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ADAPTATION OF TENDENCY TO AVOID PHYSICAL ACTIVITY AND SPORT IN TURKISH ADOLESCENTS

PRILAGODITEV TEŽNJE K IZOGIBANJU FIZIČNI AKTIVNOSTI IN ŠPORTU PRI TURŠKIH MLADOSTNIKIH

ABSTRACT

Adolescence is a critical period during which individuals undergo social, emotional, and cognitive changes. Participation in physical activity during this period significantly affects individuals' health in their future lives. However, despite the well-known multifaceted positive effects of physical activity on adolescent health, avoidance of physical activity and sports has become a significant problem in recent years. To address this situation from a public health perspective, it is important to understand the potential underlying reasons for individuals' avoidance of physical activity and sports. However, it has been noted that there is limited research on this topic, and most existing studies focus primarily on adult individuals. Therefore, this study aimed to adapt the "Tendency to Avoid Physical Activity and Sport Scale" to Turkish language and culture for adolescents. The study group consisted of two separate groups selected through convenience sampling from different high schools in Turkey. The study included 70 in the pilot test phase and, 478 in the construct validity and reliability phase. Factor loadings (0.395-0.913), fit indices (x^2/df =4.312, CFI = 0.966, TLI = 0.952, RMSEA =0.083, SRMR =0.037), Average Variance Extracted (AVE=0.529), and Construct Reliability (CR=0.914) were taken into account for the structural validity, while high McDonald's Omega coefficients were calculated for reliability, (.914). As a result, it was found that the measurement tool preserves the original structure of the single-factor, 10-item scale, meets the necessary psychometric properties for assessing adolescents' levels of avoidance of physical activity, and is a valid and reliable tool.

Keywords: Physical activity, adolescent, TAPAS

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IZVLEČEK

Adolescenca je kritično obdobje, v katerem posamezniki doživljajo socialne, čustvene in kognitivne spremembe. Sodelovanje v telesnih aktivnostih v tem obdobju pomembno vpliva na zdravje posameznikov v njihovem prihodnjem življenju. Kljub dobro znanim večplastnim pozitivnim učinkom telesne aktivnosti na zdravje mladostnikov pa je izogibanje telesni aktivnosti in športu v zadnjih letih postalo pomemben problem. Da bi se s to situacijo spopadli z vidika javnega zdravja, je pomembno razumeti morebitne temeljne razloge za izogibanje telesni aktivnosti in športu. Vendar pa je bilo ugotovljeno, da je raziskav na to temo malo, večina obstoječih študij pa se osredotoča predvsem na odrasle posameznike. Zato je bila cilj te študije prilagoditi lestvico „Nagnjenost k izogibanju telesni aktivnosti in športu“ turškemu jeziku in kulturi za najstnike. Študijska skupina je bila sestavljena iz dveh ločenih skupin, izbranih z naključnim vzorčenjem iz različnih srednjih šol v Turčiji. Študija je vključevala 70 udeležencev v pilotni fazi testiranja in 478 udeležencev v fazi preverjanja veljavnosti in zanesljivosti konstrukta. Za strukturno veljavnost so bili upoštevani faktorji obremenitve (0,395–0,913), indeksi prileganja (x^2/df = 4,312, CFI = 0,966, TLI = 0,952, RMSEA = 0,083, SRMR = 0,037), povprečna izvlečena variance (AVE = 0,529) in zanesljivost konstrukta (CR = 0,914) so bili upoštevani za strukturno veljavnost, medtem ko so bili za zanesljivost izračunani visoki McDonaldovi omega koeficienti (0,914). Rezultat je pokazal, da merilno orodje ohranja prvotno strukturo enofaktorske lestvice z 10 postavkami, izpolnjuje potrebne psihometrične lastnosti za ocenjevanje stopnje izogibanja telesni aktivnosti pri mladostnikih ter je veljavno in zanesljivo orodje.

