Validation of the Arabic version of the Childhood Illness Attitudes Scales

Walid AlQerem[1], Jonathan Ling[2] and Wassan Jarrar[1]

[1]Faculty of Pharmacy, Al-Zaytoonah Private University of Jordan, Amman, Jordan.
[2]School of Nursing and Health Sciences, University of Sunderland, Sunderland, United Kingdom (Correspondence to: W. AlQerem: waleed.qirim@zuj.edu.jo).

Abstract

Background: Excessive health anxiety can lead to significant disorders such as hypochondriasis. In children, assessment of the severity of health anxiety has been performed using the Childhood Illness Attitudes Scales (CIAS); however, no validated Arabic version of this tool exists.

Aims: This study developed and validated an Arabic version of the CIAS questionnaire in Jordan in 2017 to provide a tool to measure the severity of health anxiety in the Arabic-speaking world.

Methods: The CIAS was translated from English to Arabic then back-translated by a different translator and the 2 versions were compared before cognitive interviews were conducted. The final version of the questionnaire was circulated to 597 children. Of these, 200 were asked to retake the questionnaire after 10–15 days to evaluate test–retest reliability. Confirmatory factor analysis (CFA) on the 4-factor model suggested by the original questionnaire version was performed. Internal consistency and test–retest reliability were evaluated.

Results: The CFA showed good fit (goodness of fit index = 0.92) with the 4-factor model of fears, help seeking, treatment experience, and symptom effects. Test–retest reliability was high and the model had good discriminant validity and internal consistency.

Conclusions: The Arabic version of the CIAS provides a suitable tool to investigate the prevalence and severity of childhood anxiety in the Middle East.

Keywords: Arabic, Childhood Illness Attitudes Scales, confirmatory factor analysis, health anxiety, Jordan

Citation: AlQerem W; Ling J; Jarrar W. Validation of the Arabic version of the Childhood Illness Attitudes Scales. East Mediterr Health J. 2020;26(x):xxx–xxx.
https://doi.org/10.26719/emhj.20.068

Received: 24/04/18; accepted: 08/01/19

Introduction

Health anxiety is an experience that we undergo when we misinterpret benign bodily sensations as being indicative of having a serious disease (*1*). The severity of this experience differs among individuals (*2*). Mild, occasional health anxiety is normal as it motivates one to seek clinical assistance when experiencing ambiguous bodily changes; such sensations usually soon fade away when medical staff give reassurance that there is no serious disease (*1*). Being convinced of having a serious disease despite medical reassurance of having good health is a feature of excessive health anxiety. Severe health anxiety can lead to clinically significant disorders such as hypochondriasis, disease phobia (*3–5*) and panic attacks (*5*). Sometimes, severe health anxiety can interfere with daily activities such as schoolwork (*6*) or social activities (*7*). Health anxiety can also lead to overutilization of healthcare services and therefore increase healthcare costs (*8*). Somatization accounts for 15–20% of yearly healthcare expenditure in the United States of America (*9*). This includes the cost of emergency room visits, hospitalization, unnecessary diagnostic expenses, and invasive procedures (*10*).

The prevalence of excessive health anxiety has been assessed in several studies. Most of these studies concentrated on assessing the severity of health anxiety in adults or adolescents (*11*, *12*). Few studies have focused on children, and although some work has shown that children might experience fears related to health issues or death (*13*,*14*), the prevalence of such health anxiety conditions in children is not well understood (*15*,*16*). However, some studies estimated that the prevalence of health anxiety in primary care paediatric settings was 25–50% of visits (*17*) and was more common in girls (*7*).

Although it has been shown that frequencies of illness anxiety disorder are similar across countries and cultures (*18*), the prevalence of the condition in Jordan has not yet been evaluated, or its burden on the health sector. Thus, adaptation of a validated tool to measure the prevalence and burden of health anxiety is urgently required.

