

Structure and design of a questionnaire study

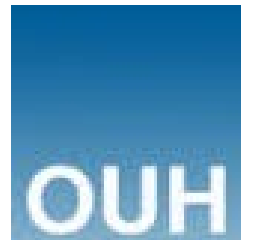
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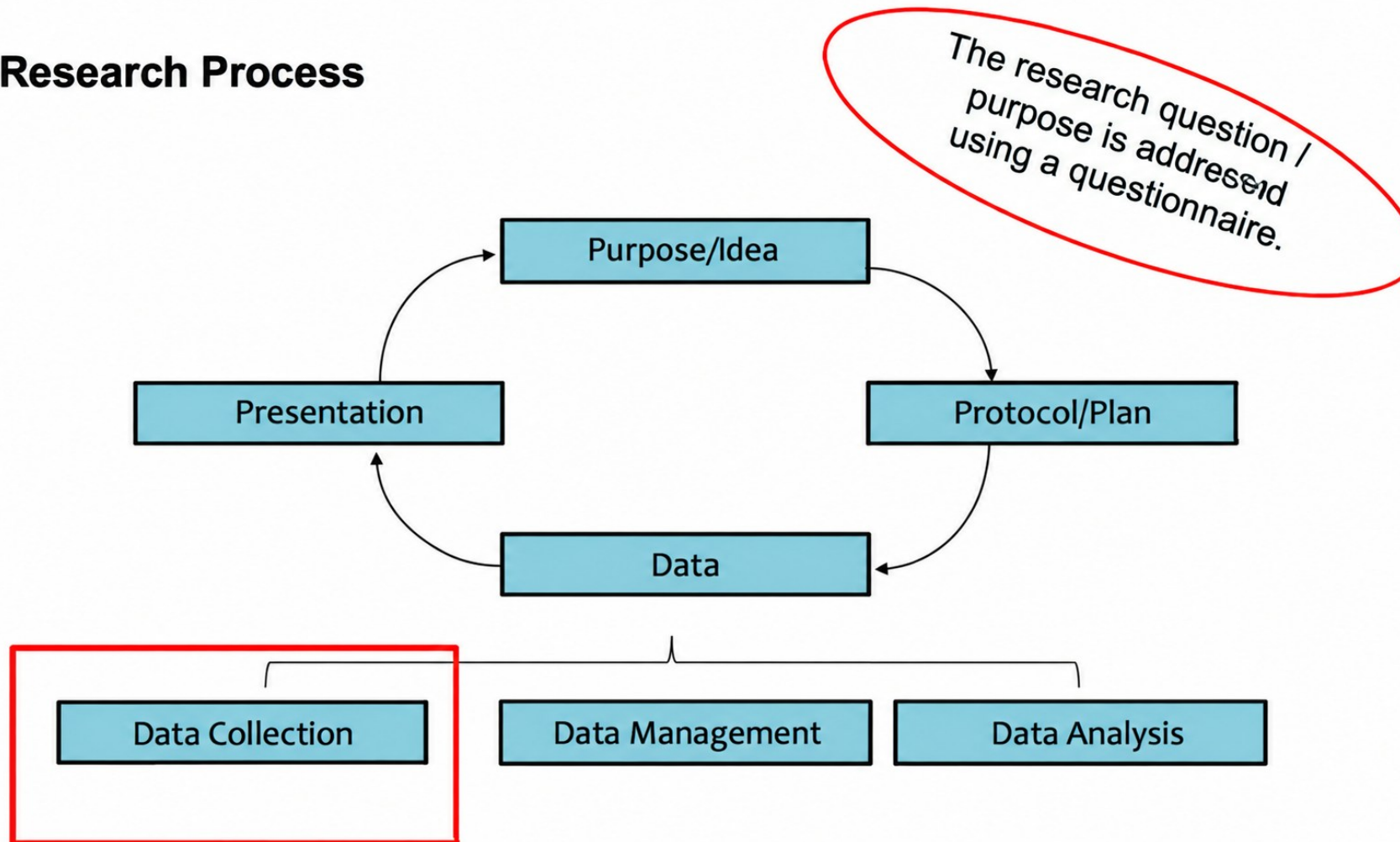
Agenda

