

Completeness of reporting in Indian qualitative public health research: a systematic review of 20 years of literature

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ABSTRACT

Background This study reviewed the completeness of reporting in Indian qualitative public health research (QPHR) studies using the 'Consolidated Criteria for Reporting Qualitative Research' (COREQ) checklist.

Methods Search results from five electronic databases were screened by two independent reviewers. We included English-language, primary QPHR studies from India, which were assessed for their compliance with the COREQ checklist. Each COREQ item was noted as either reported or unreported. Descriptive statistics for the number of COREQ items reported by each study, and the number of studies that reported each COREQ item were reported, as were the items reported in each year, and in pre- and post-COREQ time periods.

Results Of 537 citations, 246 articles were included. Trends demonstrated an increasing number of Indian QPHR studies being published annually, and an overall increase in reporting completeness since 1997. Only two COREQ items were reported in all studies. 52.4% of articles reported between 16 and 21 items, corresponding to 43–57% of items being reported. Six items were reported in fewer than 10% of studies. COREQ domain 1 was least frequently reported.

Conclusions Despite improving trends, the reporting of QPHR in India is incomplete. Authors and journals should ensure adherence to reporting guidelines.

Keywords COREQ, India, qualitative research, reporting, systematic review

Introduction

Having grown out of the biomedical and health sciences, public health has traditionally centred on epidemiology and biostatistics. However, on recognizing the considerable human role in the design and delivery of health services, the health research community has come to acknowledge public health as a social science.¹ This approach questioned the culturally relative concept of health and well-being, and conceptualized the doctor's clinic as an anthropological phenomenon.² One of the most significant changes has been the adoption of qualitative methods by public health researchers. Today, nearly every concentration/subfield in public health merits the use of qualitative research to obtain 'culturally specific information about the values, opinions, behaviours, and social contexts of

particular populations'.³ In the culturally diverse setting of the Indian subcontinent, qualitative methods provide the South Asian public health researcher with the precision tools required to capture regionally unique phenomena to inform public health decision-making and design effective interventions.

Because qualitative research is interpretive, it is essential that the reader is able to understand the assumptions which led the authors to draw conclusions from their research

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findings.^{4–6} Studies which are inadequately reported can mislead other health-related decision-making scholars and derail future research.^{7,8} Methodological rigour cannot be assessed unless these details are appropriately reported by the authors: herein lies the importance of establishing standard reporting criteria for qualitative studies.

As qualitative methods in the social sciences gained momentum in the early 1980s, the need for establishing reporting standards became evident. In 2007, Consolidated Criteria for Reporting Qualitative Research (COREQ) was published, consisting of a 32-item checklist used to assess the quality of reporting in qualitative studies.⁷

Assessments of the reporting quality of published studies are globally scarce. A few studies discuss methodological issues in qualitative studies,^{9,10} and some provide recommendations for improved rigour and validity in qualitative research.^{4,11} However, none assessed published literature by using established criteria such as those of COREQ checklist. Hence, our objective is to assess the reporting quality of published qualitative public health research (QPHR) in India, by using standard reporting criteria for qualitative research studies.

Methods

This systematic review was conducted in July 2016. Articles eligible for inclusion were qualitative studies related to public health, published in English language and conducted in India among Indian populations. Mixed-methods studies were included if they had contained a primary qualitative component. We searched literature published from 1st January 1997 to 30th June 2016. We excluded all quantitative-only studies, reviews and meta-analysis, quantitative case reports/series, protocols and qualitative studies involving a Delphi process.¹²

The criteria for inclusion of studies in this systematic review were explicitly defined. To qualify for inclusion studies had to be either primary qualitative studies or mixed-methods studies which contained a primary qualitative component. We only included studies that were conducted in India, among Indian populations; on any public health-related topic; from 1st January 1997 to 30th June 2016; and published in English. We excluded all quantitative-only studies, reviews, case reports/series, study protocols and all qualitative studies involving a Delphi process.¹²

Search methods

Electronic search was performed on SCOPUS, Web of Science, Ovid MEDLINE, PubMed and Go PubMed to identify relevant articles. We aimed to include credible biomedical electronic databases, which include the ones we

have included. Regional databases in India come with the challenge of limited search facilities, limited to no export facility to reference management applications and limited storage capacity. Additionally, access to certain paid databases was limited at the organization where this study was conducted. Hence, with these challenges, some regional databases could not be included. However, we checked that majority of the journals including Indian literature are indexed in the five databases we included, thus minimizing the risk of missing relevant potential studies. A comprehensive, Boolean search strategy was developed using the variations of three terms ('qualitative research' AND 'public health' AND 'India'). When databases did not have the option of 'India' as a filter, we used India as one of the search terms. The database-specific search strings can be found in the Supplementary Data.

