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An application of the mini review to a complex methodological question: how best to research public health nursing and service quality?

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Abstract

This paper describes a mini review which enabled the identification of a suitable methodology to undertake a study about quality in the public health nursing in the Republic of Ireland. Reviews of literature increasingly adopt the methods of systematic review. In general, these methods have been developed to answer clearly focussed clinical questions. In this paper, we adopt the key elements of systematic review, comprehensive identification of relevant material and selection based on objectively defined validity, to a different type of question, that of an appropriate methodology to examine quality in the public health nursing service. In doing so, we demonstrate that questions of clinical effectiveness are but one application for systematic review.

Keywords: Mini review; Methodology; Public health nursing; Service quality; Ireland

1. Background

Developments in evidence-based practice have been supported by the adoption of a systematic approach to the identification and appraisal of literature when seeking answers to questions of clinical significance (Hanafin and Griffiths, 2002; Liao, 2002; Hsieh and Wang, 2003). More recently, others have reported that a systematic review approach can also be used to answer questions of educational quality (Greenhalgh et al., 2003) and issues of complex service delivery (Griffiths and Forbes, 2003). In this paper, the focus is on a methodological question, that of how best to research quality and the public health nursing service. We demonstrate how, in following the principles of systematic mini review, set out by Griffiths (2002), we applied this approach to questions that are not of a clinical nature. In describing how relevant material was comprehensively identified, selected and appraised we outline a new application for this method.

The mini review (Griffiths, 2002) has many of the characteristics of the systematic review in that it is conducted according to an explicit, systematic and reproducible method. However, whereas a full systematic review should attempt to identify all valid literature related to the question at hand the mini review is conducted with known (and explicit) limitations of scope for pragmatic (e.g., limitation of time, access to material) rather than theoretically derived reasons. The limitations in scope are generally factors that may limit the volume of material to be considered but which are not predicated on the answers to the question. Rather than attempting to access the whole population of research, the mini review seeks an unbiased sample. The extent to which this differs from 'systematic reviews' which are based on limited searching in terms of databases or years is a moot point. In this case the contrast between the systematic review and the mini review may only be a matter of hubris.

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2. Methodological complexity

It has been argued that the choice for researchers between different methods should depend on what you are trying to find out (Silverman, 2000). In this study, however, where the aim was to develop a model that would enable quality in the public health nursing service to families with infants to be understood in a holistic way, the choice of methods was neither simple nor straightforward. Indeed, a literature review served only to highlight the complexity of researching this area.

The aim of the study in question emerged from an initial literature review reported elsewhere (Hanafin, 2003) and four main difficulties in researching service quality and public health nursing were identified. First, it was clear that different stakeholder groups had different understandings of service quality and consequently, a comprehensive understanding of service quality would need to incorporate multiple viewpoints. Methodological questions about how data from the three key stakeholder groups within the Irish public health nursing service, public health nurses (PHNs), PHN managers, and clients, could be collected, analysed and merged in a way that would ensure validity and compatibility then arose. Second, epistemological issues relating to service quality, particularly in respect of "how" service quality could be known, as well as "what" could be known of it, emerged. Of methodological concern here was the dominance of outcome measurement as a mechanism for understanding service quality. A focus on outcomes only clearly created some difficulties for the public health nursing service with families with infants, because of difficulties in measuring "prevention" while accounting for complex and hidden processes of care.

Thus, an exposition of the process of the public health nursing service to families with infants would also need to form a key focus for the study. Such an exposition would require a methodology that would facilitate overt examination of the key elements and components of care. A third aspect of significance related to the organisational context within which the service was provided. It was clear from the literature that the context within which the service was delivered had a significant impact on service and this emerged throughout the literature as crucial to various stakeholders' constructions of quality. Therefore, if the aim of providing a holistic understanding of service quality was to be met by the study, a mechanism for taking account of the organisational context would also be needed. The final issue that made this a methodologically complex study is of particular relevance to the Irish context. Little research had been undertaken on the Irish public health nursing service and consequently, even a basic description of the service was not available to guide the current study. The initial literature review, therefore, while identifying each of the above issues as problematic had not demonstrated a clear methodology through which such aim of the study could be met. Thus a further review needed to be undertaken to inform this decision.

3. Mini review

The systematic review in health care seems to have become that standard by which all literature reviews are judged. In the past, scholarly reviews were published that required little of the author in terms of describing the 'system' of their review other than that the scope of the topics to be covered be identified. These narrative reviews relied heavily on the pre-existing expertise of the author and the extent to which they represented the entire body of work or a highly selected sub set was not generally made clear. Where reviews were selective the criteria used were not explicit. Such reviews have been widely condemned as inadequate for answering questions of treatment effectiveness and it has been demonstrated that they often fail to adequately represent the body of evidence (Antman et al., 1992).