Time	Contents	Pages	Teacher
9.00– 10.00	Introduction to questionnaires - conceptualisation	7-13, 33-35	AØH
10.00 – 11.00	Exercise: Conceptualisation		AØH
11.00 – 12.30	Concepts in questionnaire technique • Observed vs. latent variables • Conceptual frameworks • Reflective and formative models • Scales vs. indexes COSMIN taxonomy and requirements to questionnaire validation	13-17, 35-37 Vodcast Articles on www*	AØH
12.30 – 13.00	<i>Lunch</i>		
13.00 – 13.45	How to measure the construct – operationalisation • Preparing items and answer categories	35-37 41-50	AØH
13.45 – 14.30	Exercise: Preparing items and answer categories		AØH
14.30 – 15.00	Structure and design of a questionnaire study Q & A about own study		AØH

* www = see www.clinimetrics.sdu.dk

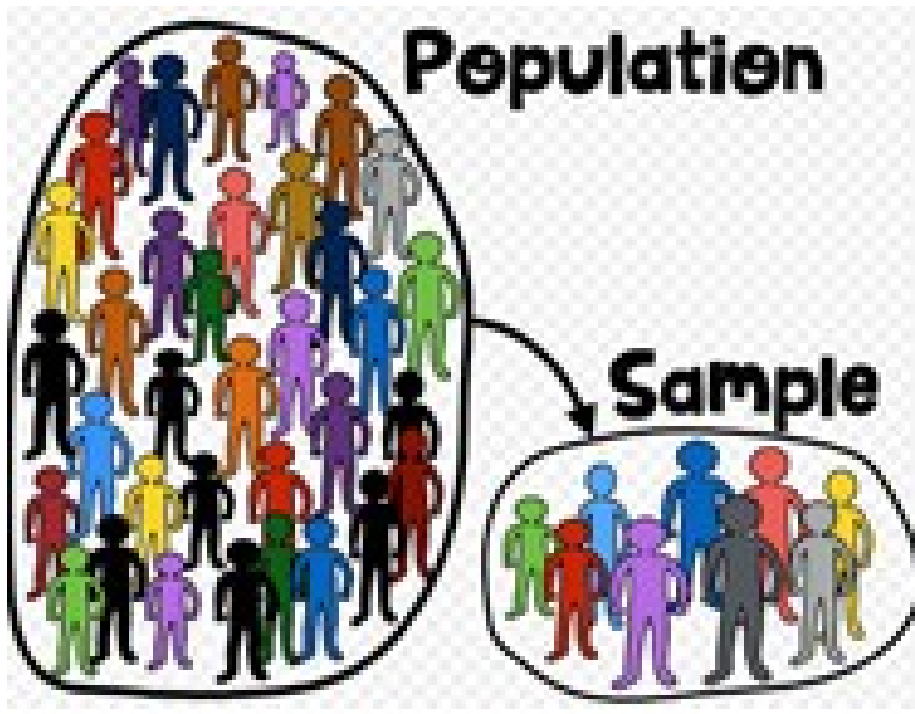
How to carry out a questionnaire study

Research Process



How to carry out a questionnaire study

- Practical considerations



Design

- Is a questionnaire study the best way to answer the research question?
- What I want to measure can be elucidated by data from a questionnaire (relevant scales)?

Questionnaire

- What construct to be measured/ how is it operationalised
- Is there a core set (COS)? (OMERACT, COMET, ICHOM)
- Is the questionnaire valid, reliable and responsive?
- How to interpret it
- Do you need a license to use the questionnaire?
 - If yes, who "owns" the rights?

Target group

- Is the target group able to answer a questionnaire?
- Is it possible to gain access to the target group? How can you reach them?
- How can you motivate them to participate? Should respondents get paid?