Selection of studies

The results of the searches were exported and compiled using EndNote X7 (Clarivate Analytics) which was also used to remove duplicates. Each study was given a unique identification number. Screening of the articles was performed independently by two authors (N.G. and M.M.) in the three stages of title, abstract and full text.

In the title screening stage, if both authors rejected a title, it was excluded from the review. Titles selected by either of the authors were included in the next stage of abstract screening. Abstracts approved by either author were included in the final stage of full-text screening. Authors were advised to be inclusive when they were unsure about the eligibility of the article at the title and abstract stage. During the full-text screening, only articles approved by both authors were included. Disagreements at this stage were arbitrated upon by a third author (MG or SM) and consensus was reached on eligibility of the article for inclusion in the review.

Data extraction

Two authors (N.G. and M.M.) independently extracted data on a piloted extraction sheet (Microsoft Excel 2017). Disagreements were resolved through discussion and consensus in the presence of a third author (M.G. or S.M.).

Assessment of reporting quality

Quality of reporting was assessed using Consolidated Criteria for Reporting Qualitative Research (COREQ),⁷ which is a 32-item checklist that has been increasingly used to assess the quality of reporting, and indirectly methodological quality,¹³ in systematic reviews and meta-ethnographic analyses of qualitative research.^{14,15} However, the COREQ checklist only focuses on two data collection methods (interviews and focus

groups).¹⁶ Therefore, to ensure completeness, we included additional criteria while retaining all of the original elements. More recent checklists (such as Standards for Reporting Qualitative Research (SRQR) in 2014) were considered too recent to have guided reporting and not used.¹⁶ We made the following modifications and additions to the COREQ

criteria: item 9 was divided into three subcategories; items 13, 17 and 29 were divided into two subcategories; item 33 was added (resulting in a total of 38 items). Each item was assessed as either 'Reported', 'Unreported' or 'Not Applicable' (NA). (A complete list of our modified COREQ criteria may be found in Table 1 and in the Supplementary Data.)

Table 1 Reporting of items 1–33 of the modified COREQ criteria

	Item	Reported		Not reported		NA		
		N	%	N	%	N	%	
Domain 1	1. Interviewer/facilitator	98	39.8	148	60.2			
	2. Researcher credentials	32	13	214	87			
	3. Researcher occupation	35	14.2	211	85.8			
	4. Researcher gender	53	21.5	193	78.5			
	5. Researcher experience & training	87	35.4	159	64.6			
	6. Relationship established	20	8.1	226	91.9			
	7. Participant knowledge of interviewer	49	19.9	197	80.1			
	8. Interviewer characteristics	28	11.4	218	88.6			
Domain 2	9a. Study design	246	100	0	0			
	9b. Methodological orientation	80	32.5	166	67.5			
	9c. Data collection method	246	100	0	0			
	10. Sampling method	161	65.4	83	33.7	2	0.8	
	11. Method of approach	177	72	67	27.2	2	0.8	
	12. Sample size	242	98.4	4	1.6			
	13a. Non-participation	242	98.4	4	1.6			
	13b. Reason for non-participation	7	2.8	239	97.2			
	14. Setting	244	99.2	2	0.8			
	15. Presence of non-participants	48	19.5	197	80.1	1	0.4	
	16. Description of Sample	236	95.9	9	3.7	1	0.4	
	17a. Interview guide	158	64.2	86	35	2	0.8	
	17b. Pilot testing	70	28.5	176	71.5			
	18. Repeat interviews	4	1.6	241	98	1	0.4	
	19. Audio/visual recording	180	73.2	64	26	2	0.8	
	20. Field notes	91	37	152	61.8	3	1.2	
	21. Duration	112	45.5	132	53.7	2	0.8	
	22. Data saturation	58	23.6	186	75.6	2	0.8	
	23. Transcripts returned	11	4.5	233	94.7	2	0.8	
	Domain 3	24. Number of data coders	81	32.9	165	67.1		
		25. Description of the coding tree	15	6.1	231	93.9		
		26. Derivation of themes	184	74.8	62	25.2		
		27. Software	121	49.2	125	50.8		
28. Participant checking		22	8.9	222	90.2	2	0.8	
29a. Quotations presented		196	79.7	50	20.3			
29b. Quotations identified		164	66.7	32	13	50	20.3	
30. Data and findings consistent		238	96.7	8	3.3			
31. Clarity of major themes		237	96.3	9	3.7			
32. Clarity of minor themes		205	83.3	41	16.7			
	33. Limitations	150	61	96	39			