Ključne besede: Fizična aktivnost, najstniki, TAPAS

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https://doi.org/10.52165/kinsi.32.1.136-150

INTRODUCTION

Adolescence has been defined as a critical stage of human life in which people undergo rapid and significant physical, emotional, social and cognitive changes (Pfeifer & Allen, 2021). During this period, individuals experience emotional and cognitive transformations (Casey, Getz, & Galvan, 2008). These changes have a negative impact on health-related behaviors in general, and physical activity participation is one of them. In particular, it reduces the risk of obesity by contributing to energy balance, and promotes cardiovascular health by lowering blood pressure and increasing cardiovascular endurance (Janssen & LeBlanc, 2010). In addition, physical activity supports social interactions and enhances well-being by alleviating symptoms of anxiety and depression (Biddle & Asare, 2011). These findings indicate that physical activity is one of the main factors affecting both mental and physical health during adolescence (Centres for Disease Control and Prevention, 2010).

Although it is mentioned that physical inactivity is associated with various health problems, physically inactive young people are also more likely to lead a sedentary lifestyle in adulthood (Telama et al., 2005). However, recent reports indicate the physical activity participation is not sufficient for various populations in different countries. According to the World Health Organization, children and adolescents aged 5-17 years should participate in average of 60 minutes of moderate-to-vigorous intensity aerobic activities on a daily basis across the week in order to achieve optimal levels of these benefits (Bull et al., 2020). More than 80% of school-going adolescents aged 11-17 years do not meet current recommendations for daily physical activity (WHO, 2020). According to the Turkish Nutrition and Health Survey (2014), it was reported that only 10.2% of adolescents aged 15-18 regularly engage in physical activity, indicating an increase in sedentary behaviors among adolescents.

Adolescents' physical activity participation decisions are influenced by multidimensional affective (Slater & Tiggemann, 2010), social (Sawka et al., 2013) and cognitive factors (Sallis, Prochaska, & Taylor, 2000). By considering these factors in a holistic manner, all of them can be called reasons for avoiding physical activity which can be considered in individual, social and societal dimensions. To illustrate, body perception can be emphasized frequently in adolescents in individual level. Although affective body perception significantly shapes participation in physical activity among adolescent girls, it has been stated that adolescents who are dissatisfied with their bodies may not participate in physical activity (Slater & Tiggemann, 2010). During adolescence, this behavior can be manifested in forms such as not attending

physical education classes, not participating in physical activities in social settings, and consciously preferring sedentary activities (Slater & Tiggemann, 2010). In the social context, peer pressure, teacher encouragement and family support play a decisive role (Sawka et al., 2013). In the cognitive context, self-efficacy and knowledge of the health benefits of physical activity are important determinants (Sallis, Prochaska, & Taylor, 2000). To illustrate, body dissatisfaction may have negative effects such as social isolation and lack of self-confidence (Smolak & Levine, 2015). Adolescents' participation in physical activity is not only dependent on individual factors, but also on the sociocultural context in which they live (Doğan, 2010). In Türkiye, adolescents' decisions to participate in physical activity are significantly influenced by factors such as school-based academic pressures, parental expectations and gender roles (Çalışkan & Atak, 2013). Especially for female adolescents, avoidance behavior may be triggered due to the conflict of behaviors such as outdoor sports with social approval (Slater & Tiggemann, 2010). The interaction of affective, social and cognitive factors in adolescents' decisions to participate in physical activity may make physical activity participation behavior more complex during adolescence. Although it is very important to investigate the reasons why adolescents avoid physical activity in a developing country like Turkey, it is noteworthy that appropriate inventories to carry out this process have not yet been developed or adapted in Turkish culture.

