

Qualitative studies

Main author	Clear research questions?	Data allow to address the research questions?	Approach appropriate to answer the research question?	Comments	Data collection methods adequate to address the research question?	Comments	Are the findings adequately derived from the data?	Comments	Interpretation of results sufficiently substantiated by data?	Comments	Coherence between data sources, collection, analysis and interpretation?	Comments
Rishoei	Yes	Yes	Yes	<i>The methodology of the study is a qualitative descriptive in the form of focus groups interviews using a semi structured interview guide to facilitate discussion. Qualitative approach is appropriate to address the research question.</i>	Yes	<i>Focus groups were used which were adequate but one-to-one semi-structured interviews might be more appropriate as medication error is a sensitive issue; The setup of focus groups was appropriate, including venue, recording methods and pilot tested.</i>	Yes	<i>The data analysis is appropriate for the study design. The qualitative data analysis was done after audiotapes were transcribed verbatim and notes were compiled. Analysis of the focus group transcripts was conducted using qualitative content analysis. There were two coders involved to analyse the data individually.</i>	Yes	<i>Results were supported by quotes that justified the themes.</i>	Yes	<i>There was a clear link between the data collection analysis and interpretation and the data source. They have interviewed physicians and nurses and used their quotes to come up with themes.</i> Total score: 5
Rosenfeld	Yes	Yes	Yes	<i>The methodology of the study is a qualitative descriptive in the form of ethnographic design including observations, semi structured interviews and focus group. Qualitative approach is appropriate to address the research question.</i>	Yes	<i>An ethnography approach was used to describe and interpret behavior which is appropriate; Observations with the use of field notes and audio taping (note: only pharmacists and nurses were shadowed, as authors found that shadowing doctors led to disjointed interactions with patients); Semi-structured interviews: in a room in clinical setting, at the time convenient for participants for approx. 1 hr.; Focus groups: data analysis from interviews provided themes for FGs. (note: doctors' FG did not happen in view of difficulties in organising).</i>	Yes	<i>The data analysis is appropriate for the study design. The qualitative data analysis was done after audiotapes were transcribed verbatim thematically analyzed using the framework approach.</i>	Yes	<i>The results were supported by the data collected with first-order interpretation quotes.</i>	Yes	<i>There was a clear link between the data collection analysis and interpretation and the data source.</i> Total score: 5

Quantitative studies

Main author	Clear research questions?	Data allow to address the research questions?	Sampling strategy relevant to address the research question?	Comments	Sample representative of the target population?	Comments	Are the measurements appropriate?	Comments
Chen	Yes	Yes	Yes	<i>Patients with epilepsy who the neurologist refers to the pharmacists and agreed to be referred to a pharmacist took part and the sample size was small but it does exactly what the aim (which is narrow in terms of evaluating a pharmacist service in neurology in one hospital site in Singapore). But the way the patients (all who were happy to be referred to a pharmacist) were sampled could produce biased results as you would only find the ones that are happy to receive pharmacist counselling and follow up.</i>	Yes	<i>There is a clear description of the inclusion and exclusion criteria, however, no clear statement regarding the reason why some participants declined to participate.</i>	Yes	<i>The perception questionnaire (Set B) was adapted from a validated instrument (Larson et al); The questionnaire was reviewed several times, incorporating inputs from pharmacists and neurologists; The questionnaires were pilot-tested but Cronbach Alpha not tested.</i>
Flannery	Yes	Yes	Yes	<i>A single site with doctors who are likely to prescribe antibiotics were recruited. Involvement of advanced practitioner nurses and physician assistants was also appropriate.</i>	Yes	<i>61% (93/153) completion rate showed the samples could represent the target population, which are doctors who prescribe antibiotics at the study site. The analysis would be difficult to be interpreted by other institutions.</i>	No	<i>The questionnaire was not reported to have piloted and Cronbach's Alpha was not tested, thus the reliability and validity are questionable; The use of Likert scale was appropriate.</i>
Moadebi	Yes	Yes	Yes	<i>The source of sampling is relevant to the targeted population and a clear discussion about the targeted population was stated that is in line with the research question.</i>	Yes	<i>There is a clear description of the sample that will be recruited as well as the setting and all approached and recruited participants took part in the study.</i>	Yes	<i>The survey framework was guided by an educational intervention assessment used for obstetric nurses reported in the literature. Also a clarity pilot test for the survey was conducted and some amendments were done accordingly.</i>

Quantitative studies (cont'd)

Main author	Is the risk of nonresponse bias low?	Comments	Statistical analysis appropriate to answer the research question?	Comments
Chen	No	<i>Bias is possible in that the neurologist were only referring a small number of cases they deem suitable for a pharmacist; in addition, social desirable bias is high as the questionnaire was completed straight after the counselling session and the authors were the pharmacists conducting the sessions. Nonresponse bias is also possible, when 22/55 (40%) of the target population did not participate. Authors did not identify the reasons for not participating.</i>	Yes	<i>The survey design (5-point Likert scale) allowed good statistical analysis (i.e. paired sample t test for Set A & C); Confidence scores before and after counselling and after telephone follow-up were compared using Wilcoxon Signed Ranks test which was appropriate.</i> Total score: 4
Flannery	Yes	<i>High response rate for this survey and clear statement regarding why some eligible participants did not take part.</i>	Yes	<i>Descriptive statistics and non-parametric tests such as Kruskal-Wallis and Mann-Whitney U tests to compare two independent variables were appropriate.</i> Total score: 4
Moadebi	N/A	<i>The response rate for the survey was 56% and the author had to remove 3 of the submitted surveys from the analysis as they were incomplete. There was a clear justification to the low number of participants within the limitation section of the paper.</i>	No	<i>Means, SDs and significance values of $p < 0.05$ were used; Non-parametric test would be more appropriate for Likert scales where you rank according to discrete values (ordinal data).</i> Total score: 3

Mixed methods studies

Main author	Clear research questions?	Data allow to address the research questions?	Adequate rationale for using a mixed methods design?	Comments	Different components of the study effectively integrated?	Comments	Outputs of the integration of both components adequately interpreted?	Comments
Gray	Yes	Yes	Yes	<i>The sequential mixed methods study design was adequate – the qualitative part of the study reflected the dearth of literature in this area and recorded idea from interviewees, this provided a framework and themes identified for the quantitative phase.</i>	Yes	<i>Results from all phases were integrated using Triangulation approach. At the end of phase two the data of both qualitative phases were compared and to incorporate into phase 3.</i>	Yes	<i>There was a clear interpretations derived from integrating qualitative and quantitative findings from all phases which was clearly described in the results.</i>
			Are divergences and inconsistencies between both results adequately addressed?	Comments	Do the different components adhere to the quality criteria of each tradition of the methods involved?	Comments		
			No	<i>It was unable to tell if there was inconsistencies between qualitative and quantitative data as these were not explicitly stated or compared and contrasted; However, the study stated that participants recruited across the phases were similar.</i>	Yes	<i>No issues with the quantitative phase; However, in the qualitative phases, three pediatric rheumatology centres within the country for whom authors had contact among the project team and/or advisory group members – 1) high risk of bias as centres were not selected randomly; 2) 3 centres (out of 15, as reported) might not represent across the country. In addition, the nonresponse bias is high. Authors did not report the number of potential respondents form the 26 respondents who participated. It is not known that how the facilitators from the 3 centres recruited these respondents.</i>		
Total score: 4								