It is clear that the techniques of systematic review in health care do not directly lend themselves to all purposes. The methods of systematic review were developed to answer clearly focussed clinical questions. Indeed they require such focus by definition (Clarke and Oxman, 2003). The techniques have been best developed for providing answers to questions of effectiveness where randomised controlled trials of good quality are available and emphasise comprehensive identification of relevant material and selection based on objectively defined validity (NHS Centre for Reviews and Dissemination, 2001).

However, reviews may be undertaken for purposes where the topics do not lend themselves to questions for which information needs cannot be precisely defined in advance. Adaptations to the techniques for identification of relevant material have been suggested for use in these circumstances because the results of searches can be vast. These involve sampling the literature using processes akin to those deployed in qualitative research (Forbes and Griffiths, 2002) or using relatively arbitrary but explicit limits on the scope of literature searching which are unrelated to the *answers* to review questions contained in the literature (Griffiths, 2002), thus ensuring that the results are not predetermined by a search for evidence to demonstrate a particular point. The aim in both cases is to obtain a representative sample of the literature that is unbiased by the implicit preconceptions of the authors.

The former approach requires considerable resources and has only been applied to extensive reviews of highly complex and multifaceted topics (see, for example,

Forbes et al., 2002). The latter approach was developed to make the endeavour manageable for individual practitioners (Griffiths, 2002). It is this approach that is adopted here.

The identification of a suitable methodology at the beginning of a research endeavour is a vital activity but unless the project is concerned entirely with the development of methods this cannot be its entire focus. However, like a full systematic review of a complex topic, a comprehensive review of methodology is a major research undertaking in itself (see, for example, the extensive monographs such as Murphy et al. (1998), published as part of the UKs health technology assessment programme). The mini review format was chosen for this review in preference to a selective review of material chosen on the basis of unspecified a priori evaluations. While judgements of the relative merits of approaches are clearly value driven, an approach that ensures that such value judgements are applied to material, that is, representative of the field can also ensure that the decision making process is explicit.

Attempts to extend the 'system' of the systematic review to very different sorts of questions using adapted techniques are in their relative infancy and thus examples of such endeavours are of both intrinsic and methodological interest. The focus of this review is on the identification of a methodology that would facilitate an examination of quality in the public health service in a way that takes account of the four main issues emerging. These issues are: multiple stakeholder views, processes of care, organisational context and a description of the service. Consequently, the review presented below concerns itself with issues of method and methodology rather than study findings.

4. The question

In this study, the question being asked is

> how can quality in the public health nursing service to families with infants be understood in a way that takes account of the complexity of the organisation within which the service operates and that takes account of the views of multiple stakeholders?

Four components, population, intervention, comparison and outcome are generally used to define the question for clinical reviews (Sackett et al., 2000). This study does not lend itself to the identification of a comparison group because the question is an epistemological one of how service quality can be understood rather than one of whether service quality is different or better in one service than another. The focus of the question is on the overall service quality rather than on any one aspect and, for that reason, the section titled "outcome" was divided into two separate parts (service and quality) which were then combined using the Boolean operator "and". The population is identified as *families with infants less than one year*, the intervention as *the public health nursing service*, and the outcome, *service quality*.

5. Identification of the search terms

The search undertaken aimed to achieve sensitivity of the literature because all research literature relating to public health nursing and service quality had the potential to be relevant. The facet analysis was developed by using commonly used terms in the literature for each of the three areas, public health nursing, service quality and families with infants, as well as relevant words from Roget's Thesaurus of English and the Oxford English dictionary (Thompson, 1995). An initial facet analysis, search strategy and sensitive search of Cinahl (1980-present), EMBASE (1980-present) and MEDLINE (1966-present) identified some 477 articles. This led to a number of changes and a refined facet analysis that excluded terms from each section, population (e.g., "neonate"), intervention ("home nursing", "home care nursing"), and outcome ("total quality management", "continuous quality improvement") and included new terms (e.g. well baby, health promotion) identified 378 articles. The final facet analysis is presented below in Table 1 (facet analysis).

6. Developing the strategy

The Cochrane library, Medline (1966-present), Cumulative Index to Nursing and Allied Health literature (Cinahl) (1984-present) and EMBASE 1980-present) databases were each searched individually. MESH headings, were available, were used. An adjacency operator (Age$ adj3 one) was used to ensure that "age" was separated from one year by no more than three words so focussing the scope of the search (Greenhalgh, 2001). Free text searching using truncation (e.g., Mother$), and optional wild cards (e.g., Community? Nurs$) were used in the CINAHL, MEDLINE and EMBASE databases. Hand searching of the following journals, Public Health Nursing (1996–2000), Health Visitor (1996–1997, when its name changed to) Community Practitioner (1998–2000), World of Irish Nursing (1980–2000) and Nursing Review (Irish) (1992–2000) took place. A search of the "grey" literature was also undertaken using both Irish and UK libraries and also by contacting the Department of Health, various health boards and professional organisations in Ireland. A systematic review of domiciliary visiting by Elkan et al. (2000) was identified through the NCCHTA web-site

