

Tensions and contradictions in nurses' perspectives of evidence-based practice

GARY ROLFE BSc, MA, PhD, PGCEA, RMN¹, JEREMY SEGROTT BA, MA, PhD² and SUE JORDAN MBBCh, PhD, PGCE (FE)³

¹Professor of Nursing, *School of Health Science, Swansea University, Swansea*, ²Cymrawd Ymchwil AWARD Research Fellow, *Cardiff Institute of Society, Health & Ethics, Cardiff University, Cardiff* and ³Senior Lecturer, *School of Health Science, Swansea University, Swansea, UK*

Correspondence

Sue Jordan

School of Health Science

Swansea University

Singleton Park

Swansea SA2 8PP

UK

E-mail: s.e.jordan@swansea.ac.uk

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Aim To explore nurses' understanding and interpretation of evidence-based practice (EBP).

Background EBP has been welcomed into the nursing lexicon without a critical examination of its interpretation by practitioners. The literature suggests that there is a great deal of confusion and contradiction over the meaning and application of EBP. Although work has been conducted on how EBP might be implemented, the general issue of how nurses understand and use EBP is largely unexplored. This paper seeks to examine in depth the understandings of EBP, to enable managers, educationalists and policy makers to implement it more effectively.

Methods All registered nurses, midwives and health visitors in one UK National Health Service (NHS) Trust were asked to complete a questionnaire in October 2006.

Results Despite a disappointing response rate (8.9%, 218/2438), the survey revealed interesting tensions and contradictions in nurses' understanding of EBP. National and local guidelines, practitioners' own experience and patients' preferences were the main influences on nurses' practice. Published research had relatively little impact, particularly among nurses graded E, F and G and those who had not attended a study day on EBP.

Conclusions The hierarchies of evidence propounded in local and national guidelines are not adopted by practising nurses, who use other sources of evidence, such as reflection on their own experiences, when making clinical decisions. However, subsuming published evidence to clinical judgement does not contradict the original tenets of EBP.

Implications for Nursing Management Unless it is incorporated into national or local guidelines, research has relatively little impact on practice. To develop nursing practice and nursing knowledge, nurse leaders need to foster the synthesis of experiential knowledge and published research, in accordance with the founding principles of the EBP movement.

Keywords: evidence-based practice, nurses' views, survey research

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Introduction

After the introduction of the 'new paradigm' of evidence-based practice (EBP) into medicine [Evidence-Based Medicine Working Group (EBMWG) (1992)], EBP has risen to 'gold standard' status across all the healthcare disciplines and beyond, with remarkable alacrity. An indication of the rapid adoption of EBP during the 1990s can be seen from the exponential rise in publications referring to the subject (French 2002), from 1 in 1992 to 1760 published papers in 2000. A large part of the attraction of EBP for both clinicians and managers lies in its promise of being able to deliver consistent, high-quality care. From a senior managerial or political perspective, consistency is as important as quality, and the promise offered by EBP of providing equally good healthcare wherever and whenever it is delivered is part of the UK Government's agenda to avoid a 'postcode lottery' in the allocation of services (NHS Executive 1999).

It could be argued that EBP has been welcomed into nursing (and healthcare generally) in a rather uncritical fashion, which has done little to add to either the quality or the consistency agendas of clinicians, managers and the UK Government. On the issue of quality, there is as yet no evidence for the effectiveness of EBP itself. It might be expected that an approach that promotes practice based on the evidence from research would itself be founded on a sound evidence base of primary research. However, it is generally acknowledged that no such research evidence exists. The first published paper exhorting medicine to adopt an evidence-based approach concluded that 'No long-term randomized trials of traditional and evidence-based medical education are likely to be carried out' (Evidence-Based Medicine Working Group (EBMWG) 1992). Eight years later, the situation remained unchanged: 'It has not escaped the notice of either critics or champions [of EBP] that there is not, nor is likely to be, any empirical evaluation of the effectiveness of evidence-based practice itself' (Trinder & Reynolds 2000, p. 213). More recently, one of the champions of evidence-based nursing in the UK concluded that 'It is very rare to find evidence that evidence-based practice makes a difference' (Watson 2006).

Turning to the issue of consistency, there are explicit disagreements within the discipline of nursing about the meaning of all three words in the phrase 'evidence-based practice'. Thus, there is conflict and confusion about what should be considered to be best evidence, about which aspects of practice it should be applied to, and about how it should be applied, that is, precisely

what it means to claim that practice is based on evidence. These contradictions in the nursing literature have been explored in depth elsewhere (Rolfe & Gardner 2006), and space does not permit a detailed review of that literature here. However, some examples of the confusion and contradiction to be found in the literature include differences of opinion regarding the relative values of qualitative and quantitative research methodologies, the role of experience and expertise in making evidence-based decisions, the constitution of hierarchies of evidence and the various ways that they may or may not be applied to practice. Rolfe and Gardner (2006, p. 911) concluded that, given the huge range of often contradictory published advice on offer, 'ultimately, it means that the evidence-based nurse can do more or less whatever she wants and is still able to justify her actions from the literature'.

It should be noted that this disagreement and confusion about EBP occurs not only between different writers, but also occasionally within the same paper. For example, in a report of a benchmarking project, Ellis (2000) stated that 'the evidence base for benchmarks of best practice is considered continuously using a hierarchy of evidence' (p. 215), and later in the paper, 'the benchmarking group have (sic) not used a hierarchy to categorise evidence' (p. 219). Similarly, she claimed that the benchmarking group 'have approached the classification of evidence without overt value judgements' (p. 219) and yet 'using lower level evidence is only accepted in the absence of more empirical higher level evidence' (p. 218). EBP, as it is currently described in the nursing literature, does not appear to be promoting a unified or consistent approach to nursing care and treatment, even by the same writers, and further exploration is needed.

