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Original Article

Danish validation of the Abdominal Hernia-Q

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ABSTRACT

INTRODUCTION. Ventral hernias significantly impact patients' quality of life. It is essential to recognise this when creating a treatment plan and conducting studies that compare interventions. The Abdominal Hernia-Q is a meticulously validated questionnaire that focuses on patient-reported outcomes. However, at the time of this study, no Danish version was available. Therefore, this study aimed to develop a Danish translation of the Abdominal Hernia-Q.

METHODS. The translation of the questionnaire followed a comprehensive process, including forward-backwards translation, expert committee review and pretesting to ensure face validity. We included ten patients for pretesting. The inclusion criteria were > 18 years of age and a history of ventral hernia repair. The exclusion criteria were the inability to speak or read Danish.

RESULTS. A Danish version of the Abdominal Hernia-Q was successfully developed. This process revealed a few minor discrepancies between translators, which were resolved through discussion. Pretesting identified three issues: one unspecified and two minor cultural issues. All issues were addressed and corrected.

CONCLUSION. A validated Danish version of the Abdominal Hernia-Q is now available for use by clinicians and researchers, having undergone rigorous pretesting for face validity.

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TRIAL REGISTRATION. This study was approved by the Danish Data Protection Agency (p-2023-15228).

Ventral hernias can profoundly affect quality of life [1, 2]. They can cause chronic pain [3], cosmetic alterations can adversely affect the patient's body image [4] and truncal stability can be altered [5], which may result in physical limitations. However, after receiving a ventral hernia repair, patients usually experience improved quality of life and truncal stability [6]. Previously, surgical outcomes, such as recurrence or pain, were of primary interest to surgeons when investigating new types of interventions. However, research is shifting its focus towards patient-reported outcomes [7]. Patient-reported outcome measures, developed in collaboration with patients, are recognised as effective tools for identifying symptoms and key aspects of an intervention [8].

Abdominal Hernia-Q is a patient-reported outcome measure designed for patients undergoing ventral hernia surgery. Its internal validity and content validity were ensured during development [9]. Further testing found evidence of construct validity, reliability, responsiveness and a low user burden [10], making it a thoroughly validated patient-reported outcome measure.

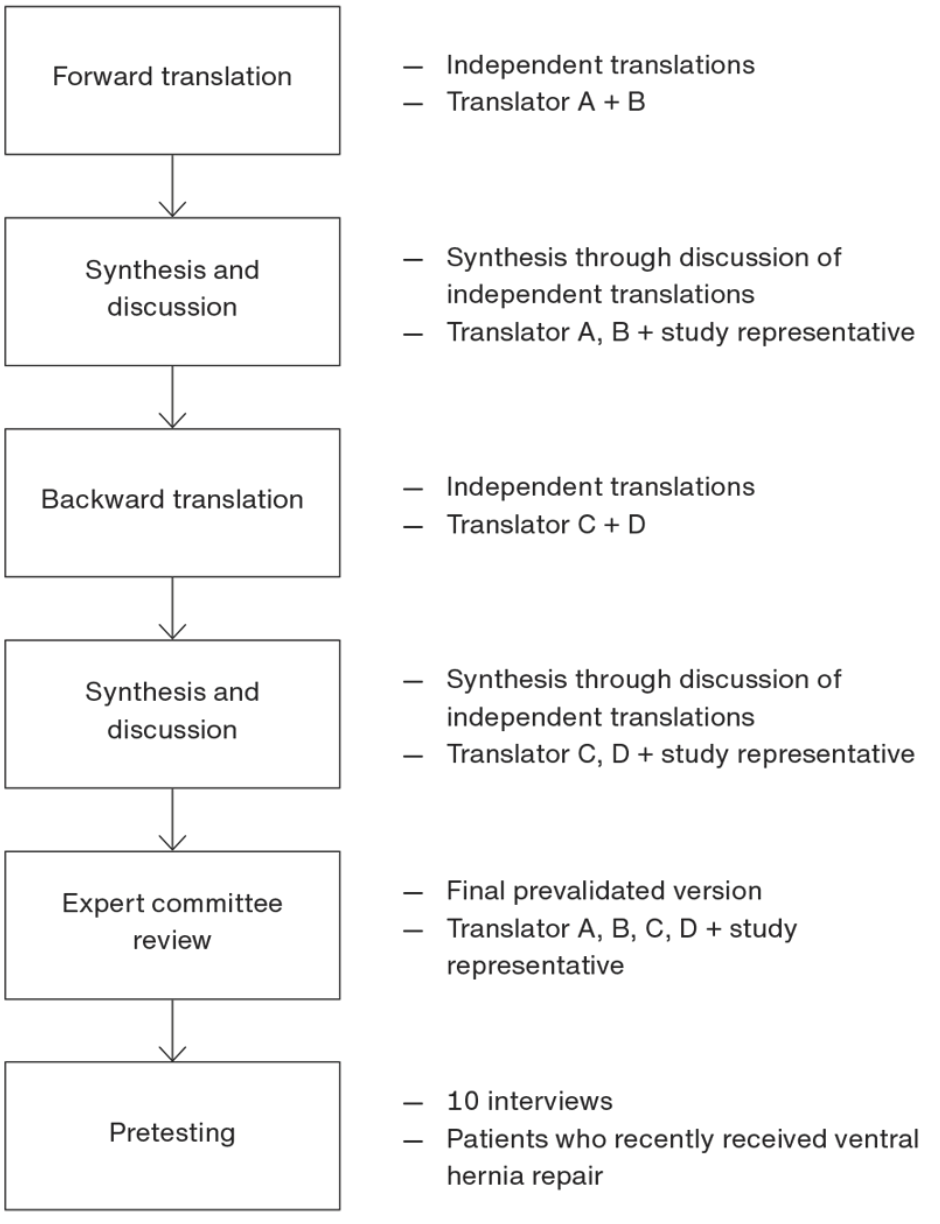
When initiating this study, no Danish translation of the Abdominal Hernia-Q existed. Therefore, we decided to translate the questionnaire into Danish. Specifically, this study aimed to develop a Danish translation of the Abdominal Hernia-Q, using traditional forward-backwards translation and pretesting to ensure the retention of

