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Validation of the Youth Leisure-time Sedentary Behavior Questionnaire among high school students in Iran

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Abstract

Introduction: Sedentary behavior, characterized by low-energy expenditure activities, has increased globally, including in Iran, leading to various health risks. Assessing these behaviors is crucial for developing effective interventions. This study aims to validate the Youth Leisure-Time Sedentary Behavior Questionnaire (YLSBQ) among high school students.

Materials and Methods: This cross-sectional study validated the YLSBQ among 983 high school students in Bandar Abbas, Iran, in 2022-2023. Participants were selected through multistage cluster sampling from 20 high schools. Content validity was assessed using the Content Validity Ratio (CVR) and the Content Validity Index (CVI). Concurrent validity was examined using the Adolescent Motor Competence Questionnaire (AMCQ). Construct validity was evaluated through Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), while reliability was assessed using Cronbach's alpha, test-retest reliability, and split-half reliability.

Results: The YLSBQ demonstrated strong content validity (CVR: 0.64-1.00, CVI: 0.64-0.91). Concurrent validity with the AMCQ was significant ($r= 0.71$, $P= 0.01$). EFA identified four factors explaining 67.90% of the variance. CFA confirmed the model fit ($\chi^2= 80.31$, RMSEA= 0.046, CFI= 0.99). Reliability was excellent (Cronbach's alpha= 0.914, test-retest $r= 0.91$, lambda coefficients: 0.792-0.947).

Conclusion: The Youth Leisure-Time Sedentary Behavior Questionnaire is a valid and reliable tool for assessing sedentary behaviors among Iranian youth.

Keywords: Adolescent, Psychometrics, Questionnaire, Sedentary behavior

Introduction

Sedentary behavior is any activity characterized by low energy expenditure, typically performed while sitting or lying down (1,2). These activities include watching television, using a computer, and prolonged sitting (3,4). According to international standards, sedentary behavior is recognized as a significant factor in reducing physical activity levels (5). The prevalence of sedentary behavior

has increased significantly worldwide (6,7), and Iran is no exception (8,9). This increase can be attributed to lifestyle changes, increased use of technology, and decreased daily physical activities (10,11). The consequences of sedentary behavior include an elevated risk of cardiovascular diseases, type 2 diabetes, obesity, and mental health issues such as depression and anxiety (3,12). These problems can severely impact individuals' quality of life and increase healthcare costs (12). Their assessment remains challenging, given the complexity of sedentary behaviors (13). Methods used to measure sedentary behavior consist subjective approaches such as diaries and self-report questionnaires and objective methods like accelerometers, posture monitors, heart rate monitoring, and combined sensors (14). However, these objective methods are often time-consuming or costly for inclusion in population-level surveys and health studies (15). Therefore, assessing the psychometric properties of self-report tools that provide information on the nature and domains of sedentary behavior is particularly important. The Youth Leisure-time Sedentary Behavior Questionnaire (YLSBQ) is a simple, cost-effective self-report tool to assess multiple sedentary behaviors. A study in Spain adapted and validated a version of the YLSBQ in a sample of 194 adolescents aged 10 to 18 years. This version of the YLSBQ reported moderate to substantial agreement for most (91%) items and a moderate level of criterion validity (15). In recent years, Iran has experienced rapid urbanization, migration from rural areas to cities, increased consumption of ultra-processed foods, and a parallel decrease in physical activity due to the mechanization of daily tasks and leisure activities (16,17). Examining healthy lifestyle behaviors, including sedentary behavior during adolescence—a transitional period in work, school, family, and relationships—is particularly important (18). This life stage significantly affects health-related behavior patterns and adult health trajectories (3,12). Therefore, validating the YLSBQ can contribute to developing more accurate and efficient tools for assessing adolescent sedentary behavior. This tool can help researchers and health professionals better understand sedentary behaviors among students and provide more effective strategies to address this issue. Additionally, it can assist policymakers and planners in designing more effective programs to reduce student sedentary behavior. These

programs may include regular physical activities, health education, and the creation of environments conducive to physical activity. Accordingly, this study aims to evaluate and validate the YLSBQ among high school students in Bandar Abbas, Iran, to develop appropriate educational and recreational programs to reduce sedentary behavior and improve their mental and physical health.