In recent years, the avoidance of physical activity and sports has become an important problem in developed countries and the development of inventories to measure this phenomenon has gained momentum. However, physical activity behavior is mostly evaluated with quantitative indicators such as frequency, intensity and duration, qualitative aspects such as the individual's attitude towards physical activity, perception and avoidance behavior have an important place in understanding this behavior (Bauman et al., 2012). Moreover, Teixeira et al. (2012) stated that attitudes towards physical activity and avoidance behaviors are often examined with measurement tools developed on adult samples and that the intrinsic motivation or avoidance tendencies of young individuals are not adequately represented. Thus, since adolescence is a period of rapid changes in terms of affective and cognitive development, it is of great importance for a measurement tool to be appropriate for the developmental characteristics, conceptual level, social perception and language use of the 12-18 age group (Steinberg, 2005). the Tendency to Avoid Physical Activity and Sport Scale (TAPAS) developed by Bevan et al. (2022) is unique inventory to assess physical activity avoidance and adapted in many cultures. As the first inventory to directly measure the reasons for avoiding physical activity and sports,

the instrument has gained great popularity and has been identified as a valid and reliable inventory among Chinese, Italian, Indonesian Taiwanese and Malaysian university students (Nadhiroh et al., 2022; Fan et al., 2023, Gan et al., 2022; Soraci et al., 2024). However, the instrument has not yet been tested in a group of high school adolescents. The fact that the health behaviors acquired in this group have a higher potential to last a lifetime (Halfon et al., 2014) reveals the importance of adapting health-related measurement tools such as the TAPAS in this age group.

Hence, in the international literature, there has been a growing emphasis on the development of measurement tools that not only assess physical activity behaviors but also examine the avoidance of physical activity. In this context, considering the limited engagement in and low prevalence of physical activity among adolescents in Turkey, the adaptation of such measurement instruments holds significant value. Therefore, the present study aims to evaluate the reliability and validity of the Turkish version of the TAPAS for use among adolescents.

METHODS

Research Group

The research data were collected from two different sample groups selected through a convenience sampling method. The first sample group consisted of 70 high school students selected for the pilot test phase. The second sample group consisted of 478 high school students selected for the purpose of testing construct validity and reliability. Information on the demographic characteristics of participants, obtained through a form created by researchers, is presented in Table 1.

Table 1. Demographic characteristics of participants.

Descriptive	Pilot Test		Validity and Reliability	
Statistics	**n**	**%**	**n**	**%**
Age				
14 and less			37	8
15	7	10	158	33
16	26	37	173	36
17	32	46	92	19
18	5	7	18	4
Height (cm)				
150-165	37	53	208	44
166 and more	33	47	270	56
Body Mass (kg)				
59 and less	44	63	248	52
60 and more	26	37	230	48
Income				
Low	2	3	31	7
Middle	62	88	389	81
High	6	9	58	12
Health Issue				
Yes	9	13	66	14
No	61	87	412	86
Health				
Very unhealthy	2	3	11	2
Normal	46	66	391	82
Very healthy	22	31	76	16

Notes. n - number of participants, %- percentage, cm- centimeter, kg – kilogram. All demographic information is based on self-reported data, and the health-related data represent participants' subjective perceptions in response to the question, "How would you rate your overall health?"

Data Collection Tool

We used "Tendency to Avoid Physical Activity and Sport Scale" developed by Bevan et al. (2022) to assess individuals' tendencies to avoid physical activity and sports due to negative experiences and concerns related to appearance and weight stigma to collect data. The

measurement tool is a five-point Likert-type scale with values between 1 and 5 and has a one-dimensional structure consisting of 10 items.

Data Collection Process

In the fall semester of the 2024-2025 academic year, the lists of schools and the number of students in two different districts in Eskişehir City Center were obtained from the Provincial Directorate of National Education and 15 randomly selected schools were visited. In each school, a random branch from the 1st, 2nd, 3rd and 4th grades of high school was visited and students were invited to the research. After the purpose of the study was explained to the participants, consent forms and parental consent forms were distributed, and the questionnaires were administered under the supervision of the researchers to 562 students who returned both forms filled in. Among the data obtained, 14 data that were found to have double marking and incomplete marking were excluded from the study.