Table 1
Facet analysis

Population	Intervention	Outcome	
Families with infants	Public health nursing	Service	Quality
Infants	Child health nursing	Programme	Effectiveness
Baby	Community nursing	Service	Efficiency
Fathers	Health visiting	Structure	Quality assurance
Mothers	Well baby	Delivery	Quality
Family	Health promotion	Provision	Satisfaction
Less than one year	Public health nurse	Utilisation	Outcomes
Parent	Child health nurse	Operation	Quality measurement
Aged one year	Community nurse		Service quality
			Value for money
			Evaluation

following a search through google.com using "service quality", "health visiting and service quality", "public health nursing". This study was subsequently excluded from the review because the main foci are on domiciliary visiting and RCTs.

7. Inclusion and exclusion criteria

- All research-based studies, irrespective of methodology, were considered eligible for inclusion in the review.
- All studies where the main focus was on the overall public health nursing service to families with infants were considered eligible.
- All studies where the main focus was on service quality were considered eligible.

The final searches undertaken on 26th May 2002 were limited to research articles and also limited to articles written in the English language. The exclusion of articles written in a language other than English is acknowledged here as a limitation of this search but time and resource limitations meant that translation facilities were unavailable. The above strategy yielded 378 articles of which 21 were not in the English language and a further eight were not research based. Greenhalgh (2001, p. 201) notes that manual indexers are fallible and misclassifications are common. For that reason all 349 remaining abstracts were read. Table 2 identifies the exclusion criteria that were then applied to abstracts (Table 2, Exclusion criteria).

The remaining 30 articles were read and two criteria laid down for the final selection of studies. First, that the study should either incorporate the perceptions of more than one stakeholder and/or take account of the "natural" setting of public health nursing work with families with infants. Studies that incorporated either one or both of these criteria were identified ($n = 5$). One study that did not meet this criterion (ICHN, 1995) was also included because it is the only Irish-based study to examine any aspect of service quality in the public health nursing service. Supplementary data in respect of one study (Twinn and Shiu, 1996) is provided by a second report of that study (Twinn, 1997), already known to the authors. Key details relating to these studies are summarised in Table 3 (Table 3, Key features of studies reviewed).

8. Synthesis of literature

Methods used ranged from questionnaire survey (Jansson et al., 1998) to more qualitative approaches including non-participant observation (Clark et al., 1986), structured (ICHN, 1995) and unstructured interviews (Worth and Hogg, 2000) as well as case studies (Twinn and Shiu, 1996; Macleod Clark et al., 1997). Critiquing and synthesising studies with such diverse philosophical and methodological bases is problematic because of the need to take account of the varying ways in which the quality of any individual piece of research can be judged. In addition, there is some disagreement among qualitative researchers about what, if any, criteria can be applied in the evaluation of qualitative studies (Cutcliffe and McKenna, 1999). Nevertheless, a systematic approach is necessary in order to synthesise the literature so that comparisons around validity and reliability in quantitative studies (Bryman and Burgess, 1994) and credibility, transferability, dependability and confirmability of qualitative studies can be made (Lincoln and Guba, 1985).

Different authors have developed criteria for the evaluation of qualitative research. Some focus on qualitative research in general (Mays and Pope, 2000; Greenhalgh, 2001) and others on the approach (e.g., case study (Kean and Packwood, 1995)) or particular method used (e.g., open-ended interview (Silverman, 1998)). A set of guiding questions, proposed

Table 2
Exclusion criteria

Number	Exclusion criteria	Number excluded
1	Predominantly focussed on hospital/in-patient care	21
2	Focussed on specific component of care (e.g., immunisation uptake/single intervention)	32
3	Focus on intervention service for children with special/complex needs (e.g., asthma, child protection)	180
4	Focus on family characteristics (e.g., teenagers/older mothers, single parents)	40
5	Focussed on pregnancy/immediate post-natal period	20
6	Focussed on specific aspect of service delivery (e.g., growth charts, scales)	9
7	Focussed on epidemiology of disease	2
9	Nursing not the main focus	10
10	Families with infants not the main focus	5
	Total excluded	319

Table 3
Key features of studies reviewed

No.	Authors	Methodology	Data sources	Data types	Service quality understood in terms of
1	Clark et al. (1986)	Observational study	Nurses and clients	Non-participant observation of activities	Productive use of PHN time in context
2	Twinn and Shiu (1996)	Case study	Nurses, clients, client records	Nursing records, interviews	Ability of PHN to meet maternal and child health needs
3	Jansson et al. (1998)	Survey	Nurses/clients	Questionnaires	Client and PHN views of service quality
4	Worth and Hogg (2000)	Qualitative using interviews	Health visitors clients	Focus group interviews	Client and health visitor views of value of service in context of social change
5	Macleod Clark et al. (1997)	Case study	Purchasers, providers and clients	Non-participant observation, interviews	Nursing practice in context
6	Institute of Community Health Nursing, (ICHN) (1995)	Structured interviews	Clients	Structured interviews	Client satisfaction

by Greenhalgh (2001) allow for comparison between and within studies by enabling the reviewer to take account of the important aspects of quantitative as well as qualitative research. These questions are used to guide the synthesis of literature.

