

## Review

# Characteristics of qualitative studies in influential journals of general medicine: a critical review

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### Summary

Although qualitative studies have increased since the 1990s, some reports note that relatively few influential journals published them up until 2000. This study critically reviewed the characteristics of qualitative studies published in top tier medical journals since 2000. We assessed full texts of qualitative studies published between 2000 and 2004 in the *Annals of Internal Medicine*, *BMJ*, *JAMA*, *Lancet*, and *New England Journal of Medicine*. We found 80 qualitative studies, of which 73 (91%) were published in *BMJ*. Only 10 studies (13%) combined qualitative and quantitative methods. Sixty-two studies (78%) used only one method of data collection. Interviews dominated the choice of data collection. The median sample size was 36 (range: 9-383). Thirty-three studies (41%) did not specify the type of analysis used but rather described the analytic process in detail. The rest indicated the mode of data analysis, in which the most prevalent methods were the constant comparative method (23%) and the grounded theory approach (22%). Qualitative data analysis software was used by 33 studies (41%). Among influential journals of general medicine, only *BMJ* consistently published an average of 15 qualitative study reports between 2000 and 2004. These findings lend insight into what qualities and characteristics make a qualitative study worthy of consideration to be published in an influential journal, primarily *BMJ*.

**Keywords:** Qualitative study, general medicine, data collection/analysis methods

### 1. Introduction

Qualitative studies allow both healthcare professionals and researchers to gain insights into "human and social experience, communication, thoughts, expectations, meaning, attitudes, and processes, especially related to interaction, relations, development, interpretation, movement, and activity – all core components of clinical

knowledge" (1). Pope and Mays note that there was an enormous expansion of qualitative health research in the United Kingdom in the latter half of the 1990s (2). In both the United States (US) and Britain, high circulation journals including the *Journal of American Medical Association (JAMA)*, the *British Medical Journal (BMJ)*, and the *Lancet* published overviews and guidelines of qualitative methods during these and ensuing years (1,3-6). A greater recognition of qualitative studies by major medical journals appeared to be promising.

Despite this progress, the acceptance and recognition of qualitative studies remains questionable. McKibbin and Gadd found that only 11% of published medical papers used qualitative methods, and just 4 of the top 20 high impact healthcare journals published qualitative

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studies in 2000 (7). The situation since then remains unknown. Thus, we conducted a critical review of qualitative studies published in five influential journals of general medicine between 2000 and 2004. We aimed to delineate the characteristics of qualitative studies in these high circulation journals for the past five years in simple numerical terms. Our ultimate objective was to develop guidelines on publishing qualitative studies in top tier journals in general medicine, not just in those specialized medical journals that serve relatively limited audiences.

## 2. Methods

We searched for qualitative studies published between 1990 and 2004 in the following five high impact journals of general medicine (the Big Five): *Annals of Internal Medicine*, *BMJ*, *JAMA*, *Lancet*, and *New England Journal of Medicine*. We focused on these five high impact journals of general medicine because we believed that the extent to which these internationally influential journals publish qualitative studies strongly affects the scale in which such healthcare research can expand worldwide.

In this report, we focus specifically on the period after 2000 since our objective was to assess the recent trends of qualitative studies published by the above five journals. We limited our search to original papers/reports and excluded systematic reviews, letters, editorials, and guidelines. Three authors (HY, BTS, and TN) discussed and decided on appropriate search terms after consulting textbooks on qualitative studies (Table 1) (2,8-11).

Items to be assessed were determined after repeated discussions among all participating researchers. From each qualitative study, the journal title, authors affiliations, funding support, research site, study type (whether or not combined with quantitative study), research question, subjects, sample size, analysis process (methods and the use of any specialized software), data collection method, data presentation, ethical considerations, and competing interests were

extracted. The authors were divided into 3 pairs (HY & YH, BTS & HS, MT & TN); each closely assessing a third of the selected papers. Pairing allowed reciprocal crosschecking of results and mutual discussions to resolve any contradictions. Upon completion of the review, all six researchers gathered to discuss the appropriateness of results to further ensure rigorosity. HY finally compiled all the results for further analysis.

In this paper, the general trends of qualitative studies published in the Big Five are presented. Results on research participants, qualitative study type, research sites, data collection methods, sample size, and analysis process are also included. The review results of other items will be discussed elsewhere.

