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Original Research

Validity and reliability of the Greek version of modified Baecke questionnaire

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ABSTRACT

Objectives: The purpose of this study was to translate and investigate the validity and reliability of the modified Baecke Physical Activity Questionnaire (mBQ) in the Greek adult population.
Study design: This is a cross-cultural study.
Methods: The cross-cultural adaptation of the mBQ was performed according to official guidelines. The prefinal Greek translation was tested in 30 healthy participants. The reliability was determined (n = 100) by filling out the mBQ, two times, 1 week apart. For validation (n = 45), the scores between the mBQ and the International Physical Activity Questionnaire (IPAQ) were compared, and the correlation between mBQ and VO_2max and between mBQ and interview (METS) were assessed.
Results: High statistical significant of test–retest reliability was found (intraclass correlation coefficient = 0.84; standard error of measurement = 0.48; smallest detectable difference = 16.7%; Cronbach's alpha = 0.92). Statistical significant correlation between the mBQ and the IPAQ (r = 0.425, $P = 0.005$), high correlation between the mBQ and METS (r = 0.691, $P = 0.000$), and moderate correlation between mBQ and VO_2max (r = 0.388, $P = 0.08$) were found.
Conclusion: The Greek mBQ was found to be reliable and valid for assessing the level of physical activity in the Greek population.
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Introduction

Physical activity (PA) is defined as any bodily movement produced by skeletal muscles that results in energy expenditure. There is incontrovertible evidence that participation in regular activities promotes many health benefits by improving physical and psychological well-being.[1,2] The health benefits can be achieved by following international guidelines that recommend a weekly routine of 150 min of moderate exercise.[3] On the contrary, physical inactivity is associated with more than 35 chronic diseases/conditions.[4] Many studies have shown that physical inactivity is an important modifiable risk factor for many common diseases such as cardiovascular diseases, osteoporosis, type II diabetes, and depression.[3,5,6] Moreover, 9% of premature mortality is attributed to physical inactivity by making it similar to the risk factors of obesity and smoking. The limitation of physical inactivity might increase the life expectancy of the world's population to 0, 68 years.[7] As a result, it would be quite helpful for health professionals to have accurate, valid, and reliable measures for evaluating the level of PA and functional status of their patients. In this way, they could improve patients' well-being and prevent multiple potential diseases.

There is no globally accepted gold standard for assessing the level of PA in a population, as it is considered a complex and multidimensional exposure variable. However, there are many direct and indirect methods for measuring habitual PA.[8,9] For direct

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measurement of physical performance, it could be used the activity monitor by using different tools, such as accelerometers, pedometers, heart rate monitors, etc.[10] One of the most valid direct methods for measuring energy expenditure in free-living adults is the doubly labeled water method. This method allows participants to maintain their habitual activities, causing only minimal inconvenience. However, it is considered unsuitable for use in large population studies because of its high cost and time-consuming process.[11,12]

On the other hand, indirect methods include data collection procedures such as self-reporting questionnaires, PA diaries, and interviews.[10] Each method has its advantages and limitations. Although all previous referred technological tools have raised the objectivity and accuracy of PA estimation, they are quite costly and sometimes time wasting. Contrary to the above, self-reported questionnaires could be used in large samples and cover longer time frames leading to recall bias. The advantages of using questionnaires for assessing PA are considerable because they are convenient, time-saving, cost-effective, and easy to access, and they have scoring flexibility.[13] All these advantages make them the most suitable and efficient choice for measuring PA performance in large populations even if there is always a risk of participants to underestimate or overestimate their answers during filling it.