meaning, face validity and acceptability – thereby creating a tool for clinical practice and research in Denmark.

Methods

Numerous approaches exist to translating a health-related questionnaire [11]. In this study, we used forward-backwards translation with expert committee review and pretesting to assess face validity according to previously proposed guidelines (**Figure 1**) [12, 13].
[9, 10] from another Western country with a similar culture.

FIGURE 1 Translation and validation process. Translator A was an expert in hernia surgery, translator B was naïve in the field of hernia surgery and translators C and D were language experts.



Translation

The translation process involved forward translation from English to Danish and was conducted independently by two translators, Translator A and Translator B, who were both native Danish speakers. Translator A was an expert in hernia surgery, whereas Translator B was naive in the field of hernia surgery. Each translator produced a unique translation. Subsequently, a committee meeting involving the translators and a study representative was held. The two translations were discussed during this meeting, and a single, unified translation was synthesised. Additionally, a comprehensive translation report was prepared to document the process and decisions made.

Translators C and D, both professional journalists and writers with professional and academic proficiency in English and Danish but naive in the field of hernia surgery, conducted the backward translation independently. Each translator made a unique backward translation into English from the Danish forward translation. Once again, a committee meeting was held to synthesise a single backward translation, and a translation report was prepared.

Subsequently, a final committee meeting was conducted with input from all four translators and the study representative overseeing the translation process. The committee reviewed the original questionnaire and the forward and backwards translations. Additionally, both translation reports were reviewed to detect any errors in the translation from English to Danish and to ensure the medical and grammatical accuracy of the content of the translated questionnaire. During this meeting, a consensus was reached on a provisional Danish version of the Abdominal Hernia-Q. Once the translation process had been completed, the questionnaire was tested through semi-structured interviews with a group of patients with a history of ventral hernia repair.

Participants

We recruited ten patients for pretesting by convenience sampling, asking the most recently operated patients to participate. Participants were recruited by telephone. A sample size of ten participants was previously enough to reach data saturation for a previous translation of a health-related questionnaire [14] and was proposed in relevant guidelines [13]. The inclusion criteria were a previous ventral hernia repair and a minimum of 18 years of age at the time of surgery. Patients were excluded if they could not speak or read Danish.

Data collection

The study interviews were conducted in the patients' private homes and included the following questions: "Is the question difficult to answer?", "Is the question confusing?", "Is the question difficult to understand?" and "Is the question making you feel uncomfortable?". If an item did not meet our expectations, it was revised to improve the questionnaire for the following interview while seeking to retain the meaning of the original item. Comprehensive field notes were taken during the interviews. Based on this qualitative validation, a final version was established.

The following patient data were collected using paper case report forms: age, sex, type of hernia, hernia defect size, date of operation and type of operation.

Ethical considerations

All patients gave written consent to participate in the study. According to Danish law, no ethical approval was required.

Trial registration: The study was approved by the Danish Data Protection Agency (p-2023-15228).

Results

A total of 32 patients were contacted, of whom ten could not be reached, eight did not wish to participate, three were not fluent in Danish and one was cognitively impaired. The remaining ten patients were recruited for pretesting of face validity. All patients had received hernia repair with mesh reinforcement; they had a median age of 60 years and a median post-operative period of five months. Most patients were men who had received repair of an umbilical ventral hernia (**Table 1**).