Materials and Methods

This study targeted all high school students in Bandar Abbas during the 2022-2023 academic year. The required sample sizes for validity and reliability analyses were 40, 130, 130, and 40 participants. To enhance accuracy, 200, 400, 300, and 100 participants were selected for concurrent validity, EFA, CFA, and reliability, respectively (19-21).

The inclusion criteria of this study included high school students aged between 15 and 18 from Bandar Abbas, Iran, who were willing to provide informed consent. Exclusion criteria included students who self-reported physical or psychological problems via the preliminary questionnaire without referencing medical records, those who were unavailable during the study period, and those who chose not to provide consent. A multistage cluster sampling method was used. From each educational district, 10 high schools (5 boys' and 5 girls' schools) were randomly selected, totaling 20 schools. Three classes (grades 10, 11, and 12) were chosen from each school, and all students were included. Their mobile numbers were obtained from the schools. Informed consent was obtained verbally from students and their parents via phone. After explaining ethical considerations, the research questionnaire was distributed, yielding 983 valid responses.

Forward-backward translation process

A rigorous translation process was conducted with a specialized team to validate the YLSBQ from English to Persian. Initially, two independent translators with expertise in translating scientific and health-related texts (one holding a Master's degree in translation studies and another with over 10 years of experience in scientific translation) translated the English version of the questionnaire into Persian. Subsequently, a team comprising three linguistics and health sciences experts reviewed and compared the two translated versions to identify the optimal equivalents for technical terms. In the back-translation phase, an

independent translator—unfamiliar with the original version and specialized in scientific translation—translated the final Persian version back into English to ensure accuracy and retention of the original meanings. Any discrepancies due to cultural differences or technical terminologies were identified, documented, and revised with appropriate justifications during this process. Finally, the final Persian version of the questionnaire was pilot-tested on a small group of students to ensure clarity and absence of ambiguities (22).

Research instruments

A) The Youth Leisure-time Sedentary Behavior Questionnaire (YLSBQ): It consists of 12 questions that examine various sedentary behaviors. This questionnaire has four main dimensions: screen time (questions 1-3), non-screen sedentary time educational (questions 4-6), non-screen sedentary time social (questions 7-9), and non-screen sedentary time other (questions 10-12). Respondents are asked to report the time spent on each behavior during the past week. Response options include none, 30 minutes, 1 hour, 2 hours, 3 hours, 4 hours, and 5 hours or more. The average daily time for each behavior is calculated as follows: [(weekday time $\times$ 5) + (weekend time $\times$ 2)]/7. The total sedentary time score is obtained by summing the reported time for the 12 sedentary behaviors. Higher scores indicate more time spent in sedentary behaviors, which can be used as an indicator to assess the level of sedentariness and associated risks. This questionnaire was evaluated in a cross-sectional study with 447 students from Columbia University. Cronbach's alpha for the 12 behaviors ranged from 0.715 to 0.935, indicating good internal consistency. The Intraclass Correlation Coefficient (ICC) for total sedentary time was 0.926 (95% CI= 0.912-0.939), which was interpreted as excellent. These results suggest that the YLSBQ is a valid and reliable tool for assessing sedentary behavior in youth (15).

B) The Adolescent Motor Competence Questionnaire (AMCQ): The AMCQ is a 26-item self-report tool assessing motor competence in adolescents (12-18 years) based on DSM-5 criteria for Developmental Coordination Disorder (DCD). It evaluates difficulties in acquiring and performing motor skills affecting daily, academic, or occupational activities. Responses are rated on a 4-point Likert scale (1= never to 4= always), with 14 items reverse scored. Total scores range from 26

to 104, with a cut-off of $\leq$ 83 indicating potential motor issues. The questionnaire shows strong validity and reliability, with Timler et al. (2016) reporting high test-retest reliability (ICC= 0.96) and internal consistency (α= 0.90). The Persian version, validated in Iran, has a content validity index of 0.980, internal consistency of 0.940, and test-retest reliability of 0.885, confirming its suitability for Iranian adolescents (23).