A various number of available questionnaires exist for measuring PA,[14,15] one of the most frequently used is Baecke Questionnaire (BQ). The advantages of being short, self-administrated, and easy to fill make the BQ an attractive and preferable assessment tool for use in a busy clinical setting. Baecke Habitual Activity Questionnaire was developed by Baecke et al. for measuring PA in healthy populations.[16] Some years later, Voorrips et al. slightly modified this questionnaire to capture PA performance in the elderly by adding and modifying some questions.[17] Based on BQ Pols et al. developed a modified version (modified Baecke Questionnaire [mBQ]) by adding three more questions. Therefore, the BQ consists of 16 questions against its modified version that includes 19 questions. Moreover, the original version is self-administrated against modified, which is interview administrated by clinicians.[18] The present study selected the modified version, as there is no significant difference between self-administrated questionnaires and interview administrated by clinicians.[19] We consider that the presence of a clinician during the filling of questionnaires provides a scientific approach in our methodology, even if a self-administrated questionnaire can collect more subjects. Moreover, the modified version may be considered more evolved, as it includes three more questions than the original. Both original and modified versions can be applied in patients such as patients with HIV, obesity, cardiovascular diseases, hip disorders, etc.[20–25] As a consequence, the validity and reliability of BQ and the modified version as PA measurement tools have been assessed in both healthy and unhealthy populations. Besides, the questionnaires are valid and reliable in many different languages such as Dutch,[26] French,[27] Persian,[28] Korean,[29] Brazilian,[30] Chinese,[31] Japanese,[20] and Spanish.[32] However, the validity and reliability of the questionnaire have not been assessed yet in Greek adults.

Methods

The purposes of the present study were to translate, modify, and investigate the validity and reliability of the mBQ in the Greek adult population. The present study was divided into three phases: (1) translation and cross-cultural adaptation process, (2) assessment of the test–retest reliability, and (3) assessment of the validity. The protocol of studies was approved by the Ethics Committee of the Department of Physiotherapy of the University of Thessaly, Greece.

Phase 1: translation and cross-cultural adaptation

The plan of translation and cross-cultural adaptation of the mBQ was based on the methods indicated in the scientific literature.[33] The whole process consists of the following five steps (Fig. 1):

Step I: forward translation

Two professionals translators, who were native Greek speakers and fluent in both English and Greek, translated the original English version of the questionnaire into Greek by working independently. Therefore, two independent Greek translations (T1 and T2) of the questionnaire were produced. Two reports were also written by both translators indicating their comments on any difficulties that faced during the translation process.

Step II: Synthesis

The results of both translations (T1 and T2) were compared and synthesized by the two translators after discussing any discrepancies between the translations. The translators reached consensus on one common Greek questionnaire.

Step III: Backward translation

The common Greek language version (T12) was back-translated into English by two official English translators who have been in an English-speaking country for more than 5 years. The back translations (BT1 and BT2) were produced without the two translators being aware or informed of the study concept. Moreover, the translators examined whether there was a semantic, conceptual, and experiential equivalence between the English original to the back-translated one.

Step IV: Harmonization

To produce the prefinal Greek language translation, the four Greek translators organized a harmonization meeting where they discussed any discrepancies between the original and translated versions. Furthermore, they evaluated semantic, idiomatic, experiential, and conceptual equivalences and reached consensus on a prefinal version of the questionnaire that was eligible for pilot testing.

Step V: Pilot study of the prefinal version

A pilot study was conducted for examining the comprehensibility, linguistic validation, and completeness of the prefinal version of the questionnaire. The prefinal Greek translation was tested in 30 healthy participants. The sample was selected randomly. The inclusion criteria for the sample were age >18 years, Greek native speakers, Greek inhabitants, and sufficient cognitive functioning. After signing an informed consent form, the participants filled the questionnaire under the supervision of an examiner. The examiner documented any problems and difficulties that occurred during the administration of the questionnaire. Each participant after filling the questionnaire participated in an interview organized by the examiner. At the end of the interview, each participant was asked to provide comments related to the completeness of the questionnaire and identify any words or phrases that were difficult to understand. Finally, any discrepancies that remained were discussed among the three translators and the examiner/interviewer to conclude to a consensus final version.