Data synthesis and reporting

A PRISMA flowchart was used to depict the number of studies identified from each database, and the number included and excluded at each stage. The 'COREQ Score' for each study was calculated by summing the scores for individual checklist items. A score of 1 was assigned if the item was 'Reported', and 0 if the item was 'Not Reported' or 'Not Applicable'; therefore allowing each study to be scored between 0 and 38 (e.g. If a study scored '15', this indicated that it reported 15 items out of 38 in the modified COREQ checklist.) We calculated the mean scores for each of the three COREQ domains, which were then subgrouped by the year of introduction of COREQ: pre-COREQ (1997–2007) and post-COREQ (2008–16). We also calculated the percentage of the total possible score in each domain and compared these between the two periods (pre-COREQ and post-COREQ). Summary measures for scores included overall and domain mean scores, overall range and cumulative mean scores per year. The total number of articles published per year was reported. The findings of this systematic review were reported in accordance with the 'Preferred Reporting Items for Systematic reviews and Meta-analysis (PRISMA)' Guidelines.

Results

The search results were exported, compiled and screened as illustrated in the PRISMA chart (Fig. 1). A total of 537 articles were identified from the search, of which we included 246 articles in the final analysis. Summary tables of included

studies with assessment outcomes are provided in the Supplementary Data.

Table 1 illustrates the assessment outcomes for each COREQ item. We found that only two items, (item 9a, study design; and item 9c, data collection method), were reported by all studies ($n = 246$, 100%). Items which were reported in fewer than 10% of studies were mention of repeat interviews (item 18; $n = 4$, 1.6%), specifying reasons for non-participation (item 13b; $n = 7$, 2.8%), interview transcripts review by participants (item 23; $n = 11$, 4.5%), description of coding tree (item 25; $n = 15$, 6.1%), relationship establishment prior to study commencement (item 6; $n = 20$, 8.1%) and participant checking (item 28; $n = 22$, 8.9%). A total of 21 items were found to be reported in fewer than 50% of the studies assessed (i.e. items 1–8, 9b, 13b, 15, 17b, 18, 20–25, 27 and 28). (Note that the assessment for item 29b discounted the unreported studies from item 29a, which have been reported as 'Not Applicable' (NA)).

There was clearly a rising trend in the number of articles published on the subject of QPHR in India (Fig. 2). While publication frequency was inconsistent up until 2006, there was a steady increase in the annual number of Indian QPHR articles in 2007 (8 articles) rising to 51 articles in 2015. The annual maximum scores demonstrated an improving trend; however, the trend in annual minimum scores remained at around 10 items per article.

Among the 246 studies assessed, we found that the most frequently occurring COREQ score (mode) was 20, while the median and mean scores were both 18 (out of a possible 38). The highest and lowest scores were 30 and 4, respectively. 52.4% of articles were scored between 16 and 21 (inclusive), corresponding to 43–57% of items being reported.

Table 2 presents the mean domain scores and mean domain percentages for studies published in pre-COREQ ($n = 27$) and post-COREQ ($n = 219$) periods. All domains demonstrated a net percentage increase in reporting, but this improvement was less prominent for domain 1 than for domains 2 and 3.

We also noticed a decrease in the reporting of some items in the post-COREQ period, as compared to the pre-COREQ period, namely, the identification of quotations (item 29b, -9.9%), the pilot testing of interview guides (item 17b, -9.6%), establishing of relationships prior to interview (item 6, -7.5%), researcher experience and training (item 5, -6.0%), description of sample (item 16, -4.1%), repetition of interviews (item 18, -2.3%) and identification of the researcher who served as the interviewer/facilitator (item 1, -1.0%). The complete summary of reporting for all items is presented in the Supplementary Data.

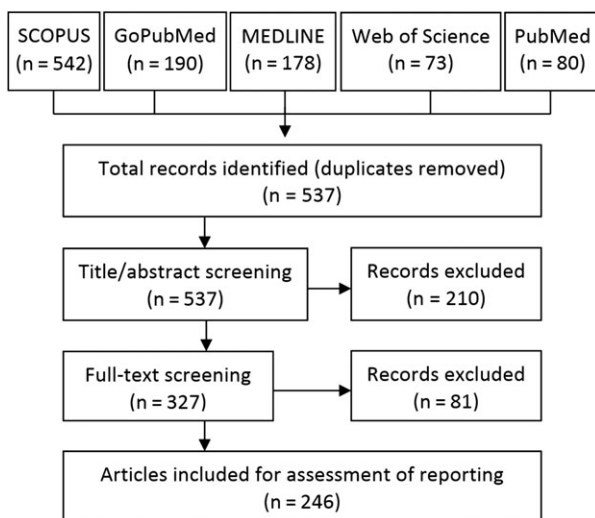


Fig. 1 PRISMA (study selection) chart.