Data Analysis

Descriptive statistics, Confirmatory Factor Analysis (CFA) for the structural validity of the measurement model, and internal consistency analyses for reliability were used in the interpretation of the data. SPSS Statistics 23 and Mplus 8.3 software packages were used in the analysis of the data.

Language Validity: To ensure linguistic equivalence between the original English version of TAPAS and its Turkish translation, a working group was established in collaboration with researchers, comprising language experts fluent in Turkish and native English speakers. The group translated the items into Turkish using the translation–back translation method (Banville et al., 2000). The translated items were subsequently submitted for expert review. Three experts with research experience in physical activity were consulted to provide assessments. They evaluated each item in terms of theoretical, cultural, and linguistic relevance. No item was removed during the expert evaluation stage, and the process continued to the next stage.

Construct Validity and Reliability: The factor loadings were examined for measurement construct validity, and subsequently, AVE (Average Variance Extracted) and CR (Construct Reliability) values were calculated. To examine internal consistency reliability, McDonald's Omega (ω) coefficients were calculated (Hayes & Coutts, 2020). Additionally, an item total correlation analysis was performed to examine whether the items were understood by the participants. To evaluate the model data fit, x^2 (chi square), df (degrees of freedom), x^2/df (chi

square value divided by the degrees of freedom), incremental fit indices CFI (Comparative Fit Index) and TLI (Tucker-Lewis Index), absolute fit indices RMSEA (Root Mean Square Error of Approximation) and SRMR (Standardized Root Mean Square Residual) indices were calculated (Hair et al., 2013). According to the literature, acceptable threshold values for x^2/df are below 5.0 (Kline, 2011). In addition, Browne & Cudeck (1993) reported that CFI and TLI should have threshold values above 0.90 and SRMR should have threshold values below 0.080 for acceptable fit. Furthermore, acceptable threshold values for RMSEA should be below 0.080 (Hair et al., 2013), and factor loadings should be above 0.32. Additionally, threshold values of 0.50 for AVE and 0.70 for CR are used (Fornell & Larcker, 1981). For acceptable reliability, structures must have α values above 0.70 (Hair et al., 2013; Norman & Streiner, 2003). Finally, the literature states that item-total correlation values should be above 0.30, otherwise they will cause low discriminability (Cristobal et al, 2007).

Ethics Committee Permission: Ethical permission was obtained for this study by Eskisehir Technical University Social and Human Sciences Scientific Research and Publication Ethics Committee with the decision dated 02.05.2025 and numbered 78907

RESULTS

Pilot Study

All items were sufficiently correlated (r = 0.444 – 0.887; Table 2). In addition, the internal consistency coefficient of the scale was calculated as 0.934. According to this result, it was determined that the items showed similar characteristics with each other and with the total scale and were sufficiently related. In addition, the analysis results showed that the skewness value was found to be between .444/1.429 and the kurtosis value was between -1.184/1.373 (see Table 2). This result shows that the data set has a normal distribution since it is within the range of -2/+2 skewness and -7/+7 kurtosis thresholds (Hair et al., 2010; Byrne 2010).

Table 2. Descriptive statistics for the TAPAS.

Items	Mean	Ss	Skewness	Kurtosis	Item-Total Correlation
1. I find myself avoiding participating in sport because of my weight	1.885	.084	1.147	.579	.536
2. I avoid participating in sport because of my fear of being judged about my lack of physical ability	2.000	.142	1.142	.712	.712
3.I worry about participating in sport because I don't like how my body looks when playing sport	1.971	.102	.925	.039	.752
4. I am afraid other people will notice my physical flaws when I participate in sport	1.842	.137	1.230	.700	.838
5. I am concerned about what other people think of my appearance when I participate in sport	2.057	.317	1.027	-.125	.761
6. I avoid physical activity because I might get teased about my weight	1.771	.118	1.429	1.280	.798
7. I avoid physical activity because of my fear of being judged about my physical appearance	1.814	.83	1.399	1.047	.843
8. I avoid physical activity because I worry that people may make negative comments about my body	1.842	.137	1.413	1.373	.860
9. I avoid physical activity because I worry people may be thinking negatively about my physical appearance	1.871	.128	1.382	1.359	.887
10. I would prefer to participate in physical activity in a more private setting	2.514	.462	.444	-1.184	.444

Notes. TAPAS - Tendency to Avoid Physical Activity and Sport Scale.