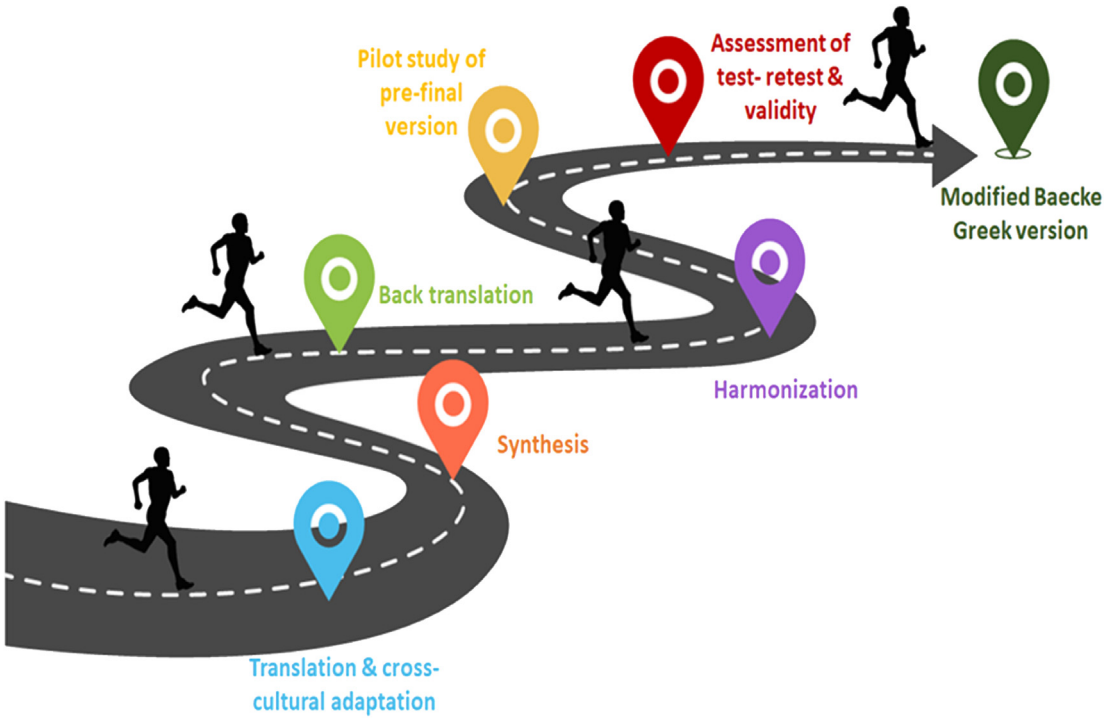

Fig. 1. Phases of translation and cross-cultural adaptation.

Phase 2: assessment of test–retest reliability

The final version of the mBQ was tested on 100 participants (55 males and 45 females). The inclusion criteria of the sample were the same as the pilot's study. To assess test–retest reliability, the participants were requested to complete the mBQ on two occasions, 1 week apart.

Phase 3: assessment of validity

For examining the construct validity of the mBQ, three different measurement methods were used. These methods included (1) the measurement of VO_2max during Astrand-Rhyming Test as seems to exist a quite linear relationship between the mean habitual daily energy expenditure and VO_2max[34] and has been used as a standard measurement for validating also other habitual PA questionnaires,[21,35] (2) an interview about participants' activities during a typical work and non-work day, and (3) concurrent validity was measured by comparing the results of the final Greek mBQ with the results of the Greek version of the International PA Questionnaire (IPAQ).[36]

Design and participants

For the validation study, 45 healthy subjects participated (23 males and 22 females, age range 18–60 years). The sample was convenient, and the exclusion criteria were (1) age <18 years, (2) poor health status, (3) poor Greek language comprehension, (4) diagnosed with cardiovascular diseases, (5) cardiac pacemaker, (6) medication that prevents exercise activity, (7) neurological disorders with effect on the lower body, (8) musculoskeletal disorders or injuries on the lower body in the last 3 months, and (9) PAR-Q health risk assessment form.[37]

For the concurrent validity of the mBQ and the IPAQ questionnaires, the same sample as with the test–retest reliability study was used. The data were collected at the Laboratory of Human Activity and Rehabilitation of the Department of Physiotherapy of the University of Thessaly, Lamia, Greece, under the supervision of two physiotherapists/researchers.