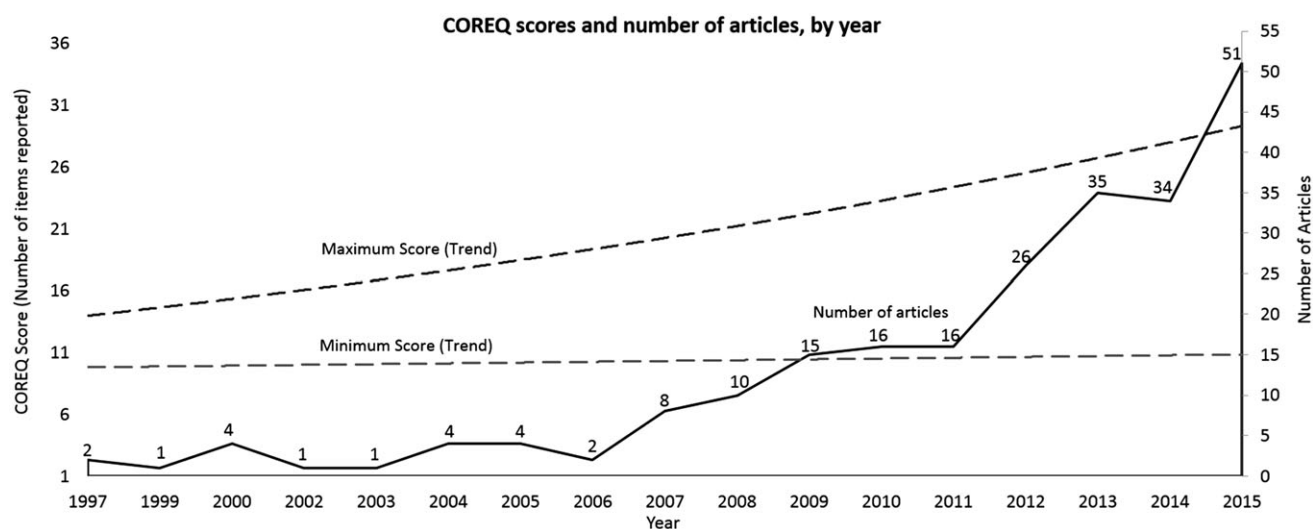


Fig. 2 COREQ scores and Number of Indian QPHR articles by Year (1997–2015)* (*The Consolidated Criteria for Reporting Qualitative Research (COREQ) score assigned to an article directly corresponds to the number of items reported in that article. Minimum and maximum score trends indicate linear time trends in the lowest scored article and the highest scored article in a given year. QPHR indicates qualitative public health research.).

Table 2 Mean number of studies reporting each domain, pre- and post-2007

Total no. of studies	Pre-COREQ		Post-COREQ		Change in %
	Mean no. of studies	% of total	Mean no. of studies	% of total	
27			219		
COREQ domain	Mean no. of studies	% of total	Mean no. of studies	% of total	Change in %
1. Research team and reflexivity (8 items)	5.1	19.0	45.1	20.6	1.7
2. Study design (19 items)	12.7	47.0	124.8	57.0	9.9
3. Analysis and findings (11 items)	13.2	48.9	133.5	61.0	12.1

Discussion

Main finding of this study

To the best of our knowledge, this is the first systematic review that attempts to provide an aggregate measure of the reporting quality of qualitative research in India.

Findings suggest that QPHR in India is far from adequately reported. Only two criteria were fully reported, while 21 items were found to be reported in fewer than 50% of the studies assessed. Most studies only reported around half of the recommended criteria. We found that particular attention needs to be paid to the reporting of items 1–8 (domain 1), 9b, 13b, 15, 17b, 18, 20–25, 27 and 28, which were reported by half (or less than half) of the studies. Nonetheless, compliance with reporting standards is improving (Fig. 2).