In order to apply treatments that are available for excessive health anxiety, an assessment of the severity and prevalence of such health anxiety conditions should be performed. Such assessment of the severity of health anxiety can be performed using questionnaires such as the Illness Attitudes Scales (IAS) (*19*). In previous work, assessment of the severity of health anxiety was performed in Canadian children aged 8–15 years, using the Childhood Illness Attitude Scales (CIAS), a simplified form of the IAS adapted to suit school-aged children (*15*,*16*). The CIAS measures fears, beliefs and attitudes associated with health anxiety and abnormal illness behaviour in childhood.

The aim of this study was to develop an Arabic version of the CIAS and to examine its validity in a large sample of schoolchildren aged 10–16 years in Jordan. The validated questionnaire can then be applied to different parts of the Arabic-speaking world throughout the Middle East and North Africa. This Arabic version of the CIAS will allow researchers and health authorities to examine childhood health anxiety and develop an understanding of potential solutions, in regions where this was hitherto impossible. Furthermore, given comparable psychometric properties, this Arabic version will also allow researchers to make comparisons with data collected using the original English version of the CIAS from other regions.

Methods

Participants

The original sample included 310 boys and 347 girls aged 10–16 years from 2 schools in Amman, Jordan. Of these, 60 children participated in cognitive interviews, with the remaining 597 completing the questionnaire. The mean age of the participants was 13.55 (standard deviation 2.02) years. The principals of the 2 schools were approached to obtain their approval. We circulated the parental consent form to the children with the help of teachers who agreed to participate. All children who returned a signed consent form and completed the questionnaire were included in the study. Ethical approval for the research was obtained from Al-Zaytoonah University Research Ethics Committee.

CIAS

The CIAS (*16*) is a 35-item self-report questionnaire (Appendix 1) that was formulated based on the IAS questionnaire (*19*). The CIAS uses simplified words and phrases to be more suitable for children. The appropriateness and clearness of the simplified questions were confirmed in a pilot study that interviewed children and received their feedback (*16*). The questionnaire was validated by evaluating the correlations between CIAS total scores obtained from 200 children and other self-report measures including Fear Survey Schedule for Children-Revised (*20*), Childhood Anxiety Sensitivity Index (*21*) and Children's Depression Inventory (*22*). The CIAS contains 4 factors that explore fears, help seeking, treatment experience and symptom effects, and these were confirmed by applying exploratory factor analysis (EFA) (*15*).

Thirty-three items of the questionnaire were rated on a 3-point Likert scale (1 = none of the time, 2 = sometimes, 3 = a lot of the time). Items 29–31 measured the frequency of various treatment experiences (1 = 0 times, 2 = 1 or 2 times, 3 = ≥3 times). Thirty-three of the 35 items were used in scoring while the remaining 2 questions were open ended and provided additional information about the patients' medical history.

Data collection

The CIAS was translated from English to Arabic then back-translated by a different translator, and the 2 versions were compared. A school was approached in Amman to obtain data. Initially, 60 cognitive interviews were conducted with 60 children aged 9–16 years after obtaining their parents' approval and confirming that all questions were clear and could be understood by the children. The translated questionnaire is shown in Appendix 2. A parental consent form was circulated to an additional 680 children and 597 parents' approved that their children's participation in the study. Of the 597 children, 200 were asked to retake the questionnaire after 10–15 days.

Several methods for determining the appropriate sample size for conducting a confirmatory factor analysis (CFA) and EFA have been proposed. However, Myers et al. (23) found that data from 500 individuals provide sufficient power for 99.9% of samples. Therefore, we aimed to collect data from at least 500 participants.

Statistical analysis

The items were treated as ordinals and the normality of scores on each subscale of each model was assessed by calculating kurtosis values. Normality was assumed when kurtosis was between −2 and +2 (*24*).