Procedure

All participants filled the PAR-Q questionnaire for examining if they could participate in the study and completed a consent form after they got informed about the whole process of the study. Before participants started the measurements, the researchers completed a form with the body size measurements (height and weight) and the age of each participant.

Astrand-Rhyming test for VO_2max assessment. VO_2max was assessed with the indirect method known as Astrand-Rhyming cycle ergometer test.[38] This method is recommended for people of various ages.[39,40] Each participant performed a 6-min submaximal exercise test by using the ergometer bike (Monark). Before starting the test, the researcher adjusted seat height to fit the subject. Moreover, the heart rate of participants was monitored continuously during testing by the Garmin Vivofit Heart Rate Monitor. Heart rate monitoring is necessary during the testing because of the linear relationship between VO_2max and heart rate to predict VO_2max.[38,40] Initially, subjects rested for 2 min for measuring resting heart rate; after that, there is a 5 min warm-up period at a low intensity to allow the participant to practice and get familiar with the pace. The researcher instructed the participants to maintain a steady cadence throughout the test and recorded the participants' heart rate (HR) at 5 and 6 min. These values were used for determining VO_2max by using the Astrand-Rhyming nomogram, and the results were then normalized to age. Once the test was completed, the participants should cool down until HR and breathing rate return to normal.[38] The test could be interrupted if threatening

symptoms appeared on participants or when the HR reached 85% of the age-predicted maximum heart rate. After a relaxing period, the participants took part in an interview related to their daily routine.

Interview for daily routine activities. Interview was one more measurement tool, which was used for assessing the validation of questionnaire results. The interview aimed to gather sufficient information about the participants' PA during the week to calculate the total amount of energy expenditure (METs) per week, so the questions were related to the job, sports, and leisure time of the interviewee.[41] Through these opened-ended questions, the volunteer was able to describe the activities he performed during a typical working day as well as a typical non-working day.[27] For calculating METS of daily activities of each participant, a Compendium of Physical Activities was used. The Compendium provided a list with several activities linked to their respective metabolic equivalent intensity levels (e.g. for resting, the MET level was 0.9 [sleeping] and the level of MET for running was 18 [running at 10.9 mph]).[41] The interview began with a general process description and the building of rapport between interviewer and participant. The average duration of the interview was 30 min and was recorded using a laptop microphone that was connected to a computer. The program used for the interview was audacity 2.1.1. After completing the interview process, the participant filled the mBQ.

Modified Baecke Questionnaire. The questionnaire includes three different categories of questions that are related to household activities, sports and, leisure time activities in the previous 12 months. The overall number of questions is 19. The questions about work have three to five possible answers, categorizing the activity from inactive to very active. Participants were instructed to consider studying or household activities as their work in case that was their main daily activity. The questions of sports activities include the activity type, the frequency of activity performance, and the number of months annually that the activity is performed. The questions on leisure time activities have five possible answers. Participants have to choose only one answer for each question of the questionnaire. All items result in a separate score. The sum of the answers' scores obtained from each category represents the level of individual PA. The total score of the questionnaire varies from 3 to 15, with higher scores representing higher levels of PA.[18] After completing the whole process, participants got informed about their results via emails (Appendix 1).

International Physical Activity Questionnaire. The IPAQ is considered a quite valid and reliable measurement tool of physical activities.[36,42] It was developed by the World Health Organization in 1988.[43] There are four long (31 questions) and four short (nine questions) versions of the IPAQ that can be self-administered or answered via phone call.[44] All forms have been assessed as validated against accelerometer measurements. However, many researchers prefer to use the short form, as it has equivalent psychometric properties to the long form. IPAQ has been investigated and used in a variety of different populations until now.[36,42] Greek adults are one of them, as the reliability and validity of the IPAQ have already been examined in the Greek language. Therefore, it is considered an acceptable tool for assessing the validation against the mBQ in terms of evaluation of physical activities.[45]

Statistical analysis

The analysis of test–retest reliability was performed with descriptive and inductive statistical analysis using the program 'Statistical Package for the Social Sciences' (SPSS, version 22.0). For checking test–retest reliability, the intraclass correlation coefficient (ICC) was used, along with the standard measurement error (standard error of measurement [SEM]) and the smallest detectable difference (SDD) between variables (parametric tests). The Spearman rho correlation coefficient was used for the correlation between the mBQ and the IPAQ questionnaire. The significance test was performed at level $P < 0.05$.