9. Study questions

Some researchers set out to "examine", "assess" or "explore" the views/perceptions of stakeholders (ICHN, 1995; Twinn and Shiu, 1996; Jansson et al., 1998; Worth and Hogg, 2000). Others aimed to examine service quality in the context of the "organisational and structural factors which facilitate or inhibit quality in practice" (Macleod Clark et al., 1997, p. 22) and the "constraints of the setting" (Clark et al., 1986, p. 89). Both Macleod Clark et al. (1997) and Twinn and Shiu (1996) were also concerned with an epistemological issue of "indicators" and "instruments" for the assessment of service quality. In the case of Macleod Clark et al. (1997) the focus was on testing and refining indicators of quality identified in a previous study while Twinn and Shiu (1996) were at an earlier stage of seeking to generate indicators. One further aim emerging in the studies related to outcomes of public health nursing/health visiting interventions. Macleod Clark et al. (1997) sought to do this by establishing relationships between quality in the process of primary health care and subsequent health gains and benefits, while Twinn and

Shiu (1996) sought to determine the extent to which the services meet the health needs of women and young children.

10. Selection of setting and subjects

Resources and time available to the researcher often determine the selection of both setting and subjects. The geographic scope of studies ranged from a city in Scotland (Worth and Hogg, 2000) and the United States (Clark et al., 1986) to four NHS trusts (Macleod Clark et al., 1997), to the entire country of Sweden (Jansson et al., 1998), Hong Kong (Twinn and Shiu, 1996), and the Republic of Ireland (ICHN, 1995). Settings about which data were collected included clinics (Clark et al., 1986; Twinn and Shiu, 1996; Macleod Clark et al., 1997; Jansson et al., 1998) and home (ICHN, 1995; Twinn and Shiu, 1996; Jansson et al., 1998; Macleod Clark et al., 1997; Worth and Hogg, 2000) although only Macleod Clark et al. (1997) and Worth and Hogg (2000) used the home as a setting for data collection.

Random selection of mothers ($n = 676$; response rate 80%) in Jansson's et al. (1998) study is a considerable strength of the study (Barriball and While, 1999). The sampling frame (''healthcare clinics'') used for the selection of nurses was less satisfactory but this commonly takes place in the absence of an accurate and accessible register. The sampling strategy used by the ICHN (1995) was very problematic and may undermine the credibility of the study. Some (but not all) PHNs who were members of the ICHN agreed to take part in the study and these PHNs ''interviewed'' mothers ($n = 387$) with whom they were in contact about their satisfaction and general assessment of the public health nursing service. Two problems arise here. Firstly, the lack of equal opportunity for each participant to be included (Polit and Hungler, 1989) and secondly, there is a strong likelihood that clients were restricted in their responses and that they may have engaged in ''reciprocity'' during the structured interviews (Hitchcock and Hughes, 1995). Such convenience sampling has been identified by Robson (1993, p. 141) as *a cheap and dirty way of doing a sample survey (which)… does not produce representative findings*.

Twinn and Shiu (1996) selected case study sites (maternal and child health centre; $n = 4$) on the basis of their location within each of the four health regions of Hong Kong to allow for ''a range of socio-economic groups and social structures'' (p. 445). Within the cases, three different sampling techniques were used and these were systematic sampling (of nursing records and non-attenders at the clinics), purposive sampling (clients ($n = 32$) and nurses ($n = 16$) at each centre for interview) and census (of all nurses working at each of the four sites ($n = 42$)). Although the sampling techniques outlined above are acceptable, there is a lack of clarity in respect of what constitutes ''the case''. In one report, a stated objective of the study was ''to establish the extent to which the *services* meet the health needs of women and young children'' (our italics) (Twinn and Shiu, 1996). In a second report of the study (Twinn, 1997), the first objective is identified as ''to establish the extent to which the *centres* meet the health needs of women and young children'' (our italics). This lack of clarity is a limitation that may have negatively influenced collection, analysis and interpretation of data. It compares unfavourably with Macleod Clark et al. (1997) case study where the ''case'' is clearly defined as ''nursing practice''.