TABLE 1 Patient characteristics.

Characteristic	Patients (N = 10)
Female sex, n (%)	3 (30)
Age, median (range), yrs	60 (34-71)
Type of hernia, n (%)	
Umbilical hernia	6 (60)
Incisional hernia	4 (40)
Reoperation for recurrence, n (%)	2 (20)
Width of defect, median (range), cm	2 (1-8)
Mesh reinforcement, n (%)	10 (100)
Surgical technique, n (%)	
Open onlay	6 (60)
Rives-Stoppa	2 (20)
TARUP	1 (10)
Open preperitoneal	1 (10)
Time since operation, median (range), mos.	5 (2-13)

TARUP = Robotic Transabdominal Retromuscular Umbilical Prosthetic Hernia Repair.

Only minor disagreements were observed between translators during both forward and backwards translations. These disagreements were resolved through discussion. Items 2d, 3a and 4a from the post-operative form were slightly changed semantically; the word “anxious” in item 2d was translated to “bekymret”, which is a more direct translation of the English term “worried”. Although, direct translations like “ængstelig” and “angstpræget” were considered, they were deemed not to be layman’s terms. Therefore, “bekymret” was chosen to maintain the comprehensibility of the questionnaire. In item 3a, the phrase “… prepared me for surgery” was forward-translated into “…informerede mig om operationen” and backwards-translated to “… informed me about the

operation". We kept this translation since examples given in the original questionnaire made it clear that "prepared" refers to giving preoperative information. In item 4a, "depression" was translated to "nedtrykthed", as the Danish word "depression" exclusively refers to a clinical diagnosis. The remaining items were translated into Danish without any notable linguistic difficulties, and the backwards translation and committee meetings did not raise any questions about the grammatical or medical accuracy of these items.

The subsequent pretesting reached data saturation before the tenth interview and revealed no significant linguistic issues, although one unspecified and two minor cultural issues were identified and corrected. Multiple patients felt that items 3a in the preoperative and 9a in the post-operative form should focus on general appearance rather than just symmetry, to address cosmetic issues of symmetric hernias better. Therefore, "symmetrien af min mave... (dvs. om der er sideforskel)" was rephrased to "udseendet af min mave... (f.eks. sideforskel)", shifting the focus from symmetry to overall appearance, while retaining symmetry as an explanatory example. The remaining patients favoured this change. Items 3b in the preoperative and 9b in the post-operative form prompted a few patients to ask what was considered "normal". To address this issue, the word "normal" was replaced with the synonym "almindelig", which was more easily understood. Additionally, several patients felt that the wording "forbedret mit liv" in item 8a was overly dramatic, and - based on a patient's suggestion - the item was rephrased to inquire about quality of life instead of life in general. Thus "... forbedret mit liv" was rephrased to "... forbedret min livskvalitet", which was preferred by the remaining patients.

Discussion

This study successfully developed a Danish version of the Abdominal Hernia-Q (Supplementary material) using forward-backwards translation, ensuring its face validity through pretesting with the target audience. This study has several strengths. The use of forward-backwards translation, as recommended in the literature [12, 13], helped maintain the semantic integrity of the original questionnaire. The inclusion of language experts guaranteed accurate translations, while the involvement of an expert in hernia surgery ensured the correct use of medical terminology. Additionally, continuous revisions ensured that patient feedback was effectively incorporated. Furthermore, pretesting with patients who had recently undergone ventral hernia repair improved the face validity of the questionnaire. However, the study also carries a few limitations. The assumption that American and Danish cultures are identical proved inaccurate during pretesting. Some translations were altered semantically to improve comprehension, which could, in theory, affect the precision of patient responses. However, the changes were minor and in accordance with Danish culture, thus potentially minimising any negative effects. Another possible limitation is that the final version of the questionnaire was not re-tested with patients who had validated earlier versions, which might have introduced minor differences. However, as we reached data saturation with minimal suggestions for changes during the final four interviews, this is unlikely to have affected the quality of the final questionnaire.

The initial assumption of cultural similarity between American and Danish populations led to unanticipated issues. Danish patients found item 8a overly dramatic and were confused about what may be considered "normal" in preoperative item 3b and post-operative item 9b. Although these issues were corrected during pretesting, the assumption of cultural equivalence may have been flawed. Therefore, a future study to determine the cross-cultural validity of the Danish version of the Abdominal Hernia-Q may be warranted.

Conclusion

The Abdominal Hernia Q was successfully translated into Danish and pretested for face validity, providing Danish hernia surgeons and researchers with a valuable tool to further improve the treatment of Danish patients

with ventral hernias.

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