



Investigation of the validity and reliability of the Turkish version of Back-Health-Related postural habits in daily activities questionnaire

Merve İlhan¹ · Saniye Aydoğan Arslan² · Meral Sertel³

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Abstract

Aim of the study to determine the validity and reliability of the Turkish version of the Back-Health-Related Postural Habits In Daily Activities Questionnaire (BEHALVES-T). 162 adolescents were included in the study. Test-retest method and internal consistency analysis were used for reliability. The validity was determined using the Back Pain and Body Posture Evaluation Instrument (BackPEI). When Test-retest values for BEHALVES-T was examined, it was seen that using a bag, carrying weight, reaching and the total score of the scale were consistent ($ICC > 0.70$). Standing and sitting posture sub-dimensions were found to be borderline consistent ($p < 0.01$). Examining the scale's internal consistency showed that the sub-dimensions' consistency levels were low, but the total value scale's internal consistency was medium. The relationship between BEHALVES-T, BACKPEI ($r = -0.238$) was found to be weak. The content validity index was found to be 0.98. According to the results of this study, the Turkish version of the BEHALVES is a valid and reliable questionnaire for adolescents.

Keywords Adolescent · Posture · Validity · Reliability · BEHALVES

Introduction

Adolescence is the intermediate period that includes change and development from childhood to adulthood. It is the period in which the fastest growth and development is observed among human developmental stages and includes many biological, mental and social changes [1]. The World Health Organization (WHO) has stated that the age of entry into adolescence is 10 years and the age of termination of

adolescence is 19 years [2]. Considering the age range in WHO's definition of adolescence, it is stated that the rate of adolescents in the Turkish population is 16% [3]. The fact that adolescents occupy an important place in the social population requires attention to adolescent health problems. At the same time, the health, education and skills budgets allocated to individuals in adolescence have a significant impact on the development of the country [4].

Adolescence is the period in which the fastest growth and development occurs among human developmental stages. It involves many changes in biological, mental and social aspects. Individuals in this period have a high risk of developing incorrect posture due to the changes experienced. At the same time, the risk of injury is high [5, 6].

Posture and posture disorders are among the factors that form the basis of pain in this period. Use of heavy and wrong bags, sitting in inappropriate sitting postures for long periods of time, using non-ergonomic desks and tables, choosing wrong beds and pillows, studying for long periods while bending over, unsuitable postures for using phones and computers due to technological developments, affecting posture during daily life activities. These are frequently encountered factors [7]. In order to minimize and prevent these factors, the postures of adolescents while performing

✉ Saniye Aydoğan Arslan
fztsaniye1982@gmail.com

Merve İlhan
Merveilhan9@hotmail.com

Meral Sertel
fzt_meralaksehir@hotmail.com

¹ Ministry Of Health Etlik City Hospital, Physical Therapy and Rehabilitation Hospital, Ankara, Turkey

² Department of Physiotherapy and Rehabilitation, Faculty of Health Sciences, Ankara Yıldırım Beyazıt University, Ankara, Turkey

³ Department of Physiotherapy and Rehabilitation, Faculty of Health Sciences, Balıkesir University, Balıkesir, Turkey

daily activities should be questioned and their postures that are not suitable for the activities they perform should be determined.

