Assessing the Quality of Health Economic Studies in Clinical Pharmacy Services: A Qualitative Analysis

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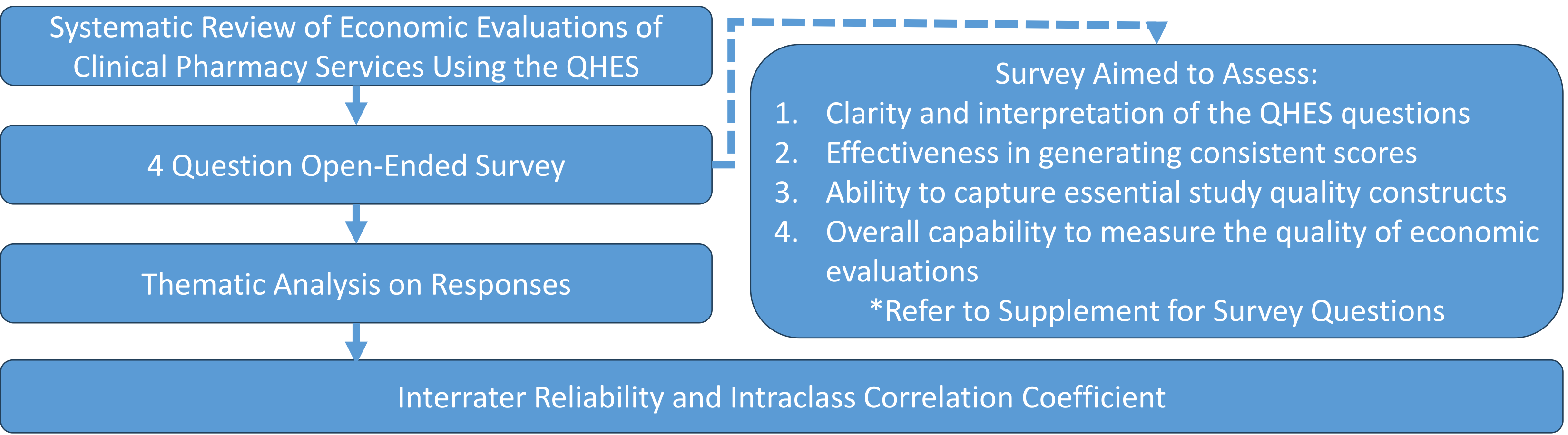[2] Nova Southeastern University Florida Barry and Judy Silverman College of Pharmacy

INTRODUCTION

- The Quality of Health Economic Studies (QHES) instrument is a standardized tool designed to evaluate the quality of health economic studies. Due to the diverse nature of study designs, assessing the quality of economic evaluations of clinical pharmacy services using the QHES has posed unique challenges.

OBJECTIVE

- The aim of this assessment was to evaluate the usability, reliability, content validity, and criterion validity of the QHES in assessing economic evaluations of clinical pharmacy services.

METHODS

- Systematic Review of Economic Evaluations of Clinical Pharmacy Services Using the QHES
- 4 Question Open-Ended Survey
- Thematic Analysis on Responses
- Interrater Reliability and Intraclass Correlation Coefficient

Survey Aimed to Assess:
1. Clarity and interpretation of the QHES questions
2. Effectiveness in generating consistent scores
3. Ability to capture essential study quality constructs
4. Overall capability to measure the quality of economic evaluations
*Refer to Supplement for Survey Questions

RESULTS

- Two faculty, three graduate students, and four pharmacy doctorate students evaluated 47 economic evaluations of clinical pharmacy services.
- Thematic analysis identified several challenges with the QHES, such as unclear questions and a lack of context, which contributed to answering difficulty.
- The question's binary response options and subjective nature led to concerns about score consistency, as interpretations varied based on the reviewer's experience.
- Cohen's Kappa values ranged from -0.1115 to 0.6205, indicating no strong agreement for any question, with only one question showing a moderate Kappa statistic.
- The ICC (2,k) revealed poor agreement between senior and junior reviewers (ICC = 0.14811).

DISCUSSION

- The study identifies significant challenges in using the QHES, particularly concerning clarity, consistency, and suitability for various study designs.
- Findings suggest the need for revisions to the QHES or the development of new tools better suited to the diverse nature of economic evaluations of clinical practice guidelines and non-model-based studies.
- The Cochrane Collaboration recommends utilizing separate and tailored assessment tools to better address the specific methodological considerations and potential biases inherent in different types of economic evaluations. This aligns with our findings regarding the limitations of QHES.
- Implementation of suggested adaptations could enhance the accuracy and depth of quality assessments performed by the QHES, potentially resulting in more reliable outcomes in systematic reviews of economic evaluations.