Clark et al. (1986) collected data from nurse–client interactions ($n = 165$) at five different clinic sites where well-child clinics were held. The authors, while noting that ''the conditions in these clinics were somewhat different from those in similar clinics across the country'' (p. 89), do not provide any information about how or why these sites were chosen or, indeed, the ways in which these clinic sites differed from others. Limited information is provided about nurses ($n = 11$ ''experienced'' and 3 ''inexperienced'' nurses) and clients ($n = 165$; age 0–49 months; 50% medicaid recipients 50%) in terms of their characteristics and none at all about their selection. These are considered here as limitations of the study. The final study, that of Worth and Hogg (2000), also presents with limitations. Participants in small focus group client interviews (3–5 participants, $n = 25$ parents with a child aged three years or less) ''were recruited via three playgroups which were selected to provide a range of socio-economic circumstances'' (p. 122). The author notes that participants knew each other and Reed and Roskell (1997) say it is important to take this into account when facilitating the group and analysing the data. This does not appear to have been done. No information is provided about the selection of HVs ($n = 6$; 24 participants) or the 18 mothers of first-born children selected for individual in-depth interview.

In summary, statistical sampling took place in one study only (Jansson et al., 1998) although the potential for sampling in this way was also present in the studies undertaken by Clark et al. (1986), the ICHN (1995) and by Twinn and Shiu (1996) for their questionnaire survey. The sampling techniques used by both Clark et al. (1986) and the ICHN (1995) are flawed and it is likely that these problems undermine the extent to which the results from these studies can be interpreted and generalised.

11. Researcher's perspective

Although it is unusual for a researcher's perspective to be taken into account when carrying out or reporting a

study underpinned by positivistic approach, this is a common feature of studies underpinned by more naturalistic enquiry (Lincoln and Guba, 1985). Only one study (Worth and Hogg, 2000) made explicit the researchers' background and no other information was presented. In Worth and Hogg's study one researcher "was an experienced health visitor" and, as this person carried out all the interviews, it is likely that this had some impact on data collection.

Other issues emerging in relation to researchers' perspectives are particularly pertinent where there are multiple researchers and where the capacity to be reflexive and flexible are of key importance (Olesen et al., 1994; Bryman and Burgess, 1994). The influence of researchers' epistemological, ontological and methodological assumptions are of key importance when drawing on different data sources and there is a need to make these explicit at the time as well as in the reporting (Leininger, 1994).

Four studies included in this review (Twinn and Shiu, 1996; Macleod Clark et al., 1997; Jansson et al., 1998; Worth and Hogg, 2000) drew data from more than one source and/or used more than one type of data. Two studies used triangulation as a mechanism for drawing data together (Twinn and Shiu, 1996; Macleod Clark et al., 1997) while the remaining two presented data separately for some questions (Jansson et al., 1998; Worth and Hogg, 2000) and compared findings for others (Jansson et al., 1998). Each type of data is underpinned by different philosophical understandings and a lack of discussion around these in any of the studies undertaken may have limited interpretation.

12. Collection of data and description of same

Each study focussed on different aspects of the public health nursing (health visiting) service and data were collected using a range of different techniques. These included

- observation techniques (Clark et al., 1986; Macleod Clark et al., 1997);
- pre-tested (Jansson et al., 1998) and non-pre-tested (Twinn and Shiu, 1996) questionnaires;
- structured (ICHN, 1995), semi-structured (Twinn and Shiu, 1996; Worth and Hogg, 2000), focus group (ICHN, 1995; Worth and Hogg, 2000), and other interviews (Macleod Clark et al., 1997); and
- nursing records (Twinn and Shiu, 1996).

Each of these types of data collection have developed protocols for use, and failure to adhere to these protocols can limit the credibility of the study. Where instruments are used, issues of reliability and validity are of considerable importance. The five observers in Clark's et al. (1986) study used a pre-formatted, newly developed and piloted "tool" (based on *the Discrepancy Evaluation Model*), developed in partnership with the nursing staff. Although considerable detail is provided regarding the development of the tool itself, little attention is paid to the recording process in the collection of data. In particular, a question of intra- and inter-observer reliability is not raised by the authors, despite the considerable room for error where there are five observers. These problems may also have arisen in Macleod Clark's et al. (1997) study where observation of nursing practice formed one part of the data collection.

Twinn (1997) discusses in detail the methodological issues around translation and the use of translation and back translation from the Cantonese to the English language, which lends credibility to the study. The "reliability" of the questionnaire used was not tested but the authors assert that the "the use of triangulation provided an opportunity to check the consistency of data". Despite this assertion, it would be more rigorous for a pre-test or pilot study to have been carried out and its absence compares unfavourably with questionnaire development undertaken by Jansson et al. (1998). Those researchers used pre-tested questions which where available and in addition, pre-tested and piloted the questionnaires prior to distribution. They report on internal reliability in the results of their study. The ICHN, in using a structured interview approach to data collection, also undertook some pre-testing. They note that "questions were formulated and tested on other mothers, being altered or added to as was appropriate" (ICHN, 1995, p. 13). A pilot study was undertaken "to assess feasibility and appropriateness" of other tools used in Twinn and Shiu's study (Twinn, 1997). As the researchers were not subsequently able to identify epidemiological needs of families from nursing records, it is likely that the pre-testing of the tool for this purpose was limited. Worth and Hogg (2000) provide little information about how data were collected so an informed judgement about this aspect of the study is not possible.