During adolescence, when there is a faster growth spurt, ergonomic, genetic and lifestyle-related factors may facilitate the emergence of postural changes in individuals [8]. Especially today, with the influence of technological developments, individuals spend a significant part of their time using phones, computers or watching television. At the same time, long-term studies in non-ergonomic (such as excessive anterior or posterior tilt of the head, excessive flexion or collapse of the trunk, etc.), the use of beds and pillows that are not suitable for the correct sleeping posture, physical inactivity, and the use of incorrect and heavy bags affect back health by causing postural disorders [7]. It has been supported in the literature that there is a relationship between posture disorders and musculoskeletal pain [9]. For this reason, it is important to determine the current faulty postural habits in adolescent individuals at an early stage and to evaluate the individuals in advance in order to prevent musculoskeletal system problems. Musculoskeletal pain is frequently seen during adolescence. Shoulder, knee, waist and back pain are the most common pains. Risk factors associated with shoulder, knee, hip, waist and back pain seen during adolescence include age, gender, muscle strength, participation in physical activities, heavy and incorrect bag carrying habits, and improper posture habits [10]. It is noteworthy that valid and reliable self-report assessment tools that evaluate postural habits are limited in the literature. In the literature review, it is seen that there is no other questionnaire that questions only the posture habits of adolescents in their daily activities, but rather they are evaluated with open-ended questions. In current studies, musculoskeletal problems that are mostly affected by postural habits have been examined. The Back Pain And Body Posture Evaluation Instrument (BackPEI), which has been used in similar studies in the literature, is available and includes questions about posture habits, as well as questions about active lifestyle, genetic factors, and the frequency of back pain [11, 12]. Back-Health-Related Postural Habits In Daily Activities Questionnaire (BEHALVES) is a new questionnaire designed to evaluate posture habits in daily living activities [13]. When comparing BEHALVES and BackPEI questionnaires, BEHALVES evaluates posture habits in detail in different positions (standing, sitting, lying down, etc.). When we examine the items of BackPEI in detail, it is striking that the positions in which posture habits are evaluated are more limited. No other Turkish version of the questionnaire other than BackPEI has been found in the literature. Therefore, we believe that the Turkish version of BEHALVES will contribute to the literature. There is no Turkish validity and reliability study of the BEHALVES

Questionnaire in the literature. The purpose of this study is to translate the BEHALVES into Turkish and examine its validity and reliability in individuals in adolescence.

Materials and methods

Design, setting, and participants

The study included 162 adolescents between the ages of 12–17, who were continuing formal education at a private school between November and December 2022 and who volunteered to participate in the study. The sample was selected from the school using the snowball sampling method. Exclusion criteria; Those with a diagnosed disease such as rheumatic disease and spinal deformities that affect their waist and back health, those with a physical disability or disease that restricts their daily activities, and those with a VAS score above 3 [14]. Television habits, television watching time, exercise habits, information about back pain and waist pain, and demographic information (grade, age, gender, height, weight, etc.) of the students included in the study were recorded.

Informed consent was obtained from the families of the students participating in the study. Approved by Kırıkkale University Non-Interventional Research Ethics Committee (Decision No: 2021.12.05, Date: 12.01.2022). Helsinki principles were followed.

BEHALVES and the Back Pain and Body Posture Evaluation Instrument (BackPEI) were used for evaluation.

Translation and cross-cultural adaptation

The translation of the questionnaire was conducted by considering the stages that were reported by Beaton [15]. First, permission was obtained from the authors of the questionnaire to translate the questionnaire into Turkish. During the translation phase into Turkish, two experts who had a good command of English first translated the questionnaire from English to Turkish. The questionnaire was examined by researchers who are experts in the field and turned into a single form. These translations were translated back into English by two bilingual native English speakers who were unfamiliar with medicine, and these translations were compared with the original. The created Turkish form was sent to five experts in the field and its content and compatibility with Turkish were evaluated. After the questionnaire was administered to 20 individuals, the questionnaire was given its final form without making any changes to the items.

There is no standard sample size to be used in validity and reliability studies. It is generally stated that in scale studies, at least 3 or 5–10 people should be recruited for each scale

item [16]. For this reason, a questionnaire was administered to 162 adolescent students to investigate the validity and reliability of the Turkish version of BEHALVES, which consists of 31 items. To evaluate the validity of BEHALVES, a Turkish version of BackPEI, which are valid and reliable in the Turkish society, were used. To evaluate test-retest reliability, BEHALVES was re-administered face to face by the same physiotherapist to 46 participants two weeks later. The questionnaires were filled out by students at school under the supervision of a physiotherapist. Students were asked to mark the most correct option according to their own posture habits. The student's response time to the questionnaire was approximately 10 min.