While the QHES was effective in assessing the quality of modeling studies, its use in descriptive and partial economic analyses raised reliability concerns due to the ambiguity or inapplicability of certain questions

Key adaptations for accuracy and versatility

- Provide guidance and training materials to reduce subjectivity
- Introduce nonbinary options with revised scoring
- Separate double-barreled questions for clarity
- Include ethical, equity, patient-centered, and sustainability considerations

A single tool may not suffice to evaluate all study types. Additional tools may be required

Figure 1: QHES Instrument

	Questions	Points
1.	Was the study objective presented in a clear, specific, and measurable manner?	7
2.	Were the perspective of the analysis (societal, third-party payer, etc.) and reasons for its selection stated?	4
3.	Were variable estimates used in the analysis from the best available source (i.e., randomized control trial - best, expert opinion - worst)?	8
4.	If estimates came from a subgroup analysis, were the groups prespecified at the beginning of the study?	1
5.	Was uncertainty handled by (1) statistical analysis to address random events, (2) sensitivity analysis to cover a range of assumptions?	9
6.	Was incremental analysis performed between alternatives for resources and costs?	6
7.	Was the methodology for data abstraction (including the value of health states and other benefits) stated?	5
8.	Did the analytic horizon allow time for all relevant and important outcomes? Were benefits and costs that went beyond 1 year discounted (3% to 5%) and justification given for the discount rate?	7
9.	Was the measurement of costs appropriate and the methodology for the estimation of quantities and unit costs clearly described?	8
10.	Were the primary outcome measure(s) for the economic evaluation clearly stated and did they include the major short-term was justification given for the measures/scales used?	6
11.	Were the health outcomes measures/scales valid and reliable? If previously tested valid and reliable measures were not available, was justification given for the measures/scales used?	7
12.	Were the economic model (including structure), study methods and analysis, and the components of the numerator and denominator displayed in a clear, transparent manner?	8
13.	Were the choice of economic model, main assumptions, and limitations of the study stated and justified?	7
14.	Did the author(s) explicitly discuss direction and magnitude of potential biases?	6
15.	Were the conclusions/recommendations of the study justified and based on the study results?	8
16.	Was there a statement disclosing the source of funding for the study?	3
	Total Points	100

Subjectivity/Ambiguity of Questions

- The QHES presents significant challenges due to unclear wording and context in several questions, which complicates the assessment of study methods, data sources, and outcome measures into simple yes/no responses. This can lead to reliability problems, where different reviewers may interpret questions differently and even the same reviewer may provide varying answers over time. Additionally, the lack of guidance on assessing bias impacts results, causing variability in scores and affecting the study's perceived quality.

User Experience

- Evaluating economic studies requires specialized knowledge and expertise (e.g., analytic horizons, discount rates, cost measurement, study design rigor, and statistical methodologies), where variability in the reviewer's experience and skill level can lead to differing responses and a high probability of generating inconsistent scores.

Scoring Limitations

- The QHES is challenging due to having more than one question per item (e.g., Q2, Q5, Q8, Q10-14). The binary yes/no format (e.g., Q6, Q12, Q13) is often difficult to apply and may lead to inconsistency in scoring. Overall, the QHES's focus on decision models and full economic evaluations limits its effectiveness for diverse study types (Q3, Q8, Q13).

Other Improvements

- Future scoring tools may consider incorporating a detailed scoring guideline, a non-binary scoring system, explicit criteria assessing external validity, ethical considerations, equity issues, patient-centered outcomes, and sustainability of interventions.

Example Responses

"Many of the questions were double barreled (2,5,8,10-14) where if one component of the question was not met, I felt like I couldn't answer positively "Yes". To me this was a big downfall because many studies that had some positive aspects were not being captured and scored."

"The weighted nature of the QHES scoring system means that certain aspects of a study are deemed more important than others...this can lead to skewed outcomes if a study scores poorly on heavily weighted questions despite performing well on others."

"There is likely a high probability of generating different scores based on the reviewer's experience with economic analyses."

"Develop detailed guidelines for each question, including examples of what constitutes a high or low score."

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