Confirmatory Factor Analysis Results

The fit indices obtained from the Confirmatory Factor Analysis are as follows: x^2=284.108, p < 0.001, df=35, x^2/df =8.117, CFI =0.920, TLI=0.897, RMSEA =0.122, SRMR =0.045. It was determined that the x^2/df, TLI, and RMSEA fit indices did not meet the specified threshold values. Subsequently, the modifications suggested by the analysis program were checked, and modifications were made between items 5 and 4 (73.393), items 4 and 3 (26.401), and items 5 and 3 (41.554), respectively. As a result, the values obtained after the modifications showed acceptable fit (x^2= 138.008, p<0.001, df= 32, x^2/df =4.312, CFI = 0.966, TLI= 0.952, RMSEA =0.083, SRMR =0.037). In addition, the factor loadings were examined and found to be above

the threshold of 0.32 (see Figure 1). Furthermore, it was observed that CR and AVE values were above the threshold of 0.70 and 0.50, respectively (see Table 3).

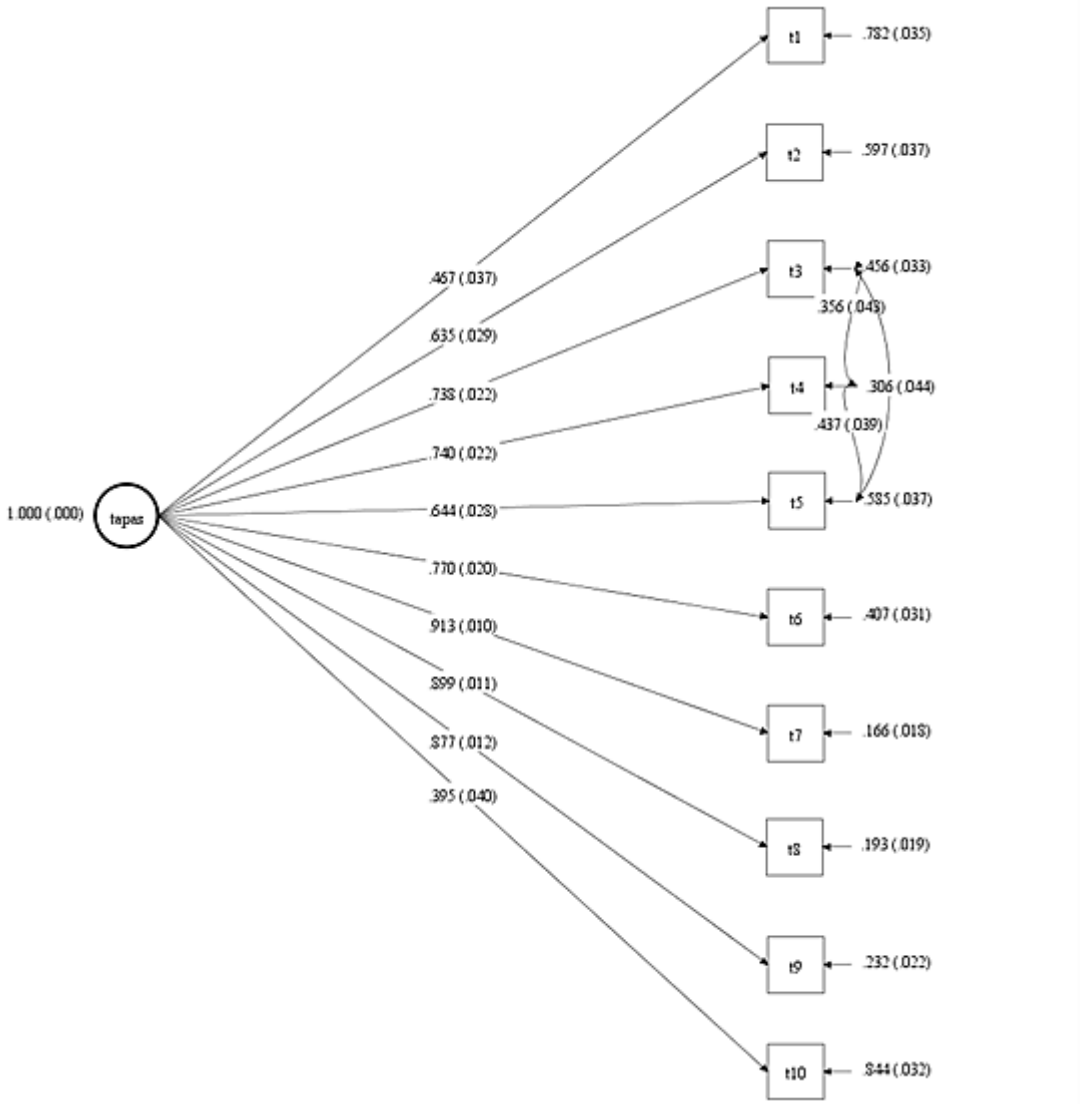

Figure 1. CFA analysis of the TAPAS.

Findings Related to Reliability Analysis

High measurement reliability was demonstrated through McDonald's coefficient for internal consistency (ω = 0.914; Table 3).

Table 3. Factor loadings, CR, AVE values, and McDonald's coefficient.

Items	Factor Loadings	CR	AVE	Mc Donald's Omega (ω)
ITEM1	0.467			
ITEM2	0.635			
ITEM3	0.738			
ITEM4	0.740			
ITEM5	0.644			
ITEM6	0.770	.914	.529	.914
ITEM7	0.913			
ITEM8	0.899			
ITEM9	0.877			
ITEM10	0.395			

Notes. CR - Construct Reliability, AVE - Average Variance Extracted.

DISCUSSION