The analysis of validity was performed in IBM SPSS Statistics (v. 22.0). The variability control of variables was tested using the Kolmogorov–Smirnov statistical test where a variable is considered to have a normal distribution if the statistical significance value P is greater than the value $\alpha = 0.05$. According to the results of the Kolmogorov–Smirnov statistical test, all variables were found to have a statistically non-significant difference with the normal distribution and are considered to be of normal form. In addition to the descriptive analysis of the data, a correlation test was performed between the variables using the Pearson correlation factor. The probability level at which the statistical test was performed was defined as $\alpha = 0.05$. For concurrent validity testing, statistical correlation tests were performed between each parameter of the mBQ and the IPAQ. The normality of the data was tested with the Kolmogorov–Smirnov test that showed that data of BQ data were normally distributed, whereas the data of IPAQ questionnaire were irregularly distributed.

Results

Translation and cross-cultural adaptation process

The mBQ was translated into Greek and then culturally adapted. Difficulties arising during its development were considered minor. The 30 participants of the pilot study did not face any discrepancies in meaning or terminology in the Greek version of the questionnaire. Furthermore, the participants did not request assistance in interpreting the questionnaire and were able to understand all the statements in the questionnaire, so no modification to the text was required.

Test–retest reliability

For examining reliability, 100 participants (55 males and 45 females) completed the mBQ twice, 1 week apart (Table 1). The reliability was very good (ICC = 0.84, SEM = 0.48, SDD = 16.7%), and a Cronbach α of 0.92 was obtained.

Validity

For assessing construct validity, 45 healthy participants (23 males and 22 females) with a mean age of 26.8 (±10.40) years (range: 18–59 years) took part in three different tests (VO_2max measurement, METS measurement, and BQ; Table 2). According to the results, a low correlation was found, in the total sample (n = 45), between the Baecke total and VO_2max sections (r = 0.388, $P = 0.008$), whereas in the same sections, a moderate correlation was found (r = 0.577, $P = 0.004$) in the male sample (n = 23). The

Table 1
Participant characteristics.

Participants	n	Age (mean ± SD)	Height (mean)	Weight (mean)
Total	100	26.5 ± 9.5	173.8	71.6
Males	55	28 ± 10.2	179.4	81.6
Females	45	24.6 ± 8.2	178	59.4

Table 2
Participant characteristics.

Participants	n	Age (mean ± SD)	Height (mean)	Weight (mean)
Total	45	26.80 ± 10.40	1.7184	69.8767
Males	23	27.91 ± 11.208	1.7926	81.5239
Females	22	25.64 ± 9.609	1.6409	57.7000

Table 3
Concurrent validity between the mBQ and the IPAQ.

IPAQ	Baecke total	Work	Sport	Leisure
IPAQ total	**0.425****	**0.372****	**0.247***	0.50
IPAQ A	**0.349****	**0.234***	**0.300****	-0.031
IPAQ B	0.137	0.118	0.080	0.102
IPAQ C	**0.365****	0.163	**0.205***	**0.362****

Statistical significance *<0.001, **<0.005.

final correlation in the study was between the interview (the results were calculated with the METs as a unit of measurement) and the modified Baecke. The results showed that there was a moderate to high correlation between Baecke total and METs, more specifically in the whole sample (n = 45; r = 0.691, $P = 0.000$), in the sample of women (n = 22; r = 0.758, $P = 0.000$), and in the sample of athletes (n = 14; r = 0.792, $P = 0.001$).

For examining concurrent validity between the mBQ and the IPAQ questionnaires, the same sample as with test–retest reliability study was employed. Findings revealed that the correlation between total Baecke and total IPAQ score was low positive (r = 0.425, $P = 0.005$) (Table 3).