## 3. Results

### 3.1. The trend

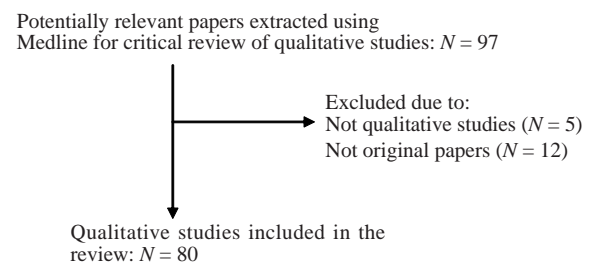
From Medline, 97 qualitative papers were extracted for the period between 2000 and 2004, in comparison to 54 for 1995-1999 and 6 for 1990-1994. As a result of our critical assessment, 17 of 97 reports did not qualify as original reports of qualitative methods, leaving 80 reports (Figure 1).

The *BMJ* published 73 of the 80 qualitative studies (91%) for 2000-2004; *JAMA*, the *Lancet*, and the *Annals of Internal Medicine* published 7 all together. The *New England Journal of Medicine*, the highest-ranked among these five journals by the SCI Impact Factor, did not publish any qualitative studies between 1990 and 2004 (Table 2).

For 2000 and 2001, over 20% of qualitative studies were published in journals other than *BMJ*. However, in

**Table 1. Terms used for Medline search [(MeSH terms OR Text words) AND Journal titles]**

Categories	Terms
MeSH terms	qualitative research OR focus groups
Text words	qualitative study OR conversational analysis OR grounded theory OR ethnography OR phenomenology OR ethnoscience OR ethnomethodology OR life histories OR life stories OR oral histories OR biography OR memory work OR action research OR participant observation OR in-depth interviews OR individual interviews OR qualitative case study
Journal titles	<i>BMJ</i> OR <i>JAMA</i> OR <i>Lancet</i> OR <i>Ann Intern Med</i> OR <i>N Engl J Med</i>



**Figure 1. Summary profile of search for qualitative studies.**

**Table 2. Trend in qualitative studies published in Big Five between 1990 and 2004**

Journal / Years	1990-1994	1995-1999	2000-2004
<i>N Engl J Med</i>	0	0	0
<i>JAMA</i>	2	5	3
<i>Lancet</i>	0	6	3
<i>Ann Intern Med</i>	1	3	1
<i>BMJ</i>	3	40	73
Total	6*	54*	80

\* Raw results from Medline prior to individual confirmation to exclude papers that were not actual qualitative studies.

**Table 3. Research subjects studied**

Category	Number of Studies (%)
patients	40 (50)
health professionals	38 (48)
lay persons	16 (20)
relatives/partners	8 (10)
medical students	5 (6)
medical educators	3 (4)

Note that the total for all studies does not add to 100% because studies often included multiple populations.

2002 and 2004 *BMJ* became the only journal to publish qualitative studies among the Big Five. In 2003 *JAMA* published only one qualitative study (6%) while *BMJ* published 15 (94%). *BMJ* published an average of 15 reports between 2000 and 2004.

### 3.2. Research subjects

Patients (50%), health professionals (48%), and lay persons (20%) were most commonly studied, followed by patient relatives or partners (10%), medical students (6%), and medical educators (4%) as shown in Table 3. Healthcare professionals included general practitioners, physicians, clinicians, consultants, nurses, physical therapists, practice managers, and hospital administrators. Lay persons included health-related trust managers and board members, prisoners and prison staff, high school students, clinical governance leaders, service users, medical librarians, internet users, pharmaceutical representatives, medical volunteers, and chaplains.

Thirty-two studies (40%) recruited more than one population. Common combinations were healthcare professionals and patients (9, 28%), different healthcare professionals (6, 19%), healthcare professionals and lay persons (5, 16%), and patients and relatives (5, 16%). Other combinations included educators and medical students (1, 3%) and between different patients or lay persons (1, 3%). Those studies that did not fit into the above categories were grouped together as "others" (4, 13%).

Qualitative studies that recruited a single population tended to focus on patient or healthcare professional perceptions, attitudes, or experiences regarding illness or healthcare. Those studies handling more than two populations often dealt with issues of communications between patients, healthcare professionals and patient relatives, clinical decision-making, medical education, or service appraisal. Of particular interest was the use of information communication technologies in healthcare settings. We found 5 such studies since 2002 and among them 3 were published in 2004.

### 3.3. Research sites

Research sites within Great Britain proved to be the most popular (75%). Combined with research sites in Canada

**Table 4. Data collection methods used**

Methods	Number of Studies (%)
single method	<b>63 (79)</b>
individual interview	41 (52)
group interview	17 (21)
unobtrusive method	4 (5)
participant observation	1 (1)
multiple methods	<b>16 (20)</b>
individual & group interviews	9 (11)
interviews & observations	5 (6)
interviews, observations & unobtrusive methods	2 (3)
unknown	<b>1 (1)</b>
	<b>78 (100)</b>

and Australia, those in the British Commonwealth on the whole comprised 87%. Aside from these nations, the US nested 7 studies (9%). Germany and the Netherlands were 2 other Western states where 1 qualitative study was conducted, respectively. The only site outside of North America and Europe was Chile.