What is already known on this topic

The importance of reporting standards in qualitative research cannot be overstated. Of the eight methods recommended by Barusch *et al.* for the improvement of methodological rigour,

‘thick description’ encapsulates the importance of thorough documentation (and reporting) in qualitative research.¹⁷ It is intended to strengthen ‘transferability’—otherwise called ‘generalizability’.¹⁸ Thick description ‘involves rendering a deeply detailed account of one’s methods so that readers can judge the work’s potential for application to other times, places, people, and contexts’. Validity and rigour of qualitative research can also be ensured by ‘methodological awareness’,¹⁹ which involves incorporating and reporting appropriate strategies to ensure rigour. Unless reported, the reader has no way of knowing what measures have been taken to ensure methodological rigour and thus credibility. Adequate reporting would facilitate effective critical appraisal by research stakeholders (e.g. reviewers, practitioners and other researchers) and enable the synthesis and translation of findings for evidence-informed practice.¹⁶

What this study adds

Domain 1 (research team and reflexivity) had the poorest reporting and the lowest percentage improvement in reporting.

Researchers need to appreciate that their characteristics (number, background and position) affect the validity of qualitative research, unless acknowledged and attended to systematically. It is important to document the effect of the researcher on the research to avoid this being considered as a potential source of bias.²⁰

In domain 2 (study design), details about non-participation, repeat interviews and transcript review were poorly reported (less than 10% of studies). The use of interview transcript checking by respondents has been debated.^{21,22} We found that less than 10% of studies returned the transcripts to participants for verification and participant checking. Though this process has been suggested for improving accuracy and validity of interview transcripts, studies have reported contrary findings.^{21,22}

Regarding domain 3 (analysis and findings), the majority of the studies failed to report on number of data coders, describe the coding tree and participant checking of the findings. The process of qualitative data analysis is extremely important. It is essential that authors report an explicit audit trail for the readers to see the 'path taken from data to findings'.²⁰ Item 33, the discussion of study limitations (an item we added) was not reported in 39% of studies. It is imperative that authors thoroughly report their study's methodology, limitations and coding strategy to ensure methodological robustness.¹⁷ 'Clear detailing of methods of data collection and analysis' is one of the key components to improve validity and increase relevance. Reporting of methods, especially theoretical frameworks, sampling strategies and analysis' principles and procedures, helps readers assess if the best method has been chosen to explore the research question.²⁰

Authors have previously discussed the 'unacceptability' of poor reporting, and the need for peer reviewers and journals to enforce standards.²³ We encourage more assessments of reporting standards/methodological rigour for qualitative research in the South Asian region so as to collectively provide feedback to authors and thus ensure the quality of published research. Most importantly, all journals should (i) request authors to ensure that their manuscripts comply with reporting guidelines prior to submission and (ii) relax restrictions of word counts on qualitative research articles to enable authors to report in adequate detail.

Limitations of this study

We only screened studies published from 1997 to 2016, and limited our search to electronic published literature. We used the COREQ for qualitative studies which included data collection methods other than in-depth interviews and focus group discussions. The SRQR, though more comprehensive

than COREQ, has been introduced very recently. Since majority of the articles were published before its introduction, it was decided that the COREQ, introduced in 2007, would be appropriate to judge the reporting quality. However, since the COREQ states that it could be applied to different qualitative methods, it is believed that it does not affect the validity of review. Also, majority of the studies used in-depth interviews and focus group discussions as data collection methods. Second, articles whose full texts were not found had to be excluded as the respective authors were not contacted to retrieve the articles. Finally, we reported COREQ items in a binary fashion (i.e. reported; not reported) and did not consider the relative difference in importance of each item (in comparison to other items) in our analysis.

Conclusion

The publishing of reporting criteria such as COREQ represents the health research community's shift towards emphasizing better quality in qualitative research. While improvement was apparent over time, the reporting standards of QPHR in India still require considerable improvement. The interviewers, the contextual details and data analysis are all capable of affecting a study's conclusions, hence the importance of documenting and reporting these factors. Authors and journal editors of qualitative research should ensure high standards in reporting and methodological quality, by ensuring adherence to established guidelines.

Supplementary data

Supplementary data are available at the *Journal of Public Health* online.

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Conflict of Interest Disclosures

None to report.

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Ethical Approval

No ethic approval was required for this study as it did not involve any human subjects and only used secondary/published data.

Authors' Contributions

MG conceptualized and designed the study and its tools, wrote the protocol, assisted in data extraction, analysed the data, interpreted and reported the results, drafted the manuscript and approved the final draft. NG performed the screening, data extraction and analysis, reported the results, drafted the manuscript and approved the final draft. MM performed the screening, data extraction and analysis, reported the results, drafted the manuscript and approved the final draft. SM assisted in study design and protocol writing, performed the screening, data extraction and analysis, interpreted and reported the results, revised the manuscript critically and approved the final draft. AB interpreted the results, contributed to drafting the manuscript and revised the manuscript draft critically. SN interpreted the results, contributed to drafting the manuscript and revised the manuscript draft critically. All authors approve the final version of the manuscript and are accountable for the work.

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