How to carry out a questionnaire study

- Practical considerations

Informed consent

- Patients have to give informed consent
- Is data collection part of a clinical study?
 - Notify *National Videnskabsetisk Komité* (www.nvk.dk)
- *Accept from participants if you need to contact informants again later*
 - *Missing data*
 - *Extra follow-up*

Administration of questionnaires

How will the data be analysed



Things to keep in mind

Don't change an existing questionnaire

- Don't change wording and/or response categories
- Don't change the order of items
- Don't change the layout



Bias?

Selection bias

Non-responder bias

Response bias

Recall bias



Experiences to increase response rate - what do you do?



Response rate

Reasons for Increased Response Rate

- ✓ **Experience of personal benefits:** Highlight how participation can benefit.
- ✓ **Make it personal:** Personalize the invitation or communication to the respondent.
- ✓ **Show gratitude:** Express sincere thanks for their time and contribution.
- ✓ **Commitment to the study:** Emphasize the importance of the respondent's involvement in the study's success.
- ✓ **Clear communication:** Clearly explain the study's aim and how much time it will take.
- ✓ **Make it easy to attend:** Simplify the process of participation.

Reasons for Increased Nonresponse Rate

- ✓ Laziness
- ✓ Forgetfulness
- ✓ Patients who feel healthy are less inclined to answer
- ✓ Obligatory answering / long questionnaire
- ✓ Response categories that don't fit

Questions?

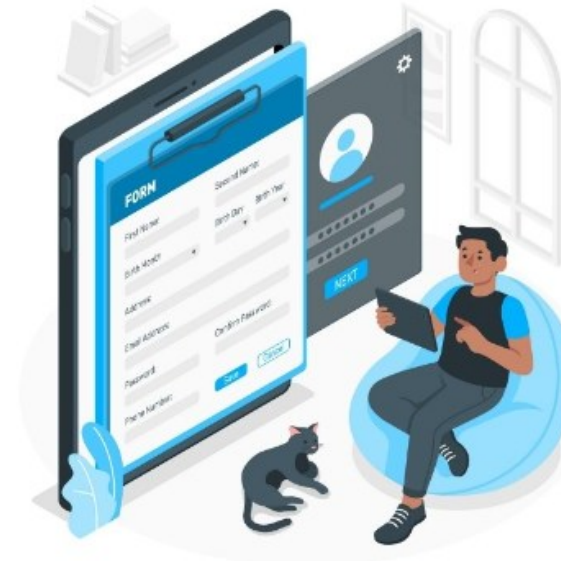


Paper vs. electronic questionnaire



Paper Survey

- Run by handing out paper forms
- Usually more expensive
- Less likely to fill out online surveys
- More likely to have mistakes that need to be corrected.
- More time consuming



Online Survey

- Run through the internet.
- Usually less expensive
- More likely to fill out online surveys
- More likely to give better data
- Less time consuming
- Can reach more people

Equivalence of Electronic and Paper-and-Pencil Administration of Patient-Reported Outcome Measures: A Meta-Analytic Review

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ABSTRACT

Objectives: Patient-reported outcomes (PROs; self-report assessments) are increasingly important in evaluating medical care and treatment efficacy. Electronic administration of PROs via computer is becoming widespread. This article reviews the literature addressing whether computer-administered tests are equivalent to their paper-and-pencil forms.

Methods: Meta-analysis was used to synthesize 65 studies that directly assessed the equivalence of computer versus paper versions of PROs used in clinical trials. A total of 46 unique studies, evaluating 278 scales, provided sufficient detail to allow quantitative analysis.

Results: Among 233 direct comparisons, the average mean difference between modes averaged 0.2% of the scale range (e.g., 0.02 points on a 10-point scale), and 93% were within

$\pm 5\%$ of the scale range. Among 207 correlation coefficients between paper and computer instruments (typically intraclass correlation coefficients), the average weighted correlation was 0.90; 94% of correlations were at least 0.75. Because the cross-mode correlation (paper vs. computer) is also a test-retest correlation, with potential variation because of retest, we compared it to the within-mode (paper vs. paper) test-retest correlation. In four comparisons that evaluated both, the average cross-mode paper-to-computer correlation was almost identical to the within-mode correlation for readministration of a paper measure (0.88 vs. 0.91).

