13 and from 12 participants (2.4%) who had filled out the questionnaire incorrectly were excluded from the analysis. Additionally, the 5% trimmed values in the descriptive table were checked to identify outliers, and 40 data points (9.4%) were excluded from the analysis. Thus, data from 389 participants were evaluated in the scope of the study. In the profile of 389 adolescents, 205 were female (53.7%), and 184 were male (47.3%), aged 13-18, with a mean age of 15.66 and an SD of 1.61. Of the 214 participants (55.0%) were licensed athletes, and 174 (45.0%) were not.

Data were collected from six different provinces in the Black Sea region by an online method. In the study, the demographic information of the adolescent participants, as well as the questions using the scales, were entered into the web-based Google Form. The links were sent and distributed to the participants via social media. Participation was ensured to be voluntary. We acquired informed permission from each individual. Before the research commenced, participants were given a brief explanation of the study's purpose, and the survey results were kept anonymous and confidential. The form was designed to prevent questionnaires from being sent with missing data.

In this study, convenience sampling was used, and the research was cross-sectional. To determine an adequate sample size, the views on the moderating role in the literature were utilized. Kline (2016) states that in mediation and moderation analyses, at least 200 samples should be used to minimize computational errors. In light of Kline's anticipated N:q ratio of 20:1, the study's sample size (n = 389) was deemed sufficient.

Inclusion criteria for the study were: having no health problems, being between 13 and 18 years of age, and voluntary participation.

Data Collection Tools

Personal Information Form
This form consists of questions about adolescents' gender, age, and participation in licensed sports. In the study, involvement in sports was assessed by categorizing participants as licensed or non-licensed.

Adolescent Strengths Use Scale
Demir, Murat, and Arslan conducted an adaptation study of the scale into Turkish (2024). There is only one factor structure and seven elements on the scale. High scores obtained from the scale indicate that character strengths are used at a higher level in schools. The scale's internal consistency coefficient and Cronbach's alpha were computed in line with reliability research standards. 82. The internal consistency coefficient in this investigation came out to be. 78.

Child and Youth Resilience Scale (CYRS-12)
Arslan (2015) researched the adaptation of the scale into Turkish. The scale has a single-factor structure with twelve elements. The scale's internal consistency coefficient was computed in line with reliability research, yielding a Cronbach's alpha of 91. The internal consistency coefficient in this investigation was 83.

Data Analysis
The data obtained from the adolescent participants were analyzed with the statistical software programs SPSS 27 and AMOS 25. First, the validity and reliability of the scales were examined. The reference value for the Cronbach's Alpha coefficient of the scales was 0.7 (Meydan & Şeşen, 2001). Goodness-of-fit indices and Cronbach's Alpha coefficients are briefly summarized in Table 1. After the preliminary analysis, the arithmetic means and standard deviations of the participants' responses were calculated. To assess the normality of the data, skewness and kurtosis were examined using George and Mallery's (2020) thresholds of -2 and +2. At this stage, the correlation values between the scales were also reported by Pearson Correlation Analysis. In the final stage, the moderating role of sports participation was analyzed using PROCESS 4.2 Macro Analysis (Model 1, developed by Hayes, 2017) in SPSS 27 to test H1 and H2. Jeremy Dawson's (2014) slopes were used to better understand the interaction findings.

Results

Descriptive Statistics
Descriptive statistics (normality assessments, reliability analyses, and correlation results) for the adolescent participants are shown in Table 1.

Table 1. *Descriptive statistics of the participants*

Variables	Mean	SD	Skewness	Kurtosis	Correlations 1	2
1. PR	45.33	6.86	-0.19	-0.42	-	
2. ASU	25.44	4.13	-0.29	-0.32	0.54**	-

**P<0.01; PS= Psychological Resilience, ASU= Adolescent Strengths Use

When the values in Table 1 are examined, it is seen that the mean PR score of the students was ($\bar{x}$ = 45.33 ± 6.86) and the mean ASU score was ($\bar{x}$ = 25.44 ± 4.13). The skewness and kurtosis values indicate that the data are typically distributed. When the correlation coefficients between the variables are analyzed, it is observed that there is a moderately positive correlation between PR and ASU ($r = 0.54$, $p < 0.01$). Based on the skewness and kurtosis values, the data appear to follow a normal distribution.

Scales Used in the Study and Preliminary Analysis Results
The goodness-of-fit value ranges for the scales are shown in Table 2.