Data were collected about a range of variables relating to the service. Findings from different studies can be grouped according to the following categories:

- *Client*: Experiences of child rearing (Worth and Hogg, 2000): Maternal and Infant health needs (Clark et al., 1986; Twinn and Shiu, 1996; Jansson et al., 1998).
- *The PHN/Health Visitor*: Educational level (Twinn and Shiu, 1996; Macleod Clark et al., 1997; Jansson et al., 1998), experience (Clark et al., 1986) nurses' attitudes/personalities (Twinn and Shiu, 1996; Worth and Hogg, 2000).
- *Interaction between client and PHN*: Components (e.g., developmental, assessment, broad view (Clark et al., 1986; ICHN, 1995; Macleod Clark et al., 1997),

approach (e.g., being kind, non-judgemental, individualised, partnership approach) (Macleod Clark et al., 1997; Jansson et al., 1998; Worth and Hogg, 2000).

- *Interaction between PHN/Others*: (Macleod Clark et al., 1997).
- *Organisation of care*: Busyness of the clinic/having enough time (Clark et al., 1986; Twinn and Shiu, 1996; Jansson et al., 1998), accessibility and choice (Twinn and Shiu, 1996; Macleod Clark et al., 1997), clinic environment (Clark et al., 1986; Twinn and Shiu, 1996), home visits (Macleod Clark et al., 1997; Jansson et al., 1998), continuity of care (Macleod Clark et al., 1997), urban/rural environment (Jansson et al., 1998).

In summary, a wide variety of techniques was used to gather data about a number of aspects of the service. Limitations relating to this area of the studies centre around insufficient pre-testing or piloting of instruments when gathering data (Twinn and Shiu, 1996), and issues around inter-rater reliability on observation tools (Clark et al., 1986; Macleod Clark et al., 1997).

13. Analysis of the data

Jansson et al. (1998) employed both descriptive (mean, percentages and standard deviations) and inferential techniques (χ^2, significance level $p<0.05$), and between and within group comparison of responses took place. The ICHN (1995) note that two employees of a sociology department carried out data analysis and computerisation on their behalf, and data are presented using descriptive statistics including median averages, percentages and weightings for ranks. Worth and Hogg (2000, p. 222) write that "data were analysed using the NUD*IST software" and no other information about how the analysis was carried out was provided. In Clark's et al. (1986) study, standard times for each component of the service were developed and "time wasting" and "time saving" activities identified. Mean average times were then calculated for each activity and this number was presented as the amount of time appropriate for that particular activity. In a number of instances, however, nurses combined activities (e.g., teaching the parent and examining the child) at the same time, and Clark et al.'s solution of dividing the mean average by the number of activities is considered here as a limitation of the study.

The remaining two studies—Macleod Clark et al. (1997) and Twinn and Shiu (1996)—present more complex analyses. Macleod Clark et al. (1997) provide substantial description of the analysis which began during data collection. The collaborative nature of the research where the "principle of sharing emerging data on quality indicators was adopted throughout" (p. 33) lends credibility to the study. Examinations of individual and multiple perspectives of quality indicators were made possible through a thematic analysis of transcripts and field notes, and the use of triangulation in a search for convergence enhanced rigour. Cross-case analysis enabled similarities and differences as well as influences on practice to be identified. Twinn and Shiu (1996) used a two-stage methodology where initially, quantitative and qualitative data were analysed according to their particular paradigm. This was followed by individual and cross-case analysis. Twinn and Shiu (1996) also identify the sharing of data analysis with other team members as a mechanism for enhancing rigour.

In summary, data analysis ranged from simple descriptive statistics to complex case study analysis. Only one study was identified as problematic in relation to analysis (Clark et al., 1986).

14. Results

Credibility of results in quantitative studies is generally measured via the precision and accuracy of measuring devices, confidence intervals and the power of the study to detect difference if such a difference exists (Sackett et al., 2000; Greenhalgh, 2001). No study employing quantitative methods (Clark et al., 1986; ICHN, 1995; Twinn and Shiu, 1996; Jansson et al., 1998) reviewed here presented data regarding confidence intervals or study power and this limits the interpretation of the findings. The precision of the data presented by Clark et al. (1986) has already been questioned on the basis of combination of two or more activities.

The provision of "verbatim quotes" greatly enhances credibility in qualitative research (Cutcliffe and McKenna, 1999; Greenhalgh, 2001). Twinn and Shiu (1996) present no raw data in their presentation of results although one short paragraph is used to illustrate methodological problems (Twinn, 1997). This comparing with Worth and Hogg's (2000) account the results where substantial verbatim quotes are provided which assist in making transferability judgements possible (Lincoln and Guba, 1985). Macleod Clark et al. (1997) also used verbatim, albeit short, quotes to illustrate views of indicators developed.