Discussion

The increasing problem of physical inactivity along with the need to have a measuring tool for assessing PA in Greek population led to the adaptation of the mBQ in Greek language. The original version of the BQ is in the English language,[16] so its translation and cross-cultural adaptation in Greek population were necessary. The need of using validated and reliable tools for measuring levels of PA led to the assessment of its psychometric properties (namely, the validation and reliability). This questionnaire was chosen in many studies, as it is short, simple, valid, reliable, and easy to use.

Table 4
The modified Baecke Questionnaire in different languages.

Study	Language	Sample	Methods	Results		
				Reliability	Validity	Mean total score (SD)
[a]Philippaerts et al. (1998)[26]	Dutch	90 (males)	**Reliability:**1-month test–retest **Validity:** **(1)** physical activity between three levels of professional status **(2)**means of a principal components analysis study	ICC = 0.88 0.20 <Kappa values < 0.73.	Based on component-loading matrix of the physical activity variables	7.9 (±1.4) 8.0 (±1.4) 8.8 (±1.8)
[a]Florindo et al. (2003)[30]	Portuguese-Brazilian	21 (males)	**Reliability:** Test–retest (45 days) **Validity:** 1)VO_2max 2)%DHR	ICC = 0.77	(1) r = 0.17 ($P = 0.470$) (2) r = 0.48 ($P = 0.027$)	7.39 (±1.29)
[a]Lee et al. (2004)[29]	Korean	507 (males = 318, females = 189)	Unclear-Korean language	Cronbach's alpha coefficient: 0.73 (work) 0.78 (sport) 0.35 (leisure)	Based on factor-loading matrix of the items about physical activity	7.4
[a]Ono et al. (2007)[20]	Japanese	61 (females)	**Reliability:** Two-week test–retest **Validity:** measured step counts (validity)	ICC = 0.87	rho = 0.49 ($P < 0.01$)	7.6 (±1.4)
[b]Vilaró et al. (2007)[32]	Spanish	55	**Reliability:** Test–retest (2 weeks to 1 month) **Validity:** (1)SGRQ (2)PM6M (3)FEV_1%	ICC = 0.96 *Cronbach's alpha coefficient = 0.97*	rho = −0.45 ($P < 0.05$) rho = 0.54 ($P < 0.05$) rho = 0.31 ($P < 0.05$)	12.8 (IQR: 25–75% = 9–17.1)
[a]Vol et al. (2011)[27]	French	702	**Reliability:** (1) Two-week test–retest (2) Overtime test–retest (2 months) **Validity:** interview	ICC = 0.87 Kappa >0.60	rho = 0.39 ($P < 0.0001$)	8.31 (±1.21)
[a]Ho et al. (2015)[31]	Chinese	198 (males = 94, females = 104)	**Reliability:** Two-week test–retest **Validity:** 3-day activity diary	ICC = 0.65–0.90 *Cohen's κ: 41.0% (males) 56.7% (females)*	r = 0.61 ($P < 0.01$)	8.81 (±1.47)
[a]Sadeghisani et al. (2015)[28]	Persian	**Pilot:** 20 **Reliability:** 32 **Validity:** 126 (males = 66, females = 60)	**Reliability:** Test–retest (3–7 days after the first session) **Validity:** IPAQ	ICC = 0.88 *Cronbach's alpha coefficient > 0.7*	r = 0.36 ($P = 0.00$) (sitting position excluded) r = 0.19 ($P = 0.03$) (sitting position included)	8.26 (±1.33)

[a] Based on the original Baecke Questionnaire.
[b] Modified of modified Baecke Questionnaire.

Test–retest reliability and validity of the BQ and mBQ have been already examined in different populations speaking different languages (Table 4). Although the mBQ includes three more questions at the leisure time activities filled in comparison to BQ, the results of validity and reliability were still comparable. Most translations and cross-cultural adaptations were based on the original version. However, the results in most studies were similar. More specifically, many ICC values of BQ and mBQ questionnaires in different languages were reported as acceptable values, suggesting it as a reliable tool.[28] For example, ICC values of the BQ/mBQ in Japanese (ICC = 0.87),[20] Persian (ICC = 0.88, Cronbach's alpha coefficient >0.7),[28] Flemish (ICC = 0.88, 0.20 <Kappa values < 0.73),[26] Spanish (ICC = 0.96, Cronbach's alpha coefficient = 0.97),[32] Chinese (ICC = 0.65–0.90),[31] Korean (Cronbach's alpha coefficient: 0.73 [work],0.78 [sport], 0.35 [leisure]),[29] and French (ICC = 0.87, Kappa >0.60).[27] The results of the present study show that ICC value was 0.84. Therefore, the ICC value is consistent with those obtained for the BQ/mBQ in different language populations.