The suitability of the data for factor analysis was evaluated using the Kaiser–Meyer–Olkin value and Bartlett's Test of Sphericity. CFA on the 4-factor model was conducted using AMOS version 22 and SPSS version 20. Item loadings were examined and goodness of fit evaluated by calculating minimum discrepancy (CMIN/DF), goodness of fit index (GFI), Tucker–Lewis index (TLI), comparative fit index (CFI) and root mean square error of approximation (RMSEA). Acceptable values are < 5 for CMIN/DF, < 0.05 for RMSEA and > 0.9 for GFI, CFI and TLI (*25*). A cutoff of 0.3 was used to determine if items loaded on a factor, and the correlations between the factors were evaluated using Pearson's correlation to examine discriminant validity.

EFA was conducted using principal-components analysis to evaluate a suitable model for the data after determining that the 4-factor model that included 33 items was unsuitable for our data. To determine the appropriate number of factors to extract, parallel analysis (Eigenvalue Monte Carlo Simulation) was conducted using O'Connor's SPSS syntax (*26*), and scree plots.

A pattern matrix was generated using oblimin rotation, which was chosen because the correlation between factors 1 and 4 exceeded the cutoff point of 0.32 (r = 0.35). Any communality below 0.4 was excluded. The factor correlation matrix was evaluated to determine discriminant validity. Internal consistency for each subscale was evaluated by calculating Cronbach's α and

the final model was re-evaluated using CFA with the maximum likelihood method. Finally, test–retest reliability was measured using Pearson's correlation.

The ceiling and floor effects were evaluated by calculating the percentage of participants that had the highest or lowest possible scores; the effect was considered present when the subjects that achieved these scores exceeded 15% (*27*).

Results

The Kaiser–Meyer–Olkin test result was 0.9 and Bartlett's Test of Sphericity was significant [χ^2 (496) = 18 145.56, $P < 0.01$], which indicated the suitability of the data for factor analysis. When examining the communalities, Item 8 (Do you try not to have habits that may be bad for you?) and Item 15 (When your doctor tells you that you are not sick, do you not believe him/her?) had low communality (< 0.2) and were excluded from the analysis. EFA was rerun after excluding Items 8 and 15. Scree plots were examined and suggested 4 factors (Figure 1); as four eigen values are present left of the "elbow" of the graph.

The 4-factor model was confirmed when conducting parallel analysis. The 4-factor model included fears, help seeking, treatment experience and symptom effects. The communalities of the items included in the 4-factor model were all > 0.4 (Table 1) and the lowest loading was 0.65 (Item 3 in the Fear subscale: Does the thought of being sick scare you? (Table 2). Cronbach's α values were examined and the lowest was 0.85 for treatment experience. Removing any further items would not improve the reliability. Subscale names, item numbers, factor loadings, communalities, and Cronbach's α, means, standard deviations and kurtosis for the 4-factor model are shown in Tables 1 and 2. Cronbach's α indicated good internal consistency. Correlations between the 4 factors were examined using Pearson correlations and all were low, which indicated good discriminant validity. The kurtosis for the 4 subscales was between –2 and 2, which indicated normality.

CFA of the suggested 4-factor model including the 31 remaining items with 5-error covariance in the same factors yielded acceptable model fit indicators (CMIN/DF = 2.58, GFI = 0.9, CFI = 0.96, TLI = 0.96 and RMSEA = 0.049). Test–retest reliability was tested by Pearson's correlations and all the items were highly correlated (all > 0.7, with most > 0.8).

The ceiling and floor effects were evaluated by calculating the percentage of subjects that had the highest or lowest possible scores, and none of the factors exceeded the 15% cutoff point (*27*).