The TAPAS developed by Bevan et al. (2022), is a popular measurement tool that different cultures have adapted in recent years. This scale was developed to assess not only the quantitative aspects of physical activity participation but also the affective and cognitive processes that influence behavioral avoidance. Previous studies using this measurement tool indicate that it has primarily focused on university students (Nadhiroh et al., 2022; Fan et al., 2023, Gan et al., 2022; Soraci et al., 2024). However, the tendency to avoid physical activity and sport is not unique to university students; it is also an important issue for high school students, particularly during adolescence (Halfon et al., 2014). Hence, adolescent is a critical period for forming health-related health related behaviors, which are generally adopted during adolescence tend to persist into adulthood, a phenomenon referred to as "behavioral tracking" (Telama, 2009). In this context, it becomes crucial to track the health behaviors of adolescents and to examine their avoidance of these behaviors and to develop and adapt all kinds of inventories that will help in carrying out this process to different cultures. Moreover, considering that more than 80% of school-going adolescents aged 11–17 years are insufficiently active, failing to achieve the recommended levels of daily physical activity, which threatens both their immediate well-being and long-term health outcomes (WHO, 2020), conducting such a study in Türkiye is particularly important to reflect the context of a developing country. The

main aim of this study was to test reliability and validity of TAPAS in adolescents in Türkiye, and the findings demonstrated that the proposed model achieved acceptable fit indices and strong reliability estimates for Turkish adolescents.