Validation techniques

Content validity: The content validity of the YLSBQ was rigorously evaluated to ensure its suitability for high school students in Tehran, particularly given its first-time translation into Persian. The primary statistical tools used were the Content Validity Ratio (CVR) and the Content Validity Index (CVI). The CVR, calculated using the Lawshe table, required a minimum value of 0.59 for each question, based on the agreement of 11 experts (24). The CVI assessed the clarity, relevance, and relatedness of the questions and was computed using the original formula. In this study, a minimum acceptable CVI value of 0.7 was considered; however, more desirable values (e.g., $\geq$ 0.9) indicate a higher quality in terms of item clarity and relevance, in line with Waltz and Bausell standards (25,26). Concurrent validity: The Pearson correlation coefficient was used to measure the relationship between the YLSBQ scores and those from the AMCQ, providing a basis for concurrent validity.

Construct validity: Construct validity was assessed through Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) within the Structural Equation Modeling (SEM) framework. In this study, given the unique economic and cultural conditions in Iran (such as sanctions, high unemployment among graduates, inflation, and reduced purchasing power) that may influence activity patterns and sedentary behaviors, a detailed examination of the questionnaire's dimensional structure was deemed essential (27,28). For example, adverse economic conditions can limit children's and adolescents' access to sports and cultural activities. At the same time, financial constraints may lead parents to enroll their children less in extracurricular programs, increasing sedentary time. Consequently, besides conducting CFA to assess the fit of the theoretical model, EFA was also performed to identify any distinct dimensional structures that might arise from varying socioeconomic backgrounds (29).

EFA was conducted on 400 samples using the Kaiser criterion and Parallel Analysis to determine the appropriate number of factors. Principal Component Analysis (PCA) with Varimax rotation—selected for its ease of interpretation and its ability to differentiate factor loadings—was employed for factor extraction (30). In addition, Parallel Analysis was utilized as a complementary method to confirm the number of extracted factors. If the EFA results did not align with the original questionnaire structure, further measures (such as a detailed review of factor loadings, elimination or modification of weak items by a team of experts, and re-execution of CFA) would be implemented to refine and confirm the final structure (31). CFA, performed on a separate sample of 300, involved fitting a theoretical model to the observed data, evaluated using fit indices such as Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), Normed Fit Index (NFI), Non-Normed Fit Index (NNFI), Incremental Fit Index (IFI), Standardized Root Mean Square Residual (SRMR), Goodness of Fit Index (GFI), and Adjusted Goodness of Fit Index (AGFI). The Maximum Likelihood (ML) estimation method was used for its efficiency and consistency under multivariate normality (32). Reliability: The reliability of the YLSBQ was assessed using several standard indices. Cronbach's alpha coefficient was utilized to evaluate the internal consistency of the entire scale and its dimensions. Split-half reliability was determined by dividing the questionnaire based on odd and even questions and calculating coefficients for each half. The correlation coefficient between the two halves confirmed consistency. Lambda coefficients were used to assess the reliability of each dimension. Test-retest reliability was evaluated by administering the questionnaire to the same participants after a seven-day interval (33). Data analysis was performed using SPSS version 22 and LISREL version 8 software. Descriptive statistics were used to estimate frequency and percentage. For content validity, CVR and CVI were estimated. For concurrent validity, the Pearson correlation coefficient between the scores of the YLSBQ and the AMCQ was used. EFA using principal component analysis with varimax rotation was performed to determine the factorial structure of the scale under study for construct validity and determining the factorial structure under study. In this analysis, factors with eigenvalues greater than one were considered the main factors. CFA was also used to examine the fit of the scale. To examine the reliability of the YLSBQ, internal consistency methods were used; for this purpose, the alpha coefficient obtained for the total scale and its dimensions, the split-half coefficient for the first half of the data, for the second half of the data, and the correlation between the two halves were calculated.