Outcome measures

Back-Health-Related postural habits in daily activities questionnaire (BEHALVES)

BEHALVES, Manuel Monfort-Pañego & Vicente It was developed by Miñana-Signes to evaluate the body posture habits of adolescent individuals in daily activities and consists of a total of 31 questions. It includes 4 questions regarding activities performed while standing, 9 questions regarding activities performed while sitting, 13 questions regarding activities involving weight bearing, and 5 questions regarding activities performed while lying down. Scoring consists of 4 options: never, almost never, almost always and always. The items in the Questionnaire are scored as 1 = never, 2 = almost never, 3 = almost always and 4 = always. Question 14: Push wheeled bags and pull wheeled bags are scored as 4 points, backpacks as 3 points, shoulder bags as 2 points, briefcases and handbags as 1 point. The fourth, sixth, seventh, eighth, ninth, twenty-ninth and thirtieth questions are reverse scored (1 = always, 2 = almost always, 3 = almost never, 4 = never) [13]. High scores indicate that individuals maintain more correct posture in daily activities. The total score ranges from 31 to 124. The minimum and maximum scores that can be obtained for the sub-parameters of the questionnaire are 4–16 for standing posture (items 1–4), 9–36 for sitting posture (items 5–13), 7–28 for use of backpacks (items 14–20), 6–24 for mobilizing heavy weights (items 21–26) and 5–20 for lying stance (items 27–31).

Back pain and body posture evaluation instrument (BackPEI)

BackPEI was developed to determine students' behavioral and postural habits and the frequency of back pain. This Questionnaire consists of 22 questions regarding demographic information, socio-economic status, behavioral factors, low back pain in the last three months, postural factors

and genetic factors. The Turkish validity and reliability of the scale was conducted by Gençbaş et al. in 2019 [17, 18]. The BackPEI questionnaire was designed to identify the presence of BP in the last 3 months before its application. It studies questions on the occurrence, frequency, and intensity of the back pain. The intensity of the pain, question number 21, was assessed using the visual analog scale (VAS), it is a 10-cm horizontal line in which "0" means "No Pain" and "10" means "The Worst Pain I Can Imagine". The first 20 questions are closed, which is only possible on response: Questions 1–8 are based on lifestyle; questions 9–14 deal with posture adopted during daily-life activities; questions 15 and 16 ask about parent studies; questions 17–19 are designed to identify the presence of back pain in the last three months, and the occurrence and frequency of the pain.

Statistical analysis

Analysis of data obtained from the research IBM Statistical Package for Social Made with Science (SPSS)-Version 23. The compliance of the variables with normal distribution was checked with the Skewness and Kurtosis values. When Kurtosis and Skewness values are between -1.5 and $+1.5$, it is accepted that there is a normal distribution. Descriptive statistics are given as mean \pm standard deviation (mean \pm SD) and percentage values. $p < 0.05$ was considered statistically significant. Analysis of the data obtained from the study was made with IBM Statistical Package for Social Science (SPSS)-Version 23.

Reliability

For reliability analyses, Intraclass Correlation Coefficient (ICC) values were calculated for test-retest and intra-observer reliability. Spearman correlation analysis was used for test-retest analysis. To assess intra agreement, the ICC estimates and their 95% confidence intervals were calculated based on absolute agreement, a 2-way mixed effect model. Good and excellent repeatability are indicated by ICCs between 0.6 and 0.8 and >0.8 , respectively. The internal consistency of BEHALVES was determined by the Cronbach's coefficient alpha. Additionally, ceiling and floor effects were calculated. The ceiling and floor effects of the scale were examined by looking at the frequency table of total scores. It was assumed that ceiling and floor effects would be less than 20% [19]. Spearman r correlation coefficients, if the r coefficient is 0.05–0.30, it is insignificant; 0.30–0.40 is low; 0.40–0.60 is medium; 0.60–0.70 is high; 0.70–0.75 is too high; 0.75–1.00 were considered perfect correlation values [20].