Discussion

This study formulated and validated an Arabic form of the CIAS Questionnaire (*16*). The results of the EFA resembled the original 4-factor model suggested by Wright et al. (*15*). These factors consist of fear of illness, death, disease and pain, and help seeking that evaluated seeking treatment and avoiding unhealthy foods, symptom effects and treatment experience that were present in the original IAS study (*19*). Symptom effects measure the troublesome effects of symptoms on daily activity. However, there were some differences between the Arabic version of the CIAS and the English version of Wright et al.: Items 11, 15 and 25 had loading issues in their designated factor in the study of Wright et al. and therefore were excluded from the model. We included treatment experience (Items 11 and 15) and symptom effects (Item 25) in our final model. We excluded Item 8 because of low communalities, although Wright et al. found this item loaded on the factor treatment experience, so it was removed in the final model to improve reliability. This was reasonable considering that Item 8 (Do you try not to have habits that may be bad for you?) asks about habits rather than previous experience with doctors, unlike the remaining items in this factor. Cultural differences may lie behind these differences found between our study and Wright et al., in addition to design differences including a substantially larger sample size. Furthermore, we performed cognitive interviews to ensure that the questions were clear for children. We believe that the questions were clear because we found high internal consistency and test–retest reliability.

Future work may include confirming diagnostic credibility of the Arabic version of the CIAS by evaluating the scores of children with confirmed diagnoses of health anxiety or hypochondriasis and comparing them to a control group. This could address a limitation found in this study, which is not evaluating the scores of the Arabic version of the CIAS for different health conditions.

Different studies with adults have confirmed that there are correlations between different medical conditions and health anxiety including, for example, chronic pain (*28*) and cardiovascular disease (*29*). Therefore, the Arabic version of CIAS can be used to measure health anxiety in different diseases.

Evaluating health anxiety could also be important when treating different health conditions. For example, it has been shown that patients with high health anxiety react differently to pain when compared to patients with low health anxiety (*30*). This is manifested in differences in pain appraisal, pain preoccupation, coping strategies, self-identity, and suicidal ideation. In addition, patients with health anxiety may fail to engage in protective strategies (*31*), which may have an impact on the success of management of their condition. Therefore, using the Arabic version of CIAS could help in the management of different diseases and future work may include measuring the benefit of detection and management of health anxiety when managing different conditions.

As this tool can be used for screening different patients, particularly those who are reporting contradicting symptoms, this could save healthcare costs.

Finally, the Arabic version of the CIAS can be used to compare the prevalence of health-related anxiety in Arabic-speaking countries, which has hitherto not been possible. It will also now be possible to make comparisons between health-related anxiety with data collected using the English language version of the scale.

A limitation of this study was that the children enrolled were only from schools from Amman. However, Amman is the largest city in Jordan; almost half of the Jordanian population lives there (4 million inhabitants) (*32*), and many come from different parts of the country for work, which makes Amman a good representation of Jordan.

Conclusion

This validated Arabic version of the CIAS questionnaire (*15*) could be used to evaluate health anxiety in children by examining the overall scores and the scores of the different subscales, which could aid in diagnosis and management of health anxiety in children across the Arabic-speaking world.

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Appendix 1. Original Childhood Illness Attitude Scales

Childhood Illness Attitude Scales

K. D. Wright & G. J. G. Asmundson (2003)

Directions: Below are a number of questions. Read each question carefully and put an X on the line in front of the words that best answers the question. There are no right or wrong answers. Remember, find the words that best answers the question.

Question			
1. Do you worry about your health?	___ None of the time	___ Sometimes	___ A lot of the time
2. Are you worried that you might get really sick in the future?	___ None of the time	___ Sometimes	___ A lot of the time
3. Does the thought of being sick scare you?	___ None of the time	___ Sometimes	___ A lot of the time
4. If you have pain, do you worry that it may be caused by a bad sickness?	___ None of the time	___ Sometimes	___ A lot of the time
5. If pain lasts for a week or more, do you tell your mom or dad?	___ None of the time	___ Sometimes	___ A lot of the time
6. If pain lasts for a week or more, do you ask your mom or dad if you can go to the doctor?	___ None of the time	___ Sometimes	___ A lot of the time
7. If pain lasts for a week or more, do you believe that you have a bad sickness?	___ None of the time	___ Sometimes	___ A lot of the time