Conclusions: Extensive evidence indicates that paper- and computer-administered PROs are equivalent.

Keywords: computer, electronic, equivalence, meta-analysis, paper and pencil, patient-reported outcomes.

Validation of electronic administration of knee surveys among ACL-injured patients

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Abstract

Purpose Knee-specific patient reported outcome measures (PROMs) are important tools in evaluating the effectiveness of sports medicine interventions. The PROMs were originally developed for paper administration, but electronic data capture technologies offer potential benefits such as increased efficiency and accuracy. The aim of this study was to assess the validity of touch screen versus paper administration using several common knee-specific and general health surveys.

Methods Agreement between scores was compared for knee-specific PROMs administered on paper versus computer; paper versus tablet; computer versus tablet in 60 patients per group undergoing ACL reconstruction. Surveys were given at pre-operative assessment and between 1 and 7 days later. Weighted kappa statistic (κ) and intra-class correlation coefficients (ICC) were calculated to test agreement between the two modalities in: IKDC Subjective Knee Form, Marx Activity Scale, Tegner Activity Level

Scale, and Lysholm Knee Scale. SF-12 Physical and Mental Component Summary scores were also assessed.

Results Response rate was over 90 %. Mean age was 29.6 ± 10.9 years, with patients in the paper-computer cohort being 4 years older than in the other groups. Agreement was substantial or better for all PROMs collected: IKDC Subjective (ICC: 0.79); Marx (ICC: 0.70); Lysholm (ICC: 0.65); and Tegner ($\kappa = 0.67$). Agreement for the SF-12 PCS (ICC: 0.77) and MCS (ICC: 0.73) was also found to have substantial agreement.

Conclusion In conclusion, touch screen-based PROMs are a valid capture method, providing reliable results relative to traditional paper survey administration. Digital methods of direct data capture may also foster multi-centre collaborations and allow for more accurate comparisons of outcomes between patient groups in clinical practice and orthopaedic research.

Level of evidence II

Keywords ACL · ACL reconstruction · Electronic ·

Comparative validity and reliability of the WeChat-based electronic and paper-and-pencil versions of the PISQ-12 for collecting participant-reported data in Chinese

Chenyu Zhang ¹, Zhijing Sun ¹, Jun Yang ¹, Tao Xu ², Lan Zhu ¹, Jinghe Lang ¹

Affiliations + expand

PMID: 33201029 PMID: [PMC7886337](#) DOI: [10.1097/GME.0000000000001691](#) [🔗](#)

Abstract

Objective: The objective of this study is to assess the consistency between the WeChat-based Pelvic Organ Prolapse/Urinary Incontinence Sexual Questionnaire short form (PISQ-12) in Chinese and the paper version and to determine the test-retest reliability of the WeChat questionnaire.

Methods: A total of 120 women aged between 24 and 69 years were recruited from the outpatient clinic at Peking Union Medical College Hospital and randomly assigned to two groups. All participants completed the WeChat and paper questionnaires twice. Group A completed the paper questionnaire before the WeChat version; Group B completed the WeChat questionnaire before the paper version. Two weeks later, all participants completed the questionnaires in the opposite order. Then, the reliability and validity of the two versions were assessed using Pearson correlation coefficients, intraclass correlation coefficients, and Bland-Altman graphs.

Results: No significant difference in completion time was found between the two versions of the Chinese PISQ-12 ($P = 0.67$). Half of the participants (60/120) preferred the WeChat questionnaire, 15% (18/120) preferred the paper form ($P < 0.01$), and 35% had no preference (42/120). The response time was positively correlated with age ($P < 0.01$) and negatively correlated with the degree of education ($P < 0.01$). A Pearson correlation coefficient of 0.92 and an intraclass correlation coefficient of 0.94 indicated strong consistency between the two versions. The WeChat form exhibited strong test-retest reliability (Pearson correlation coefficient, 0.86; intraclass correlation coefficient, 0.86). The Bland-Altman plots supported these results.

THANK YOU.