Results

This study computed separate descriptive statistics for boys (N=5 12) and girls (N= 470). Both groups had a similar mean age of approximately 16.8 years. Boys had higher mean weight (59.71 kg), height (1.62 m), and body mass index (22.64) compared to girls, who averaged 49.23 kg, 1.53 m, and a body mass index of 21.03. Overall, the sample comprised 52.2% males and 47.8% females. Detailed parental education and employment status are summarized in Table 1, indicating that around 30% of fathers and mothers had less than a diploma, about 40% hold a diploma, and roughly 30% possess a university degree. Additionally, while 70.6% of fathers were employed, only 34.3% of mothers were employed, with other employment categories (Table 1).

Table 1. Frequency and percentage distribution of parental education and employment status in different groups

		Total (n=983)	Concurrent (n=193)	Exploratory (n=393)	Confirmatory (n=298)	Reliability (n=99)
Gender	Female	470 (47.8%)	90 (46.6%)	187 (47.6%)	145 (48.7%)	48 (48.5%)
	Male	513 (52.2%)	103 (53.4%)	206 (52.4%)	153 (51.3%)	51 (51.5%)
Father's education	Less than Diploma	287 (29.2%)	45 (23.3%)	111 (28.3%)	67 (22.5%)	15 (15.2%)
	Diploma	402 (40.9%)	84 (43.5%)	145 (36.9%)	123 (41.3%)	50 (50.5%)
	University	294 (29.9%)	64 (33.2%)	137 (34.8%)	108 (36.2%)	34 (34.3%)
Mother's education	Less than Diploma	303 (30.8%)	42 (21.8%)	116 (29.5%)	84 (28.2%)	27 (27.3%)
	Diploma	395 (40.2%)	80 (41.5%)	146 (37.2%)	119 (39.9%)	50 (50.5%)
	University	285 (29.0%)	71 (36.8%)	131 (33.3%)	95 (31.9%)	22 (22.2%)
Father's employment	Employed	694 (70.6%)	138 (71.5%)	268 (68.2%)	221 (74.2%)	67 (67.7%)
	Retired	172 (17.5%)	33 (17.1%)	73 (18.6%)	49 (16.4%)	17 (17.2%)
	Deceased	52 (5.3%)	11 (5.7%)	20 (5.1%)	9 (3.0%)	12 (12.1%)
	Unemployed	65 (6.6%)	11 (5.7%)	32 (8.1%)	19 (6.4%)	3 (3.0%)
	Employed	337 (34.3%)	63 (32.6%)	143 (36.4%)	108 (36.2%)	23 (23.2%)

Mother's employment	Unemployed	21 (2.1%)	5 (2.6%)	5 (1.3%)	8 (2.7%)	3 (3.0%)
	Retired	82 (8.3%)	23 (11.9%)	34 (8.7%)	22 (7.4%)	3 (3.0%)
	Deceased	23 (2.3%)	4 (2.1%)	6 (1.5%)	7 (2.3%)	6 (6.1%)
	Homemaker	520 (52.9%)	98 (50.8%)	205 (52.2%)	153 (51.3%)	64 (64.6%)

Content validity: The results of the content validity assessment of the YLSBQ indicated that the Content Validity Ratio (CVR) for various items ranged from 0.64 to 1.00. According to Lawshe's table, the minimum acceptable CVR for 11 experts is 0.59. Additionally, the Content Validity Index (CVI) for the items varied between 0.64 and 0.91. Based on Waltz and Bausell's standards, the minimum acceptable CVR for 11 experts is also 0.59 (Table 2). These results suggest that the questionnaire has adequate content validity and can be used as a reliable tool for data collection (34).

Table 2. Questions related to each extracted dimension of the YLSBQ among high school students

	Dimensions			
	Non-screen sedentary time educational	Non-screen sedentary time other	Non-screen sedentary time social	Screen time
i1	0.02	0.16	0.08	0.66
i2	0.08	0.06	0.09	0.63
i3	0.07	0.05	0.15	0.68
i4	0.70	0.15	0.12	0.08
i5	0.81	0.10	0.12	0.02
i6	0.78	0.09	0.09	0.10
i7	0.10	0.06	0.71	0.14
i8	0.13	0.11	0.65	0.08
i9	0.06	0.14	0.67	0.11
i10	0.06	0.69	0.14	0.06
i11	0.13	0.61	0.06	0.15
i12	0.12	0.76	0.12	0.07