8. Do you try not to have habits that may be bad for you, such as smoking, drinking, or drugs?	___ None of the time	___ Sometimes	___ A lot of the time
9. Do you try not to eat foods that may not be good for you (such as junk food)?	___ None of the time	___ Sometimes	___ A lot of the time
10. Do you check your body to find out if there is something wrong?	___ None of the time	___ Sometimes	___ A lot of the time
11. Do you believe that you are really sick, but the doctors do not know why?	___ None of the time	___ Sometimes	___ A lot of the time
12. When you feel sick, do you tell your mom or dad?	___ None of the time	___ Sometimes	___ A lot of the time
13. When you feel sick, do you ask your mom or dad if you can go to the doctor?	___ None of the time	___ Sometimes	___ A lot of the time
14. Do you ask your mom or dad for medicine?	___ None of the time	___ Sometimes	___ A lot of the time
15. When your doctor tells you that you are not sick, do you not believe him/her?	___ None of the time	___ Sometimes	___ A lot of the time
16. If a doctor tells you what he/she found, do you soon begin to believe that you might have another sickness?	___ None of the time	___ Sometimes	___ A lot of the time
17. Are you afraid of news that reminds you of death?	___ None of the time	___ Sometimes	___ A lot of the time

18. Does the thought of dying scare you?	___ None of the time	___ Sometimes	___ A lot of the time
19. Are you afraid that you might die soon?	___ None of the time	___ Sometimes	___ A lot of the time
20. Are you afraid that you might have cancer?	___ None of the time	___ Sometimes	___ A lot of the time
21. Are you afraid that you have something wrong with your heart?	___ None of the time	___ Sometimes	___ A lot of the time
22. Are you afraid that you have another bad sickness?	___ None of the time	___ Sometimes	___ A lot of the time
Which sickness? _____			
23. When you read or hear about a sickness, do you think that you might have that sickness?	___ None of the time	___ Sometimes	___ A lot of the time
24. When you have a strange feeling in your body, do you find it hard to think about something else?	___ None of the time	___ Sometimes	___ A lot of the time

25. When you have a strange feeling in your body, do you worry about it?	___ None of the time	___ Sometimes	___ A lot of the time
26. When you have a strange feeling in your body, do you tell your mom or dad?	___ None of the time	___ Sometimes	___ A lot of the time
27. When you have a strange feeling in your body, do you ask your mom or dad if you can go to the doctor?	___ None of the time	___ Sometimes	___ A lot of the time
28. Has your doctor told you that you have a sickness? If yes, what sickness? _____	___Yes	___ No	
29. How many times have you seen your doctor in the last year?	___ 0 times	___ 1 or 2 times	___ 3 or more times
30. How many doctors have you seen in the past year?	___ 0	___ 1 or 2	___ 3 or more
31. How often have you been treated (had to take medicine or had surgery) during the past year?	___ 0 times	___ 1 or 2 times	___ 3 or more times
32. If you have had treatments in the last year, what were they? _____			

The next three questions concern feelings in your body (for example, pain, aches, pressure in your body, breathing problems, being tired etc.)			
33. Do strange feelings in your body stop you from going to school?	___ None of the time	___ Sometimes	___ A lot of the time
34. Do strange feelings in your body stop you from enjoying yourself?	___ None of the time	___ Sometimes	___ A lot of the time
35. Do strange feelings in your body stop you from keeping your mind on what you are doing?	___ None of the time	___ Sometimes	___ A lot of the time

Appendix 2. Translated Childhood Illness Attitude Scales

• هل أنت قلق على صحتك؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل أنت قلق من أن تصبح مريضا جدا في المستقبل؟	إطلاقا	أحيانا	الكثير من الأوقات