The first and original validation study of the TAPAS yielded strong model fit indices, confirming a unidimensional structure with factor loadings within acceptable limits and reporting high construct validity (Bevan et al., 2022). The Turkish adaptation to assess high school students' tendency to avoid physical activity and sports revealed a single-factor structure consistent with the original scale and various adaptations. Confirmatory Factor Analysis (CFA) results showed good model fit indices ($x^2 = 138.008$, $p < 0.001$, $df = 32$, $x^2/df = 4.312$, CFI = 0.966, TLI = 0.952, RMSEA = 0.083, SRMR = 0.037). The obtained values indicate that the fit indices of the Turkish scale are within acceptable limits and have strong structural validity, similar to other international adaptations (Hair et al., 2013). Similar to our study, an examination of international adaptation studies reveals that the Hong Kong version has strong model fit indices with CFI = 0.996, RMSEA = 0.04 (Saffari et al., 2023), and the Italian version has CFI = 1.00, RMSEA = 0.00 (Soraci et al., 2024), confirming the single-factor structure. However, when adaptation studies conducted across various cultures are examined in terms of item count, it is observed that some studies maintain and utilize the structure of the original 10-item measurement tool proposed in the initial validation study (Saffari et al., 2023; Soraci et al., 2024). However, some studies, noting the potential for cultural bias in the 10th item, recommend a 9-item version of the scale for the study' population (Fan et al., 2023). As a result of the analyses conducted within the scope of this study, it was concluded that, similar to the studies by Saffari et al. (2023) and Soraci et al. (2024), the original measurement model structure was preserved, and the measurement tool with 10 items and a single-dimensional structure provided valid and reliable results.

In terms of reliability, Bevan et al. (2022) reported excellent internal consistency ($\alpha = 0.92$, CR = 0.91) in their study developing the original TAPAS. In the Turkish adaptation conducted on a sample of high school students, it was observed that the scale's strong reliability was maintained with $\alpha = .914$ and CR = 0.914, and that similar results were obtained in the literature. Similarly, the Italian version (Soraci et al., 2024) reported $\alpha = 0.90$ and CR = 0.91, the Hong Kong version (Saffari et al., 2023) reported $\alpha = 0.93$ and CR = 0.95, and the Taiwanese and Mainland Chinese versions (Fan et al., 2023) reported $\alpha = 0.91$ and Rasch Reliability = 0.92. Additionally, it was concluded that the Average Variance Extracted (AVE) was .529 and

convergent validity was supported in our study. Hence, these results demonstrate that TAPAS is a valid and reliable tool that can be used across diverse cultures.

Limitation and Recommendation for Future Studies

Although the study has implications for the literature and practice, it has some limitations. First, data was collected from only one region. There may be cultural differences in different regions. Secondly, while the scale examines the tendency to avoid physical activity based on weight stigma and appearance, it does not measure the level of interest in physical activity. Therefore, it is unclear whether TAPAS is associated with actual physical activity participation levels in adolescents. Thus, studies to obtain and interpret real physical activity data are needed to revalidate the TAPAS in adolescents.

The TAPAS scale also promises to be used routinely in large-scale surveillance research on physical inactivity in general populations, in particular in children and adolescents. By identifying those with high avoidance propensities, researchers and practitioners can specifically design intervention approaches to overcome specific psychological impediments. Lastly, due to its flexibility, the TAPAS is also a valuable tool for cross-cultural comparison research in enabling the researcher to study the manifestation of avoidance propensities in different socio-cultural contexts. These kinds of researches would provide insight on how cultural values, gender role expectations, and environmental circumstances affect avoidance behavior and physical inactivity.

CONCLUSION

To conclude, this study was the very first study that showed applicability of TAPAS structure among adolescent population. The results of the current study present the psychometric strengths of the TAPAS and its value for research as well as practice in the assessment of physical activity avoidance among adolescents. Although the results show good reliability and applicability, the drawbacks associated with regional sampling and the lack of direct measures of physical activity need to be addressed in the future. Additional validation in diverse cultural settings and compatibility with objective measures of activity would fortify its utility. In sum, the TAPAS is a useful instrument for large-scale surveillance as well as intervention design that shall elicit insightful knowledge about the psychological predictors of inactivity among youth populations.

Declaration of Conflicting Interests

The authors have no conflicts of interest to declare.

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