Table 2. *Goodness-of-fit values for the scales*

Scale	χ^2/df	GFI	AGFI	NFI	CFI	RMSEA	Cronbach Alfa
Minimum Threshold Values	≤5	.80	.80	.85	.90	≤.10	≥.70
Adolescent Strengths Use Scale	3.686	0.963	0.934	0.938	0.953	0.077	0.783
Child and Youth Resilience Scale	3.892	0.922	0.892	0.847	0.881	0.080	0.836

Not: χ^2/df= Chi-Square /Degrees of Freedom, RMSEA= Root Mean Square Error of Approximation, NFI= Normed Fit Index, GFI= Goodness of Fit Index, AGFI= Adjusted Goodness of Fit Index, CFI = Comparative Fit Index., Reference: Mishra ve Datta, 2011; Schreiber, et al., 2006

The goodness-of-fit values indicate that all scales fit well. The results confirm that the factor structures of the original measurement tool were replicated in this study, indicating sufficient validity.

Moderating Effect of Sport Participation
In the moderation analysis, the gender and age variables were controlled for. Table 3 shows the moderating effect.

Table 3. *Moderation analysis results*

					Dependent variable-Resilience	
					BC 95 % CI	
Predictors	**β**	**SE**	**T**	**P**	**LLCI**	**ULCI**
Gender	0.08	0.08	0.98	0.32	-0.08	0.25
Age	0.01	0.02	-0.50	0.61	-0.06	0.03
Strengths (X)	0.96**	0.13	7.28	**0.01**	0.70	1.22
Sport Participation (Y)	0.11	0.09	-1.31	0.18	-0.29	0.05
X*Y	0.29**	0.08	-3.43	**0.01**	-0.46	-0.12
R^2	0.31**					
R^2-change	0.02**					

Not: Resilience; n=389; **p<0.01

When Table 3 is analyzed, the model explains 31% of the total variance (R^2). Overall, this model makes a significant contribution to predicting psychological resilience (p <0.01). The findings show that adolescents' use of their strengths significantly contributes to the prediction of their psychological resilience (β = 0.96, p < 0.01). It is also observed that the interaction between strengths and sports participation makes a significant contribution to the model (β = 0.29, p <0.01). Despite these findings, gender (β=0.08, p>0.01), age (β=0.01, p>0.01), and sports participation (β=0.11, p>0.01) did not have a significant effect in this model (p>0.01). Finally, when the interaction term between strengths and sports participation was included in the model, the model's total explanatory power (R^2 Change) increased by 0.02, a significant increase (p < 0.01). According to this finding, sports participation moderates the relationship between strengths and resilience.

Table 4. *The moderating effect of sport participation*

				BC 95 % CI	
Dependent variable-Resilience		**Effect**	**SE**	**LLCI**	**ULCI**
Sport Participation	+1 SD (11.52)	0.66	0.05	0.55	0.78
	- 1 SD (5.80)	0.37	0.06	0.24	0.49

+1 SD = Adolescents playing sports; -1 SD = Adolescents who don't play sports

To reveal the moderating role of sports participation, the basic slope test was used to determine how the effect differed between adolescents who participated in sports and those who did not. According to the findings, while the impact of strengths on the resilience of adolescents who play licensed sports was (effect = 0.66), this effect was calculated as (effect = 0.37) in adolescents who do not play licensed sports. In other words, when strengths increase by 1 unit in adolescents who play sports, resilience increases by 0.66 units, whereas when strengths increase by 1 unit in adolescents who do not play sports, resilience increases by 0.37 units.

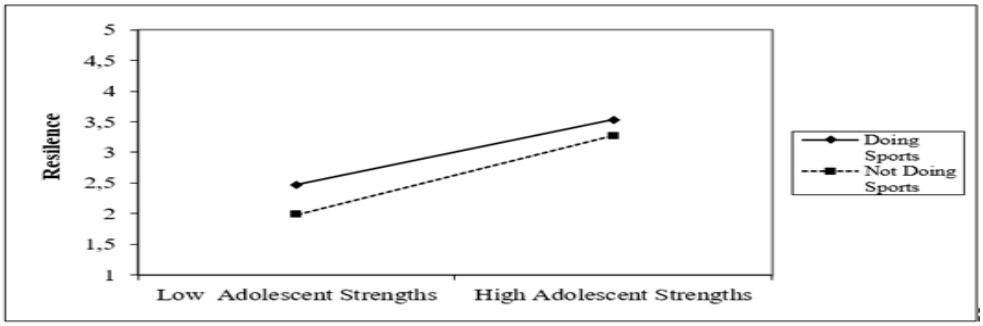

Figure 2. *The relationship between strengths and psychological resilience depends on sports participation*

As shown in Figure 2, the interaction pattern was consistent with expectations. The findings indicate that adolescents who participate in sports exhibit higher levels of strengths use and psychological resilience than their non-participating peers.