15. Generalisability and transferability

Each of the studies reviewed share commonalties, but also differences, and this is reflected in the conclusions drawn. Some studies (ICHN, 1995; Jansson et al., 1998; Worth and Hogg, 2000), make claims for the inclusion of certain components in a quality service by

"highlighting the aspects of the health visiting service which parents find effective" (Worth and Hogg, 2000, p. 227). Others make claims for the understanding of nursing service quality through the development of quality indicators (Macleod Clark et al., 1997), the creation of a productivity standard (Clark et al., 1986), and the operationalisation of health need, organisation of care, and service provision (Twinn and Shiu, 1996).

The extent to which the various authors lay claims to the generalisability and transferability of their work also varies. Twinn (1997, p. 758) writes that the study was "exploratory" and that "obviously the findings of this case study cannot be generalised to other cultural groups". Clark et al. (1986, p. 96), on the other hand, conclude that the tool developed by them "is adaptable to almost any public health nursing setting" (Clark et al., 1986, p. 96). Macleod Clark et al. (1997, p. 95) "emphasise" that their research represents the "first tentative steps in illuminating key issues in the development of quality indicators".

16. Discussion and conclusions

This paper was concerned with the systematic identification of an appropriate methodology to examine service quality and the public health nursing service and conclusions are now drawn in this regard. The mini review process has facilitated an explicit method for identification and consideration of potentially relevant material. Alternative approaches have not been ignored simply because they posed challenges that could not be met or because in some way we, the authors, had a priori disagreement with them. The basis on which methods have been chosen for this research are therefore made explicit, as is the application of value judgements about the relative merits of approaches that might yield different knowledge about the phenomena to be considered.

Some of the studies included above clearly emerge from this review as having more "credibility" than others. The questionnaire surveys undertaken by Jansson et al. (1998) followed rigorous methodological processes including randomised sampling strategy, pretesting, pilot testing and the provision of reliability data from the questionnaire. The consumer satisfaction survey undertaken by the ICHN (1995) compares unfavourably with this. The sampling technique used by the ICHN was fundamentally flawed, which undermines the study's credibility. Clark's et al. (1986) study was also found to have limitations especially in relation to the sample of clinics included in the study. The narrow understanding of service quality ("productive use of nurses' time") used in this study also limits wider application. Worth and Hogg (2000) identified very broad aims that included parenting practices as well as service effectiveness and the lack of information about analysis, raises questions for the credibility of the study in general. The presence of a number of quotes does, however, provide some basis for transferability of the findings.

The case studies undertaken by Macleod Clark et al. (1997) and Twinn and Shiu (1996) were guided by the work of Yin (1994) and this is explicit throughout. A full report of the study undertaken by Macleod Clark et al. (1997) was available and therefore, many of the criticisms of other studies due to lack of presentation of specific information did not arise here. Notwithstanding that, the case study reported by Twinn and Shiu (1996) is less credible than that of Macleod Clark et al. (1997). Issues identified as problematic include difficulties in identifying "the case", lack of data regarding reliability and validity of the survey questionnaire, and the extent to which the guiding theoretical framework (where effectiveness of the service is the extent to which needs are met) was compromised by an absence of data. In the presentation of results, there is an absence of any "verbatim quotes" and this makes transferability difficult.

With the exception of the studies undertaken by Clark et al. (1986) and the ICHN (1995), each of the study methodologies used above has merit in respect of the proposed study. Yin (1994) writes that the three key issues determine what strategy should be used in undertaking research. These are

- the type of research question posed;
- the degree of control an investigator has over actual behavioural events; and
- the degree of focus on contemporary as opposed to historical events.

The first criterion for case study strategy is that the research questions posed should be concerned with "why" or "how" (rather then "where" and "what") and this study meets this criterion. Key questions guiding this enquiry are "how is the process of public health nursing enacted?", "how is service quality constructed?", and "how does the organisational structure influence the process of public health nursing?". In relation to the second criterion, an absence of control over behavioural events is central to understanding service quality in its natural setting and, in such circumstances, it has been argued that case study is the approach of choice (Yin, 1994; Hitchcock and Hughes, 1995; Stake, 1995). Intensive and detailed examination of the real life setting using multiple sources of data allows for an exploration of various interactive processes at work within that situation (Yin, 1994; Stake, 1995). These allow the researcher to capture the richness of organisational behaviour and to incorporate the complexity and embeddedness of the social situations (Cohen et al., 2000). The work of Macleod Clark et al.