Table 1 Descriptive data for participants ($n=162$)

Variables	n (%)
Gender, n (%)	
Female	76 (46.9)
Male	86 (53.1)
Age	
12–15 years old	89 (54.9)
16 and over	73 (45.1)
BMI	
Weak	39 (24.1)
Normal	106 (65.4)
Overweight and obese	17 (10.5)
Television Watching Time	
0–1 h	73 (45.1)
2 h or more	89 (54.9)
Exercise Habit	
No	96 (59.3)
Yes	66 (40.7)

* n : Number of individuals, SD: Standard Deviation, BMI: Body Mass Index, %: Percentage

Table 2 The mean scores of the individuals for questionnaires ($n=162$)

Dimensions and Sub-Dimensions	Mean \pm SS(Min-Max)
BACKPEI	3.29 \pm 2.23(0–9)
BEHALVES-T Total Score	74.88 \pm 12.39(12–99)
BEHALVES-T Standing	11.03 \pm 2.15(7–22)
BEHALVES-T Sitting Posture	21.09 \pm 4.19(11–32)
BEHALVES-T Bag Usage	15.86 \pm 2.62(8–25)
BEHALVES-T Weight Bearing	15.85 \pm 3.44(6–25)
BEHALVES-T Lying Posture	12.77 \pm 2.78(1–24)

SD: Standard Deviation, BEHALVES-T: Turkish version of Back-Health-Related Postural Habits In Daily Activities Questionnaire; BACKPEI: Back Pain And Body Posture Evaluation Instrument

Validity

The validity of BEHALVES was evaluated through content validity and convergent validity from hypothesis testing. For convergent validity; The pearson correlation coefficient was calculated between BEHALVES and the BACPEI. The Content Validity Index (CVI) was calculated using the Lawshe technique. In order to evaluate the content validity of the survey, the opinions of a group of 34 experts in the field of physiotherapy and rehabilitation were consulted. The experts independently assessed the scale items according to the scores specified in the techniques. For all the items in the survey, physiotherapists asked them to choose “appropriate” if the item is a candidate to clearly measure the specified feature, “appropriate, but requires modification” if the item is within the scope of the subject but needs to be edited or changed, and “unsuitable” if the item does not represent the specified feature. and the evaluation result being 0.67 or above indicates that the measurement tool has content validity.

Results

Demographic data and clinical characteristics of the individuals participating in the study are shown in Table 1. In the study, 46.9% of the participants were female and 53.1% were male. The mean age of the participants was 15.29.

Table 2 contains the descriptive statistics of the used in the study. BACKPEI was also used in the research and the total score mean of the scale was found to be 3.29 (\pm 2.23). Finally, the total and subscale score mean of the BEHALVES scale were examined in the study and it was found that the total score mean was 74.88 (\pm 12.39). The mean score of the standing subscale of the relevant questionnaire was 11.03 (\pm 2.15); sitting posture mean score was 21.09 (\pm 4.19) and the mean score of the bag use sub-dimension is 15.86 (\pm 2.62) and the mean score of the weight-bearing subscale was 15.85 (\pm 3.44) and the mean score of the lying posture sub-dimension was found to be 12.77 (\pm 2.78).

Reliability assessment

As a result of the analyses, when the test-retest values (ICC) for the sub-dimensions and total score of the BEHALVES questionnaire were examined, it was seen that the first and second measurement results of bag use, weight carrying, reaching and the total score of the questionnaire were consistent (ICC>0.70; good agreement). In addition, the first and second measurement values of the standing and sitting posture sub-dimensions were found to be borderline consistent (ICC=0.673, 0.686 respectively; moderate agreement) (Table 3). When the internal consistency coefficient of the Questionnaire was examined, it was found that the consistency levels of the sub-dimensions were low (Cronbach Alpha=0.24–0.49), while the consistency of the total Questionnaire was found to be at a medium level (Cronbach Alpha=0.60) (Table 3).