Discussion

In this study, a positive psychology (strengths and resilience) approach was emphasized, with psychological resilience as the dependent variable. Strengths, which are believed to contribute to the development of psychological resilience, were evaluated as independent variables in the study. Considering the effect of sports on the mental health of young people, participation in sports was identified as the moderating variable in this study. In this context, the main problem addressed in our research is whether the relationship between adolescents' use of their strengths and their resilience varies according to their participation in sports.

According to the results, adolescents' levels of psychological resilience and use of strengths were found to be medium. There is a moderately significant positive relationship between strengths and resilience. In parallel with this finding, strengths significantly impact resilience. Sports participation moderates the relationship between strengths and resilience. The impact of strengths on resilience varies depending on the level of sports participation. In other words, adolescents who participate in sports have stronger strengths and resilience than those who do not.

The results obtained from the research are discussed in line with the hypotheses of the study and within the framework of the literature:

Regarding our first hypothesis, the findings indicate that adolescents' strengths are a significant factor in their psychological resilience. In other words, adolescents' ability to utilize their character strengths in their relationships with others, in achieving their goals, and in solving their problems may make them feel more psychologically resilient. These findings indicate that hypothesis H_1 is supported. These results are consistent with the view that young people who utilize their strengths exhibit higher well-being (Ebrahimi & Esmaeili, 2023); similarly, strengths positively impact the mental health of young people (Demir, Murat, & Arslan, 2024).

Regarding our second hypothesis, the findings suggest that when predicting resilience using strengths, controlling for sport participation makes this effect more apparent. In other words, it appears relatively straightforward to improve resilience by encouraging the development of strengths among adolescents who participate in sports, compared with those who do not. Moreover, higher levels of strength use in adolescents make them more psychologically resilient, and it is likely that adolescents who play sports experience this relationship at higher levels. Based on these findings, hypothesis H_2 is supported. Adolescents can become successful individuals in many areas by discovering their strengths and using them functionally in their lives. Individuals have the opportunity to use their strengths in a sports environment. In addition, the view that children and young people who participate in sports are psychologically stronger (Long et al., 2019; Zhang et al., 2021) provides evidence that sports can play an effective (moderating) role in the relationship between strengths and resilience. This study once again highlights the positive effects of participating in sports, particularly on adolescents.

Conclusion

This study demonstrates that leveraging strengths and participating in sports enhances adolescents' psychological resilience. Findings suggest that employing character strengths contributes to adolescents feeling psychologically stronger, an effect further bolstered by participation in sports. Overall, existing research indicates that adolescents who capitalize on their strengths tend to exhibit higher levels of well-being and better mental health. Moreover, the positive effects of sports on adolescents underscore their significant role in fostering psychological resilience by encouraging the development of strengths. The results presented in this study highlight the importance of adolescents discovering and using their strengths in functional ways in their lives, which, in turn, supports their development into successful individuals. Additionally, the positive impact of sports on adolescents' psychological well-being and their role in fostering strengths and resilience are emphasized.

Recommendations and Limitations

In line with the study's results, school-wide practices are recommended to help adolescents discover and utilize their strengths. It is recommended to create classroom environments where adolescents can identify their strengths throughout the educational process (Demir & Murat, 2021). Adolescents who can identify their character strengths are likely to lead mentally healthier lives. Another recommendation based on the research results is that adolescents should participate in both in-school and out-of-school sports activities. In this way, they can discover and apply their strengths. Moreover, through sports activities, adolescents can develop character strengths such as being loving, kind-hearted, and socially intelligent. Encouraging students to participate in team sports, alongside individual sports, is essential because team sports foster social intelligence, empathy, collaboration, and problem-solving skills.

In this study, the role of sports participation was examined within the scope of positive psychology. In future studies, research can be organized by reviewing the current issues of traditional psychology. Again, future research can examine whether physical activity or exercise mediates the relationship between strengths and resilience.

This study has some strengths and limitations. The findings support the study's hypotheses and indicate that the model is consistent with the literature. Despite this, the cross-sectional design limits the generalizability of the data. It is also worth noting that the convenience sampling method preferred in this study has some drawbacks.

Declarations

Ethical Approval and Consent to Participate
Finally, the Recep Tayyip Erdoğan University Social and Humanitarian Ethics Committee granted permission for the study (letter 2024/001, dated 10 January 2024). The study was organized voluntarily, and informed consent was obtained from the participants.

Publication Permission
Not applicable.

Availability of Data Materials
Not applicable.

Conflict of Interest
The authors declare no conflict of interest.

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Author Contributions
GÇ, İK, and TE conceptualized the paper. GÇ analyzed the data. GÇ, İK, and TE contributed to the writing of the first draft. GÇ and İK revised the manuscript. All authors reviewed and approved the final version of the manuscript for submission.

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