### 3.4. Mixed qualitative and quantitative studies

Ten of 80 qualitative studies (13%) used both qualitative and quantitative methods. The *Lancet* published one of these and the rest were in the *BMJ*. Between 2000 and 2002, two such studies were published annually. In 2003, this number doubled. However, no studies using qualitative and quantitative methods were found in 2004.

### 3.5. Data collection methods

Nearly 80% of studies used a single method of data collection (Table 4). Individual interviews were the most commonly used (52%), followed by group interviews (21%). All individual interviews were described either as "semi-structured", "unstructured", or "in-depth". Focus groups dominated group interviews. Unobtrusive methods (e.g. audio/videotape-recording of clinical consultations) and participant observation did not prove to be popular (6% together).

More than one data collection method was used in 16 studies (20%). Nine studies combined individual and group interviews (11%), five combined interviews and observation methods (6%), and two combined interviews, observations, and unobtrusive methods (3%). Non-participatory observation was only used with individual or group interviews. In all, interviews and the use of only one method were consistent throughout the five-year period.

### 3.6. Sample size

The median sample size was 36 (range: 9-383) for 78 qualitative studies (2 studies were excluded since their samples were not people but consultation scenes

or encounters). Sample sizes differed according to the method of data collection, with a larger median sample size for group interviews (median: 42, range: 19-104) than that for individual interviews (median: 31, range: 9-383). The average sample sizes for unobtrusive methods, non-participatory observation, and participant observation were unreliable since only small numbers of studies applied these data collection methods. The sample size for the research that utilized mixed-method approach did not have a larger sample size. The result was rather contrary (median: 28.5, range: 19-179).

### 3.7. Analysis process

Thirty-three studies (41%) did not succinctly specify the type of analysis used but rather, described the analytic process in detail. Descriptions included terms as "iterative", "inductive", "themes", "coding/codes", "categories", and/or "frames/frameworks".

As for the remaining studies that clearly indicated the mode of data analysis, the constant comparative method (23%) and the grounded theory approach (21%) were the most prevalent methods (Table 5). Thematic analysis (5%), qualitative content analysis (5%), phenomenological analysis (3%), and ethnography or thick description (1%) rounded up other major tools used.

We found a range in how authors defined grounded theory approach, constant comparative method, and thematic analysis. By definition, grounded theory approach aims to establish integrated schema of social phenomena, particularly concerned with human interactions, by exhaustive inductive analyses that are strictly grounded on data (15). Both constant comparative method and thematic analysis are components of grounded theory (16).

Computer-assisted qualitative data analysis software (CAQDAS) was utilized by 33 studies (41%) published between 2000-2004. This tool faced an overall increase over time. Studies relied on CAQDAS 43%, 31%, 37%, 38% and 50% between 2000, 2001, 2002, 2003, and 2004, respectively. The most widely used specialized software package was QSR NVivo/

NUD\*IST (85%), followed by ATLAS.ti (12%) and Ethnograph (3%).

## 4. Discussion

Publication of qualitative studies by the Big Five has increased in total over five years since 2000. However, the increase has not been uniform. The *BMJ* alone has published over 90% of the qualitative studies. The other four journals (the *Annals of Internal Medicine*, *JAMA*, the *Lancet*, and the *New England Journal of Medicine*) have published few or no qualitative studies despite the contention in their guidelines that qualitative studies are as important as quantitative studies in healthcare research (1,3-6).

Hoddinott and Pill (13) reviewed qualitative interview studies published in the field of general practice between 1992 and 1996. They focused on the reporting of methods and discovered that studies often failed to explicitly state "the relationship between the interviewer and the respondents, the setting, who did the recruiting, and how the research was explained to the respondents" (13). Their study did not report the publishing trend of qualitative studies over time and failed to explain why only studies using individual interviews were examined (14).

We found that patients (50%) and health professionals (48%) were most commonly studied, which differs from findings by McKibbin and Gadd (7) and Borreani *et al.* (12); both of which concluded patients and family were the most commonly studied. In our review only 8 qualitative studies (10%) analyzed patient relatives or partners. This suggests that reports in general medicine journals focus more on doctor-patient communication and clinical (shared) decision making.

It was no surprise that research sites were predominantly in Britain and the US since the Big Five are British or American journals. A disposition of these journals to publish studies conducted in Western sites remained consistent throughout the five-year period. This implies that when we conduct qualitative study at a site outside Britain and the US, we need to be culturally sensitive and present our results and discussions in a way that major readers of these journals could readily associate with and apply them in their everyday clinical practice.