Validity assessment

In analyzing the validity of the BEHALVES questionnaire, its compatibility with the BACKPEI was evaluated. For this purpose, firstly, the correlation coefficients (pearson correlation coefficient) between the sub-dimensions and total score of the BEHALVES Questionnaire and the total score of the BACKPEI were calculated.

Inter Questionnaires correlation coefficients are presented in Table 4. A weak negative correlation ($r=-0.238$; $r=-0.108$, respectively) was detected between the BEHALVES total score and the BACKPEI ($p<0.05$).

Additionally, the content validity index value was calculated to test the validity of the BEHALVES-T. The content validity index was found to be 0.98. Since the value was

Table 3 Reliability coefficients for the total and Sub-Dimensions of the BEHALVES-T questionnaire

Questionnaire and Sub-Dimensions	1. Measurement	2. Measurement	ICC(95% confidence interval) ($n=46$)	Spearman's ρ ($n=46$)
	Mean \pm SD	Mean \pm SD		
BEHALVES Standing	11.11 \pm 1.98	11.67 \pm 2.08	0.673*(0.47–0.80)	0.628
BEHALVES Sitting Posture	21.70 \pm 4.18	21.74 \pm 4.22	0.686*(0.50–0.81)	0.698
BEHALVES Bag Usage	15.39 \pm 2.38	16.13 \pm 2.23	0.743*(0.58–0.85)	0.830
BEHALVES Weight Bearing	16.37 \pm 3.51	16.41 \pm 3.83	0.875*(0.79–0.93)	0.823
BEHALVES Lying Posture	12.11 \pm 2.69	12.911 \pm 3.18	0.873**(0.78–0.93)	0.841
BEHALVES Total Score	76.48 \pm 8.94	78.52 \pm 9.46	0.837**(0.72–0.91)	0.860

* ICC: Intra-Class Correlation Coefficient; BEHALVES: Back-Health-Related Postural Habits In Daily Activities Questionnaire; BACKPEI: Back Pain And Body Posture Evaluation Instrument; ** $p < 0.01$

Table 4 The relationship of BEHALVES-T with BACKPEI ($n=162$)

Questionnaires	BEHALVES Standing	BEHALVES Sitting Posture	BEHALVES Bag Usage	BEHALVES Weight Bearing	BEHALVES Lying Posture	BEHALVES Total Score
BACKPEI	0.011	-0.174 *	-0.278 **	-0.188 *	-0.028	-0.266 **

Pearson Correlation Coefficient, * $p < 0.05$; ** $p < 0.01$; BEHALVES: Back-Health-Related Postural Habits In Daily Activities Questionnaire; BACKPEI: Back Pain And Body Posture Evaluation Instrument

greater than 0.67, the BEHALVES-T was found to have content validity.

Floor and ceiling effects

When the floor and ceiling effects calculated for the BEHALVES total score and sub-dimensions are examined; It was concluded that there was no floor or ceiling effect in the sitting posture and bag use sub-dimensions, there was no floor effect in the standing sub-dimension, and there was no ceiling effect in the total questionnaire score. Since the values of the sub-dimensions with floor and ceiling effects were smaller than the 5–20% value range, it was seen that the floor/ceiling effect was very small for these sub-dimensions. A similar situation applies to the total score of the questionnaire, and it was decided that the floor effect of the questionnaire was very small (2.5%).

Discussion

As a result of our study to create the Turkish version of BEHALVES and examine its validity and reliability in individuals in adolescence, BEHALVES-T It was found to be a valid and reliable questionnaire in adolescents. It was determined that the BEHALVES-T had no ceiling-floor effect. In addition, it was found that the BEHALVES-T Questionnaire had content validity because the content validity index value of the Questionnaire was greater than 0.67. The use of the Turkish version of the BEHALVES Questionnaire in individuals in adolescence will help question posture habits and contribute to the formation of correct posture habits, while minimizing possible risk factors that may arise with activities in daily life and affect back health.