Concurrent validity: The YLSBQ was performed alongside the academic YLSBQ of AMCQ to investigate concurrent validity. The results showed a positive and significant correlation between the YLSBQ and the academic YLSBQ of AMCQ ($P= 0.01$, $r= 0.71$) (32). Exploratory Factor Analysis (EFA): The EFA of the YLSBQ was conducted with 393 participants. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.756, and Bartlett's test of sphericity was significant ($\chi^2= 1329.972$, df= 66, $P< 0.001$), confirming the suitability of the data for factor analysis. Using Principal Axis Factoring (PAF) with Varimax rotation, four factors with eigenvalues greater than one were identified, explaining a cumulative variance of 67.904%. In addition, parallel analysis confirmed that four factors should be retained, thereby corroborating the eigenvalue> 1 criterion. Specifically, non-screen sedentary time educational (questions 4-6) explained 15.363% of the variance, non-screen sedentary time other (questions 10-12) explained 12.844%, non-screen sedentary time social (questions 7-9) explained 12.348%, and screen time (questions 1-3) explained 11.519% of the variance (Table 2). Communalities ranged from 0.412 to 0.683, indicating that the extracted factors accounted for a substantial portion of the variance in the items. The rotated factor matrix showed significant item loadings on their respective factors, supporting the multidimensional structure of the questionnaire. These results suggest that the YLSBQ has a robust factor structure and is a valid tool for assessing various dimensions of student sedentary behavior (35).

Confirmatory factor analysis (CFA): CFA of the YLSBQ (n= 298) indicated an acceptable model fit ($\chi^2(48)= 80.31$, $P= 0.0024$; RMSEA= 0.046; CFI= 0.99; GFI= 0.96). Standardized factor loadings ranged from 0.66 to 0.89 ($P< 0.001$) and squared multiple correlations from 0.68 to 0.83, confirming strong associations between observed variables and latent factors. These results support the YLSBQ multidimensional structure and validity in assessing sedentary behavior in youth (Table 3, Figure 1).

Scale reliability: Reliability analysis of the YLSBQ showed excellent internal consistency (Cronbach's alpha= 0.914) and stability over

time. Dimension-wise, Cronbach's alpha ranged from 0.881 to 0.914. Split-half reliability coefficients were 0.842 and 0.819 for the two halves, with a correlation of 0.895 and a Spearman-Brown coefficient of 0.945. Test-retest reliability over a seven-day interval yielded a Pearson correlation 0.91 ($P< 0.01$). Lambda coefficients ranged from 0.792 to 0.947, confirming reliability (Table 4).

These findings support the YLSBQ as a reliable tool for assessing sedentary behavior in youth (36).

Table 3. Comparative fit indices for the YLSBQ: CFA and total data analysis among high school students