Method triangulation, used by qualitative researchers to better ensure research trustworthiness by combining several data collection methods, was not as popular as investigator triangulation, which requires multiple investigators rather than methods. Only 16 studies (20%) combined more than one qualitative data collection method. We surmise that this was a result of common collaboration among healthcare researchers regardless if the study is qualitative or quantitative. This differs from qualitative research in the social sciences,

**Table 5. Data analysis methods used**

Methods	Number of Studies (%)
constant comparative method	18 (23)
grounded theory approach	17 (21)
thematic analysis	4 (5)
qualitative content analysis	4 (5)
phenomenological analysis	2 (3)
ethnography	1 (1)
others	2 (3)
not specified but described	33 (41)
not described	5 (6)

Note that the total for the number of studies does not add to 100% because studies often included multiple methods.

in which researchers often conduct studies as a single investigator.

The median sample size for the qualitative studies reviewed was 36. It is often argued that sample size cannot be accurately predetermined in qualitative studies (2,10,15), unlike in clinical trials. Researchers are expected to collect new data until their analyses become theoretically saturated, *i.e.*, no new insights are gained from collecting additional data (15,16). However, this becomes problematic as grant proposals often require an estimated sample size. The median sample size for our reviewed studies may serve as an indicator when writing a research proposal for a qualitative study.

The three most popular analysis methods (constant comparative method, grounded theory approach, and thematic analysis) can be grouped together under grounded theory approach. That is, the constant comparative method or thematic analysis are analytic approaches to grounded theory (9,10,15-18).

According to Glaser and Strauss, the constant comparative method involves four stages: "(i) comparing incidents applicable to each category, (ii) integrating categories and their properties, (iii) delimiting the theory, and (iv) writing the theory" (15). Both categories and properties are abstracted units developed by the researcher and represent elements of a social phenomenon under study.

Rice and Ezzy argue that thematic analysis is a grounded theory approach without theoretical sampling (9), *i.e.*, "the process of data collection for generating theory whereby the analyst jointly collects, codes, and analyzes his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges" (15). However, this argument is contentious since other methodologists argue otherwise (16,19). In fact qualitative studies reviewed in this study that used thematic analysis had not decoupled theoretical sampling from their analytic process.

Among qualitative methodologies, phenomenology and ethnography proved to be uncommon choices. Phenomenology requires researchers to bracket their personal experiences and metaphysical presuppositions about the world which is often criticized to be difficult, if not impossible (8,10). Ethnography obliges researchers to stay in the field for a long period of time particularly for observing targeted cultural behavior. This is likely to be difficult for those who are limited in terms of time and budget (9). In addition to these limitations, both methodologies ask researchers to have a rather sound understanding of philosophical and disciplinary backgrounds of respective approaches: phenomenology and cultural anthropology (8).

We believe these are some major reasons why authors of qualitative studies refrain from phenomenology and ethnography. This is unfortunate,

but it is likely that other journals such as *Social Science & Medicine*, which are less mainstream to clinical medicine publish such studies. Phenomenology is helpful to study the many phenomena of healthcare (*e.g.* often used in psychiatry); likewise, ethnography can be used to delineate the cultural behaviors of a group or an individual in clinical and public-health settings (8).

Our findings showed that 41% of studies did not specify the analysis type but described it in detail. During our review, we occasionally found studies that claimed to use a particular analytic method (*e.g.* grounded theory), but did not clearly explain the methods used in the course of analysis. This is problematic as the grounded theory approach or a constant comparative method can be used very differently. As Silverman (20) argues, explaining the actual analysis process in details allows readers to know and evaluate decisions made by researchers regarding qualitative analyses.

Lastly, our findings indicated that more researchers are using specialized software for qualitative analysis. Although we cannot determine if this trend continued after 2004, we extrapolated such a trend given the steady rise in use of CAQDAS between 2000 and 2004. CAQDAS helps researchers to improve the rigor of their studies by allowing them to prove, if requested by journal referees or readers, that every bit of data has been covered and thoroughly analyzed (21). Since CAQDAS can now process non-European languages, more qualitative researchers throughout the world are likely to use this software in the future.

## 5. Conclusions

The hope of McKibbin and Gadd that "more [qualitative] studies will be published and more will be published in the high impact (circulation) journals" (7) has yet to be realized. It is also our hope that those journals less active in publishing qualitative studies follow the policy of *BMJ* and publish more of them. We need to realize that there is "the potential for qualitative research to sensitise policymakers and practitioners to the perceptions of health service users and professionals and to strengthen aetiological and health service research" (22). Researchers need to recognize that qualitative studies provide unique data to healthcare problems that cannot be produced by quantitative studies. Only by doing so will we be able to better integrate data from both quantitative and qualitative approaches.

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## Appendix

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