The validity of the BEHALVES-T questionnaire was evaluated with BACKPEI. As a result of our study, it was found that the relationship between BEHALVES-T total score and BACKPEI total score was a weak, negative relationship. It is thought that this weak relationship affected the results of our study because the questions of the two questionnaires did not overlap much with each other. The BACKPEI is not just a specific questionnaire about habits, as it includes six questions about posture habits and questions about active lifestyle and back pain frequency. There is no gold standard questionnaire in the literature that questions the posture habits of adolescents in daily activities to evaluate the concurrent validity of the questionnaire. Postural habits are evaluated mostly with open-ended questions. BEHALVES consists of standing, sitting, bag carrying, weight bearing and lying subheadings. BACKPEI has not question postures during activities in these subheadings. BACPEI questions students' behavioral and postural habits and the frequency of back pain. However, some of the postural habits it questions reflect the postural habits included in our questionnaire. This causes a weak relationship between the questionnaires. No gold standard scale with a Turkish version that we can use for the validity analysis of BEHALVES has been found in the literature.

Test-retest reliability (ICC) and internal consistency coefficient (Cronbach's alpha) values were used to evaluate the reliability of the BEHALVES Questionnaire. The closer the Croncach's alpha value is to 1, the higher its reliability [21]. When the internal consistency coefficient of the questionnaire was examined, it was found that the consistency levels of the sub-dimensions were at a low level, while the consistency of the total questionnaire was found to be at a medium level. The questionnaire questions consist of questions about posture habits during daily activities. Although

it consists of subheadings such as lying down and weight bearing, each of the questions questions posture habits in a different daily activity. All questions are taken into account when calculating the total internal consistency coefficient of the questionnaire. Since the activities in our scale are independent of each other, they may have affected our results. When the ICC values were examined, it was seen that the first and second measurement results were consistent. The relationship between the two measurements, obtained by the test-retest method, showed that the characteristics measured by the questionnaire did not differ over time. Floor and ceiling effects were also examined for the reliability of the BEHALVES-T Questionnaire. In order to evaluate the homogeneity of the answers given to the floor and floor effect questions, the percentage of the lowest and highest scores of the answers given by the people was calculated. The maximum acceptable ceiling and floor effect was accepted as 20% [22]. It was observed that there was no floor or ceiling effect in the sub-dimensions of sitting posture, bag use, and standing. It was concluded that there was no ceiling effect on the total questionnaire score. Since the values of the sub-dimensions with floor and ceiling effects were less than the 5–20% value range, it was seen that the floor/ceiling effect was very small for these sub-dimensions. The absence of a significant ceiling or floor effect showed that the questionnaire could be used in all adolescent individuals. The original version of the BEHALVES questionnaire was implemented in Spain and the Delphi method, test-retest reliability analysis and content validity were used to evaluate it. As a result of the study, test-retest reliability for the total score was found to be excellent. Moreover, at the end of the analysis conducted in the study, it was stated that there was no ceiling or floor effect of the questionnaire. In general, BEHALVES asks “Can an improvement in postural habits in daily life provide us with better back and waist health?” and therefore “Can it provide a good quality of life?” can help answer the questions [13].

In addition, content validity was examined to determine whether the BEHALVES-T questionnaire was valid. Content validity is the questioning of the suitability of the scale item to the feature intended to be measured, its suitability for the target audience, and its understandability. It is examined with the content validity index value. The scale is valid when this value is greater than 0.67. The content validity value of the BEHALVES_T questionnaire was found to be 0.98. In line with this result, it was seen that it had content validity.