For assessing the concurrent validity of the mBQ, we used the IPAQ. As stated by Papathanasiou et al., the Greek version of IPAQ is a valid and reliable tool to evaluate the level of physical activities in Greek speakers.[45] The results showed a statistically significant correlation between the mBQ and the IPAQ ($r = 0.425$, $P = 0.005$). For evaluating the construct validity of the mBQ, the METS calculation via interview was used. The correlation between the mBQ and the interview ($r = 0.691$, $P = 0.000$) was the highest compared with other methods used. Similar results were obtained by Vol et al. in their study conducted for the adaptation of the questionnaire in French.[27] This could be explained, as the interview is considered the most appropriate tool to prove the validity of a questionnaire. Moreover, the measurement of VO_2max was used for assessing the construct validity of the mBQ. Nevertheless, the correlation between the questionnaire and VO_2max, although lower than the interview ($r = 0.388$, $P = 0.008$), was statistically significant. Another study also found low correlation between total Baecke and VO_2max ($r = 0.17$, $P = 0.470$).[30] Even if seems to be a quite linear relationship between the mean habitual daily energy expenditure and VO_2max, there are some other variables, such as body mass, age, gender, etc., that affect this relationship[34] and may be responsible for the low correlation between total Baecke and VO_2max. Moreover, the nature of BQ that measures PA during work, leisure, or sports throughout the past year and not only in the present time could be another explanation for the low correlation.

The present study has a few limitations that have to be addressed. The first limitation is that the mBQ referred to activities of the past year, whereas the IPAQ concerns the activities of the last week. Therefore, the comparison of results between the two questionnaires is quite difficult. However, IPAQ was used to correlate with the mBQ, as it is the only one PA questionnaire that has been tested for reliability and validity in Greek culture. Another limitation was that the sample included only the age range of 18–59 years, so its validity has not still been proven for use in the elderly and minors in Greece. The final limitation was that only healthy participants were included in the present study. These limitations suggest further research to prove the validity of the mBQ in a wider age range as well as the application in various diseases.

The results of the present study have great clinical significance. It is the first time that the mBQ has been interculturally adapted and controlled in terms of validity and reliability in Greece. The mBQ can be a useful and easy-to-use tool for Greek clinicians and researchers for evaluating and monitoring PA in Greece, so it has an important clinical contribution except for scientific ones. Furthermore, it was the first time that mBQ was used and correlated with the IPAQ questionnaire for PA in the Greek population. The present study helped to investigate the validity and reliability of the questionnaire as a commonly accepted clinical tool. Last but not least, it is important to be clarified when the original or the modified version of the BQ is used according to research good practice.

Conclusion

In conclusion, the modified Greek BQ was found to be a reliable and valid tool for measuring habitual PA in the Greek population. That means the mBQ could be a valuable tool for Greek healthcare professionals in both clinical and research environments. Moreover, further research is needed to evaluate the validity of the questionnaire to children and the elderly, as well as its use in different patient groups.

Author statements

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Ethical approval

The questionnaire and methodology for this study were approved by the Human Research Ethics committee of the University of Thessaly (Ethics approval number: 1008/01-9-2015).

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Competing interests

None declared.

Consent to participate

Informed consent was obtained from all individual participants included in the study.

Clinical messages

- The Greek version of Modified Baecke is reliable and valid.
- It is a useful and easy-to-use tool for Greek clinicians and researchers.
- It is necessary the clarification between the use of the original or modified version of the BQ in studies.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.puhe.2021.11.017.

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