• هل فكرة أن تكون مريض تخيفك؟	إطلاقا	أحيانا	الكثير من الأوقات
• إذا شعرت بالألم ,هل تقلق من أن يكون سبب الألم مرض سيء؟	إطلاقا	أحيانا	الكثير من الأوقات
• إذا استمر الألم لأسبوع أو أكثر ,هل تخبر والدتك أو والدك؟	إطلاقا	أحيانا	الكثير من الأوقات
• إذا استمر الألم لأسبوع أو أكثر ,هل تطلب من والدتك أو والدك أن يأخذك الى الطبيب؟	إطلاقا	أحيانا	الكثير من الأوقات
• إذا استمر الألم لأسبوع أو أكثر ,هل تعتقد أن لديك مرض سيء؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل تحاول أن تقلع عن العادات التي ممكن أن تكون سيئة على صحتك مثل التدخين؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل تحاول أن تبتعد عن أكل الأغذية التي قد تكون مضرة بصحتك مثل البيتزا و الهامبرجر و الشاورما؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل تتفحص جسدك لترى إن كان هناك شيء غير طبيعي؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل تعتقد أنك مريض جدا لكن الأطباء لا يعرفون سبب مرضك؟	إطلاقا	أحيانا	الكثير من الأوقات
• عندما تشعر أنك مريض ,هل تخبر والدتك أو والدك؟	إطلاقا	أحيانا	الكثير من الأوقات
• عندما تشعر أنك مريض ,هل تطلب من والدتك أو والدك أن يأخذاك إلى الطبيب؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل تطلب من والدتك أو والدتك أن يحضرا لك الدواء؟	إطلاقا	أحيانا	الكثير من الأوقات
• عندما يخبرك الطبيب أنك لست مريضا ,هل تصدق ؟	إطلاقا	أحيانا	الكثير من الأوقات

• إذا أخبرك الطبيب تشخيص هل تبدأ بالإعتقاد أن لديك مرض اخر؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل تخاف من الأخبار التي تذكرك بالموت؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل فكرة الموت تخيفك؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل تخاف أن تموت قريبا؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل تخاف أن تكون مصابا بالسرطان؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل تخاف أن تكون مصابا بمرض في القلب؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل تخاف من أن يكون لديك مرض سيء اخر؟ أي مرض؟.....	إطلاقا	أحيانا	الكثير من الأوقات
• عندما تقرأ أو تسمع بمرض ما ,هل تشعر أ قد يكون لديك هذا المرض؟	إطلاقا	أحيانا	الكثير من الأوقات
• إذا شعرت أن لديك إحساس غريب في جسدك ,هل يصعب عليك التفكير في شيء اخر؟	إطلاقا	أحيانا	الكثير من الأوقات
• إذا شعرت بإحساس غريب في جسدك ,هل تقلق بشأ؟	إطلاقا	أحيانا	الكثير من الأوقات
• إذا شعرت بإحساس غريب في جسدك ,هل تخبر والدتك أو والدك؟	إطلاقا	أحيانا	الكثير من الأوقات
• إذا شعرت بإحساس غريب في جسدك ,هل تطلب من والدتك أو والدك أن يأخذاك إلى الطبيب؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل أخبرك الطبيب أنك تعاني من مرض ما؟ إذا كانت الإجابة بالإيجاب فما هو ؟	نعم	لا	
• كم مرة زرت الطبيب خلال العام الماضي؟	نهائيا	1-2مرة	3مرات أو كثر

• كم طبيب زرت في العام الماضي؟	نهائيا	2-1مرة	3مرات أو كثر
• كم مرة تم علاجك) خضعت لعملية أو أخذت دواء (خلال العام الماضي؟	نهائيا	2-1مرة	3مرات أو كثر
• إذا أخذت أي علاجات خلال العام الماضي ,ماذا كانت؟			
الأسئلة الثلاثة القادمة تتعلق بإحساس في جسدك (مثل الألم ,الأوجاع ,صعوبة في التنفس , الاحساس بالارهاق .....)			
• هل الإحساس الغريب في جسدك يمنعك من الذهاب الى المدرسة؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل الإحساس الغريب في جسدك يمنعك من الاستمتاع بوقتك؟	إطلاقا	أحيانا	الكثير من الأوقات
• هل الإحساس الغريب في جسدك يمنعك من التركيز فيما تقوم ب؟	إطلاقا	أحيانا	الكثير من الأوقات

Table 1. Childhood Illness Attitude Scales subscale names, item numbers, communalities, and Cronbach's α, means, SD and kurtosis for the 4-factor model.