Results	CMIN/DF	GFI	AGFI	NFI	CFI	IFI	PNFI	RMSEA
CFA data	1.67	0.96	0.93	0.98	0.99	0.99	0.71	0.046
Acceptable fit	3	0.90	0.90	0.90	0.90	0.90	0.50	0.10
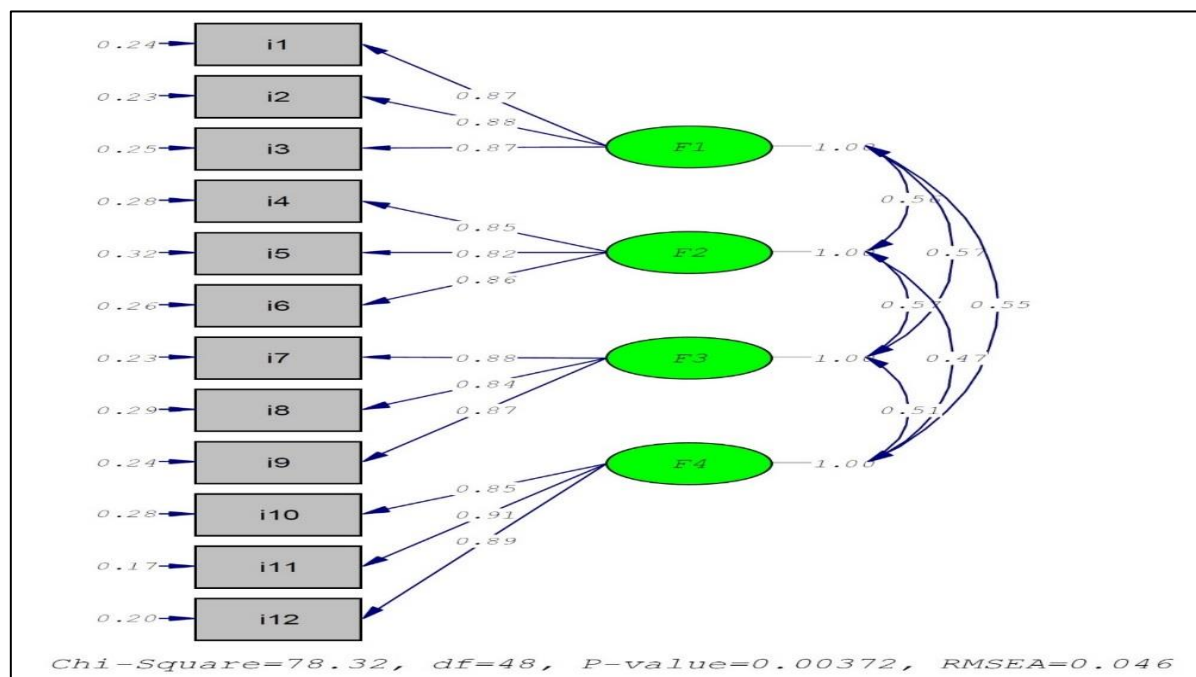
Figure 1. Standardized coefficients model for CFA data

Table 4. Internal consistency calculations of the YLSBQ (8 questions)

	Cronbach's alpha	
Total scale	0.914	
First dimension	0.906	
Second dimension	0.881	
Third dimension	0.899	
Fourth dimension	0.914	
Split-half reliability coefficient of the first half	0.842	(6 questions)
Split-half reliability coefficient of the second half	0.819	(6 questions)
Correlation coefficient between two halves	0.895	
Lambda1	0.838	
Lambda2	0.917	
Lambda3	0.914	
Lambda4	0.792	
Lambda5	0.884	
Lambda6	0.947	

Discussion

The results showed that the YLSBQ questionnaire has high content validity. This finding is consistent with other studies that have confirmed the content validity of this questionnaire (23,37,38). Based on psychometric theories and reference models (such as Lawshe, Waltz, and Bausell), the content evaluation process was carried out using the opinions of 11 experts. For instance, in the study by Lorås et al., conducted among 500 Norwegian students, the precise content evaluation indicated comprehensive coverage of physical and sedentary activities. Additionally, the foundation of the questionnaire was based on the theoretical and conceptual background of sedentary behaviors, a process that includes carefully selecting relevant items and excluding irrelevant ones. This approach ensures that the final questionnaire covers all the desired conceptual dimensions and can accurately assess sedentary behaviors (37). The studies by Mohammadzadeh et al. in Mashhad (23) and Timler et al. (38) also used the same foundations for content shaping and evaluation. Moreover, the translation and back-translation process was conducted meticulously, considering Iranian linguistic and cultural differences. Based on the collaboration of language and health experts, this process ensures that the key terms and concepts are transferred from English to Persian without losing their technical and cultural meanings. Local conditions in regions such as Bandar Abbas, which have their own economic and cultural characteristics, have also been considered in similar studies (16,17,39,40).

The concurrent validity evaluation results showed a significant correlation (r= 0.71) between the YLSBQ and AMCQ questionnaires; therefore, the YLSBQ has appropriate concurrent validity. Theoretically, the strong correlation between YLSBQ and AMCQ indicates that the tool accurately measures constructs related to sedentary behaviors. For example, in the studies by Lorås et al. (37) and Mohammadzadeh et al. (23), this correlation was reported as an indicator to confirm the conceptual compatibility of the measured dimensions. Using AMCQ as a comparison criterion, by international standards, scientifically strengthens the concurrent validity of YLSBQ.

