Incorporating Computer Adaptive Testing

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Primary Objective: To develop and validate a knowledge questionnaire as an improved version of our RAK-Q 1.0 (phase 1 and 2). Afterwards we will create a CAT (phase 3).

Ethical review	Not available
Status	Pending
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON57535

Source
Onderzoeksportaal

Brief title
Incorporating Computer Adaptive Testing

Condition

- Other condition

Synonym
Preoperative patients

Research involving
Human

Sponsors and support

Primary sponsor: Erasmus MC, Universitair Medisch Centrum Rotterdam
Source(s) of monetary or material Support: Derde geldstroom (anders, zoals collectebussenfondsen, Europese Unie, vakministeries of bedrijven)

Intervention

- Other intervention

Explanation

N.a.

Outcome measures

Primary outcome

Assess the feasibility of employing CAT within our specific testing program.
Develop an item bank (set of around 100 questions per questionnaire). Pretesting, calibrating, and linking item parameters through statistical analysis. Determining the specifications for the final CAT.

Secondary outcome

none

Study description

Background summary

Patient education and shared decision making are of continuously growing importance in modern medicine, including in the preoperative anaesthesia clinic. Additionally, there is a high demand for increasing efficiency in all health care systems worldwide. However, thorough preoperative patient education is essential for obtaining informed consent for any type of anaesthesia. Fortunately, today’s technological advancement makes digital preoperative education and screening feasible, with less direct involvement from the anaesthetist. To inform patients and to screen patients’ knowledge level on anaesthesia effectively and validly in a digital setting, psychometrically validated questionnaires are needed in a wide variety of anaesthesia types, such as general, spinal, epidural, or loco-regional anaesthesia. Multiple initiatives to improve preoperative patient education and subsequent level of knowledge of anaesthesia have been developed, for example by using digital aids(1-4). However, our first questionnaire – the Rotterdam Anaesthesia Knowledge Questionnaire (RAK-Q) with MEC-2020 0468 – was one of the first knowledge questionnaires concerning preoperative anaesthetic practice to be psychometrically validated (not yet published). Since this was the first version of our questionnaire, there were multiple limitations. First, it is probable not all knowledge items were included. Based on our Item Response Theory (IRT) in earlier analysis, multiple items had to be dropped because they did not load on one of the factors, decreasing the number of items. Second, since it is a fixed test, all patients must answer all questions, creating a time-consuming activity. To continue, standard fixed tests almost always provide the best precision for test-takers of medium ability and an increasingly poorer precision for test-takers with more extreme test scores,

either high or low(5). The goal of this study is to develop a CAT(6) from our questionnaire. A CAT is a form of computer based testing which adapts to the ability of the test-taker and is therefore also called tailored testing. CAT offers time-saving benefits by shortening the test duration without sacrificing accuracy. When a test-taker responds correctly to an item, the subsequent item presented will be more challenging. Conversely, if the test-taker answers incorrectly, the next item will be easier. This tailored selection of item difficulty, specific to each individual, optimizes the information gathered from both individual items and the overall test performance. Using IRT analysis, multiple levels of item difficulty can be established(7). Since IRT places items and test-takers on the same scale, we can provide tailored tests of various lengths, based on the test-takers abilities(6). Using an increased item bank to develop this CAT will facilitate an improved version of our RAK-Q 1.0, increasing efficiency and decreasing use of resources.

Study objective

Primary Objective: To develop and validate a knowledge questionnaire as an improved version of our RAK-Q 1.0 (phase 1 and 2). Afterwards we will create a CAT (phase 3).

Study design

Observational prospective noninvasive study without control group

Intervention

Questionnaire

Study burden and risks

To the best of our knowledge, no physical or physiological risks are involved for the participant. Patients must fill out our questionnaire once. Since it is a knowledge questionnaire, no physiological discomfort is to be expected of the questions.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Elderly (65 years and older)
Adults (18-64 years)

Inclusion criteria

In order to be eligible to participate in this study, a subject must meet all of the following criteria:

- Adult patients (minimal 18 years of age)
- Able to read and understand Dutch on B1 level
- Able to watch and understand

Exclusion criteria

A potential subject who meets any of the following criteria will be excluded from participation in this study:

- Patients scheduled for cardiothoracic surgery
- Patients scheduled for emergency surgery

Study design

Design

Study phase:	N/A
Study type:	Observational non invasive
Intervention model:	Single
Allocation:	Non controlled trial
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Safety

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-06-2025
Enrollment:	500
Duration:	1 months (per patient)
Type:	Anticipated

Medical products/devices used

Product type:	N.a.

IPD sharing statement

Plan to share IPD: Undecided

Plan description
N.a.

Ethics review

Not available

Date:	16-05-2025
Application type:	First submission
Review commission:	Validatie nWMO registratie door CCMO

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
Research portal	NL-010052