Subscale (Item nos.)	Communalities min–max	Cronbach's α	Mean (SD)	Kurtosis
Fear (1–4, 7, 16–23)	0.45–0.83	0.96	2 (0.638)	−1.27
Help seeking (5, 6, 9, 10, 12–14, 26, 27)	0.62–0.79	0.95	2.04 (0.689)	−1.38
Symptom effects (24, 25, 33–35)	0.66–0.89	0.92	2.01 (0.641)	−0.88
Treatment experience (11, 15, 29–31)	0.56–0.7	0.85	2.02 (0.637)	−0.99

Table 2. The final model factors' loadings, item–total correlations, Cronbach's α if items deleted

Questions	Factor loadings	Corrected item–total correlation	Cronbach's α if item deleted
Fear			
Q1: Do you worry about your health?	0.72	0.67	0.96
Q2: Are you worried that you might get really sick in the future?	0.89	0.87	0.95
Q3: Does the thought of being sick scare you?	0.66	0.62	0.96
Q4: If you have pain, do you worry that it may be caused by a bad sickness?	0.91	0.89	0.95
Q7: If pain lasts for a week or more, do you believe that you have a bad sickness?	0.82	0.78	0.95
Q16: If a doctor tells you what he/she found, do you soon begin to believe that you might have another sickness?	0.83	0.79	0.95
Q17: Are you afraid of news that reminds you of death?	0.83	0.80	0.95
Q18: Does the thought of dying scare you?	0.76	0.73	0.95
Q19: Are you afraid that you might die soon?	0.88	0.85	0.95
Q20: Are you afraid that you might have cancer?	0.74	0.71	0.96
Q21: Are you afraid that you have something wrong with your heart?	0.83	0.79	0.95
Q22: Are you afraid that you have another bad sickness?	0.77	0.73	0.95
Q23: When you read or hear about a sickness, do you think that you might have that sickness?	0.90	0.87	0.95
Help seeking			
Q5: If pain lasts for a week or more, do you tell your mom or dad?	0.79	0.73	0.95
Q6: If pain lasts for a week or more, do you ask your mom or dad if you can go to the doctor?	0.80	0.75	0.95
Q9: Do you try not to eat foods that may not be good for you (such as junk food)?	0.87	0.83	0.94
Q10: Do you check your body to find out if there is something wrong?	0.86	0.81	0.94
Q12: When you feel sick, do you tell your mom or dad?	0.85	0.81	0.94
Q13: When you feel sick, do you ask your mom or dad if you can go to the doctor?	0.87	0.83	0.94
Q14: Do you ask your mom or dad for medicine?	0.89	0.85	0.94

Q26: When you have a strange feeling in your body, do you tell your mom or dad?	0.85	0.81	0.94
Q27: When you have a strange feeling in your body, do you ask your mom or dad if you can go to the doctor?	0.82	0.77	0.95
Symptoms effects			
Q24: When you have a strange feeling in your body, do you find it hard to think about something else?	0.82	0.72	0.91
Q25: When you have a strange feeling in your body, do you worry about it?	0.88	0.81	0.89
Q33: Do strange feelings in your body stop you from going to school?	0.81	0.71	0.91
Q34: Do strange feelings in your body stop you from enjoying yourself?	0.94	0.90	0.88
Q35: Do strange feelings in your body stop you from keeping your mind on what you are doing?	0.88	0.80	0.90
Treatment experience			
Q11: Do you believe that you are really sick, but the doctors do not know why?	0.84	0.71	0.81
Q15: When your doctor tells you that you are not sick, do you not believe him/her?	0.74	0.61	0.83
Q29: How many times have you seen your doctor in the last year?	0.78	0.64	0.83
Q30: How many doctors have you seen in the past year?	0.79	0.68	0.82
Q31: How often have you been treated (had to take medicine or had surgery) during the past year?	0.81	0.67	0.82