As a result of their study, Grimmer & Williams revealed that posture habits acquired during daily life activities are closely related to back pain, especially in adolescence [23]. Geldhof et al. [24] emphasize that posture assessments in children and adolescents play a key role in the early detection

and prevention of back pain as a result of their study. In their compilation study, Prins et al. [25] emphasized the importance of usable measurement tools in clinical and academic fields and stated that structured questionnaires are effective in developing healthy posture habits. In this context, the Turkish version of BEHALVES-T has been transformed into a scientifically supported measurement tool with validity and reliability analyses, and it is one of the first structured scale studies in this field in our country's literature.

In conclusion, this study is one of the first to document the validity and reliability of BEHALVES-T, a Turkish scale measuring postural habits seen in daily life in adolescents. There was a lack of a standardized, structured, and culturally appropriate Turkish scale to measure postural habits in adolescents in the literature. BEHALVES-T will fill this gap and will be an important assessment tool for both clinical practice and public health studies. BEHALVES-T differs from other general pain or activity scales in that it not only evaluates posture disorders but also offers a habit-based approach in the context of daily living activities (sitting, standing, carrying bags, etc.). In addition, BEHALVES-T systematically questions specific and daily life-related posture habits such as standing, sitting, carrying loads, using bags, and lying down. These sub-dimensions are a scale that can be applied in the fields of ergonomics, physiotherapy, and school health. There are limited surveys in the literature that have such a systematic classification and are suitable for young individuals. At the same time, we believe that determining incorrect posture habits can be not only an assessment tool but also a guide for preventive health practices by creating awareness among teachers, physiotherapists, and families.

Limitations

Our study has several limitations. The Questionnaire on BEHALVES questions some activities, postures and habits during standing, sitting, weight bearing and lying down. Posture habits in daily activities such as using the phone, writing, walking, running, and factors such as the duration of phone use and study time are not questioned. At the same time, the effects of pain and psychological factors affecting the participants were not questioned. These may also be taken into consideration in future studies. There is no gold standard scale with a Turkish version that we can test the validity of BEHALVES. In the literature, it has been seen that BackPEI is frequently used to evaluate postural habits and its effects. Although BackPEI is the closest to the content of BEHALVES among these scales, BackPEI does not only include questions about postural habits but also includes questions about active lifestyle and frequency of back pain. Therefore, the scales are not exactly similar to

each other. In the literature, no gold standard questionnaire other than BEHALVES and BackPEI has been found that assess posture habits. The fact that there is no low correlation between these two questionnaires indicates that they are not appropriate to use instead of each other. When the items of both scales are compared, it is noted that there are differences in terms of the parameters they assess. Therefore, advanced statistical analyses such as can be used to test the validity of BEHALVES in future studies. And also, a cut off value can be determined by performing posture analysis. However, we also recommend that the validity of the scale be examined by a physiotherapist through posture analysis.

Conclusion

According to the results of our study, BEHALVES_T questionnaire is a valid and reliable tool with good psychometric properties to evaluate body posture habits during daily activities in adolescents. Future studies will allow quantitative measurement of postural habits in daily activities, changes in postural habits, and their relationship with other variables such as low back pain, back health, age, gender, and learning. Detecting posture disorders that occur in the daily life activities of adolescent individuals at an early stage will be effective in raising awareness and preventing posture disorders that may occur in these individuals, who have an important place in the country's population. It will also contribute to improving public health. Additionally, the BEHALVES-T questionnaire can be used in studies covering different professional groups and age groups. According to the results we obtained from our study, we think that the BEHALVES Questionnaire can be used as an easy and fast assessment tool in clinics and research to evaluate the postural habits of individuals in adolescence. We believe that it will be important for adolescents and their families to use this scale to evaluate bad and wrong posture and to detect it at the earliest stage.

Author contributions Author contribution: Conceptualization, Methodology, writing Reviewing and Editing; SAA, Mİ, Data statistical analysis; SAA, Mİ, Writing, drafted the first paper SAA, MS.

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Data availability No datasets were generated or analysed during the current study.

Declarations

Conflict of interest No potential conflict of interest was reported by the authors.

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