The results of exploratory factor analysis and confirmatory factor analysis for YLSBQ indicate that this tool has a strong and valid factor structure for evaluating various dimensions of student sedentary behaviors. Theoretically and statistically, using Principal Component Analysis (PCA) with Varimax rotation in EFA and confirmation of the structure through CFA indicates the precise alignment of empirical data with theoretical models. Other researchers' studies have also used the same statistical methods and obtained similar results. Additionally, matching these dimensions with similar questionnaires, such as SBQ and ASAQ, shows the conceptual compatibility of the tool with global standards (41,42).

Examining the dimensions of screen time matches the "screen time" dimension in similar questionnaires, such as the Sedentary Behavior Questionnaire (SBQ) and the Adolescent Sedentary Activity Questionnaire (ASAQ) (33,34). The educational non-screen sedentary time dimension is similar to the "educational sedentary time" dimension in SBQ and ASAQ. The social non-screen sedentary time dimension matches the "social sedentary time" dimension in other sedentary behavior questionnaires. The non-screen sedentary time for other activities dimension also matches the "other activities sedentary time" dimension in similar questionnaires.

The results showed that the Persian version of the YLSBQ questionnaire has very good reliability (Cronbach's alpha coefficient= 0.914 and test-retest r= 0.91). The high reliability is due to the precise design of the questionnaire and the use of standard methods for reliability assessment. A similar reliability coefficient was reported in the study by Atencio-Osorio et al. with a sample of Colombian university students. Using indices such as the lambda coefficient and splitting the questionnaire into two halves also indicates the integrity and stability of various dimensions of the tool (15). These findings are based on theoretical foundations about the uniformity and stability of the tool and have been confirmed in studies (23,37,38).

From the sample population and research location perspective, the present study in Bandar Abbas was conducted with 983 students from 20 high schools selected using multistage sampling. In contrast, studies like those by Lorås et al. (37) in Norway and Timler et al. (39) at an international level had samples of 400 to 600 individuals. From the perspective of research time, recent years' economic and social conditions (2022-2023) in Bandar Abbas may influence behavioral patterns, which have also

been discussed as an influential factor in other researchers' studies (16,17). The tools used in all these studies are similar, and the results of statistical evaluations (including CVR, CVI, concurrent validity correlation, and factor analyses) indicate the compatibility of the tools in different conditions (23,37,38,41,42).

However, this study has certain limitations. One limitation is self-reporting methods for data collection, which may lead to response bias. It is recommended that future studies employ mixed methods, such as direct observation or the use of physical activity measurement devices, to enhance data accuracy. Additionally, this study was conducted in a single city, which may limit the generalizability of the results to other regions. Similar studies should be conducted in different geographical areas to increase the generalizability of the findings. Furthermore, examining the impact of socioeconomic and cultural factors on sedentary behaviors could provide a more comprehensive understanding of these behaviors.

Conclusion

The validation of the YLSBQ among high school students in Bandar Abbas confirms its strong psychometric properties. The questionnaire demonstrated high content validity, concurrent validity, and construct validity. Significant correlations with the AMCQ and robust factor structures through EFA and CFA support its reliability and validity. Despite limitations like reliance on self-reporting and the single-city scope, the YLSBQ is a reliable tool for assessing sedentary behaviors in youth. Future research should employ mixed methods and broader geographical sampling to enhance generalizability and accuracy.

Conflict of Interest
The authors declare no conflict of interest.

Ethical Considerations
This cross-sectional study followed ethical guidelines, obtaining written informed consent from all participants. Confidentiality was ensured, and data were used solely for research. Participants could withdraw at any time. The study complied with institutional ethical standards, the 1964 Helsinki Declaration, and its amendments. The Ethics Committee of Azad University of Qeshm approved this research.

Code of Ethics
IR.IAU.BA.REC.1402.048

Authors' Contributions
ZSH and LKH wrote the manuscript, ZSH and LKH performed the statistical analysis and validation, and ZSH and EY approved the final article.

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