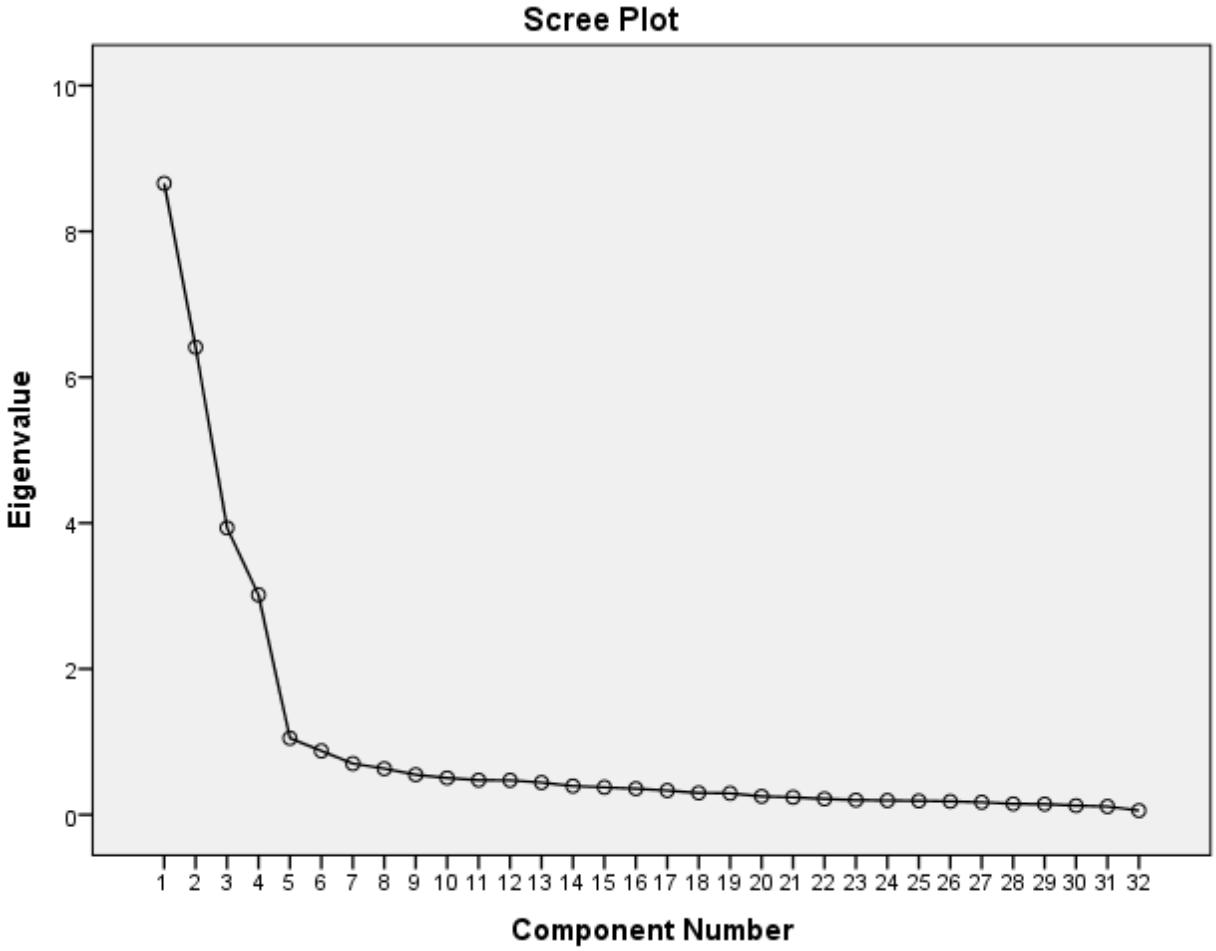

Figure 1. Scree plot results indicating 4 eigenvalues left of the "elbow" of the graph.