Table 4
Strengths and weaknesses of methods used in studies reviewed and their relevance to the proposed study

Type	Description	Strengths	Weaknesses	Implications for current study
Survey	A mechanism to obtain information about the prevalence, distribution and interrelationships of variables within a population (Polit and Hungler, 1989: p. 150)	Useful for describing characteristics of large populations (Clifford and Gough, 1990)	May neglect social and cultural construction of variables (Silverman, 2000)	Can assist in providing a national description of the PHN service and allow for comparison of certain variables between different services
		Can be administered from remote locations (Robson, 1993)	Can seldom deal with context and may be superficial (Polit and Hungler, 1989)	
		Standardised questions make measurement more precise (Robson, 1993)	Pre-determination of questions may lead to omissions (Silverman, 2000)	
		Relatively inexpensive (Polit and Hungler, 1989)		
		Can focus on a wide range of topics (Polit and Hungler, 1989)		
Non-participant observation	Systematic recording of events in the social setting (Marshall and Rossman, 1995: p. 79)	Powerful tool for gaining insight	Difficulties in access (Punch, 1998)	Appropriate for gaining insight into the influence of how the organisational context may influence the processes that take place
		Suitable for frequent events (Robson, 1993)	Ethical issues relating to	
		Maximises the inquirer's ability to grasp motives, beliefs, concerns	Role of researcher	
		Allows the inquirer to see the world as his/her subjects see it	Portrayal of role to others	
		Permits the observer to use himself as a data source	Portrayal of purpose of evaluation (Patton, 1990)	
		Allows the observer to build on tacit knowledge, both own and that of group members (Lincoln and Guba, 1985)	Social dynamics during observation (Patton, 1987)	
Informal interview	Characterised by a total lack of structure and control (Bernard, 2001)	Relevant and salient questions arising from context (Patton, 1990)	Difficult to take notes	Useful for gaining insight into issues as they emerge, especially the influence of context on processes
\		Allow flexibility and facilitate responsiveness (Polit and Hungler, 1989)	Data organisation and analysis can be difficult	
		Enable understanding of how core activities are constructed (Punch, 1998)		

Table 4 (*continued*)

Type	Description	Strengths	Weaknesses	Implications for current study
Guided Interviews	Includes a list of questions or issues that are to be explored in the course of an interview (Bernard, 2001)	Increase comprehensiveness of data (Patton, 1987)	Important topics may be inadvertently omitted	Can get more in-depth understanding of the situation from the perspective of key stakeholders
		Enable comparisons across groups (Anderson and Arsenault, 1998) Allow in-depth analysis and pursuit of details (Cohen et al., 2000) Understand meanings people hold (Marshall and Rossman, 1995) Gaps can be anticipated and closed (Patton, 1990)	Flexibility may mean results are less comparable	
Group interview	A research technique that collects data through group interaction on a topic determined by the researcher (Morgan, 1997)	Efficient method of data collection (Fontana and Frey, 1994)	Issues relating to internal validity	Facilitate an understanding of the contribution of each individual in the context of the creation of a reality. Can, therefore, be particularly useful in understanding differences between stakeholder groups
		Valuable where little information known Exploring complex concepts (Rantz et al., 1999)	Less control (Marshall and Rossman, 1995) Difficulties in analysis (Reed and Roskell-Payne, 1999) Homogeneity of participants in nursing research Moderation issues (Morgan, 1997)	
Records	Use of pre-existing data sources to obtain information	Efficient method of data collection	Difficulties around reliability and accuracy of records (Polit and Hungler, 1989)	May be useful to supplement other data
		Economical source of information	May not be representative (Polit and Hungler, 1989) Data required may not be available (Robson, 1993)	

(1997) illustrates ways in which this can be done. The third criterion relates to the temporal focus, which according to Yin (1994) should be on a "contemporaneous" phenomenon or, as Cohen et al. (2000, p. 180) term it "an instance in action". In this study, the focus was on contemporary events as they take place in practice, so all three criteria identified by Yin (1994) as a rationale for case study research were met.

Other aspects of case study research make it advantageous. Case study research is particularly useful when little is known of a subject area (Appleton, 2002) and it is "well-suited to exploring many situations that

provide a focus in nursing'' (Clifford and Gough, 1990, p. 75). It seeks to ''understand'' rather than ''explain'' the issue being investigated (Gable, 1994) and takes account of differing standpoints and perspectives (Stake, 1995; Cohen et al., 2000). In the Republic of Ireland little is known of the provision, organisation or delivery of the public health nursing service to families with infants and an examination of research relating to how key stakeholders experience the service or how they understand its quality has not been undertaken. Case study is ''strong in reality,'' and therefore insights gained can be directly interpreted and put to use in policy and practice development. In view of all these points, a case study approach was selected for the research (Table 4, Strengths and weakness of methods used).

What cannot be determined within the review process alone is the extent to which this material truly represents that relevant to the topic. Although to some extent this is amenable to investigation through conducting parallel reviews using alternative methods and comparing findings it is ultimately unknowable unless the readers of a given review can contribute novel information that would change its conclusions. However this does not differ from a systematic review of effectiveness where there is always the potential that additional research exists that has not been found.

In some ways reviews such as this are more robust to missing relevant material since such material would need to add novel approaches in order to change the conclusions whereas any new data will alter the results of a systematic review of effectiveness even if the qualitative conclusion is unchanged. At a minimum a reader with knowledge of relevant material that has not been considered here should be able to identify precisely why it is not considered.

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