The study

This study aimed to explore whether the disagreement and confusion to be found in the literature is reflected by an equal disagreement and confusion amongst nursing staff (registered nurses, midwives and health visitors) in one UK National Health Service (NHS) Trust. From our reading of the literature, we were led to suppose that inconsistencies might exist not only between different members of nursing staff, but also between conflicting and inconsistent views held by individual nurses.

Methods

To explore practitioners' interpretations of EBP, we undertook a cross-sectional survey of all qualified

nurses in one NHS Trust, followed by semi-structured interviews and a focus group. The local research ethics committee approved the project in July 2006. This paper reports the survey findings. Our questionnaire was based on current literature relating to interpretations of EBP (Ellis 2000, Rolfe & Gardner 2006). Demographic details and free text comments were also requested. Likert-type scales were used, allowing for neutral responses, and avoiding binary responses (Krosnick 1999). Construction of the questionnaire is described together with the relevant findings.

Pilot work

The questionnaire was pre-tested by expert review and by cognitive methods (Presser 2004). Minor revisions were made on each occasion. Nurse colleagues and lecturers in statistics and quantitative research methods were asked to comment on the questionnaire for content and cognitive form. Cognitive testing was undertaken with two nurses, who were asked to complete the questionnaire, reading the questions aloud, iterating their thoughts and interpretations. To explore shared understanding of the questions, they were asked, question by question, for understanding or difficulties in interpretation, and to highlight ambiguities, missed categories, opinions of each question, and alternative suggestions (Fowler 1995, Dillman 2000). The cognitive interviews were audio taped and replayed to capture further nuances. A small field test was conducted with a group of student nurses.

Data collection

In accordance with the Data Protection Act 1998, the NHS Trust did not release the names and workplace addresses of qualified nurses to the research team (Redsell & Cheater 2001). Information on the numbers of qualified nurses in each workplace was not held centrally. Therefore, each ward and unit manager was contacted, requesting the number of qualified nurses on the current off-duty rota. The appropriate number of questionnaires was sent to each ward or unit manager, with a 'Dear Colleague' covering letter. Questionnaires were placed on the nursing stations, with requests for nurses to take questionnaires and return them in sealed pre-paid envelopes. In all, 2627 questionnaires were distributed during September and October 2006.

Returned questionnaires were examined for completion rate. The definitions of complete (> 80%) and partially complete (50–80%) were taken from the American Association for public opinion research

(2006). Data from returned questionnaires were entered in SPSS Version 13 for Windows (SPSS, Inc., Chicago, IL, USA) by two researchers, independently. Files were compared using SPSS Data Builder software; discrepancies in data entry were checked and reconciled.

Analysis

A description of all variables was obtained. Cross-tabulations and analyses of key variables were undertaken to explore the data and the consistency of respondents' responses. Interval variables were subjected to tests of normality, before non-parametric tests were selected to test for associations. We calculated the value for χ^2 test for trend from the χ^2 statistic for linear-by-linear association by multiplying by a factor of $(n-1)/n$ (Altman 1991, Arndt *et al.* 1999) (details available from investigators). Statistical tests were undertaken using asymptotic, Monte Carlo and, where available, exact methods (Williamson 2003, Field 2005). Factors affecting prioritization of published sources were explored with bivariate analyses and, to accommodate confounding variables, with a logistic regression model. Variables included in the model were: number of years qualified, attendance at an EBP study day (ever), holding a Bachelor of Nursing qualification, current or last clinical grade (Table 1). Explanatory variables were selected using a backwards likelihood ratio criterion.

Results and discussion

Response rate

In all, 2627 questionnaires were distributed, and 189 were returned as surplus to requirements, indicating that 2438 were potentially returnable. Of these, 218 questionnaires with responses were returned. Two of these were > 50% incomplete and were excluded from the analysis. Two further questionnaires were partially complete with 38/76 (50%) and 51/76 (67%) questions answered.

Calculation of response rates presupposes that postal questionnaires are addressed to named individuals (AAPOR 2006). Nevertheless, the return of 218 questionnaires (216 complete or partially complete) represents a poor response rate (218/ 2438, 8.9%). Our completed questionnaires are unlikely to represent a random sample of nurses in our Trust (Oppenheim 1992). Unfortunately, the Trust did not have aggregate data on length of service or employment grade to either confirm or refute this suggestion.

Table 1
Variables analysed and included in the regression model

Categorical variables	Number (%)
Current or most recent clinical grade	
Grade D	41 (19.9)
Grade E	57 (27.7)
Grade F	35 (17.0)
Grade G	61 (29.6)
Grade H	12 (5.8)
Total	206 (100)
Holding Bachelor of Nursing degree	
Yes	74 (34.4)
No	141 (65.6)
Total	215 (100)
Ever attended a study day on EBP	
Has attended	161 (79.7)
Never attended	41 (20.3)
Total	202 (100)
Interval variable	Median Mean (5% trimmed mean) Minimum Maximum
Years qualified* (<i>n</i> = 207)	16 16.1 (15.8) 0.5 42

*This variable was not normally distributed.

Without information on the number of nurses at each ward or unit, we cannot give a precise response rate. However, our response rate fell below generally acceptable levels of 60% (Badger & Werrett 2005) or the 56% rate typical of health care professionals (Asch *et al.* 1997). As we did not have contact details for individual nurses, the strategies known to increase response rates were not available to us. It was not possible to send reminders, re-mail, telephone non-respondents (Sala & Lynn 2005) or offer incentives (Edwards *et al.* 2002, 2007). We were unable to explore the reasons for the low response rate, and assume that nurses felt that the perceived cost of participating to be too great, or that the questionnaire was insufficiently salient to make the social transaction of responding worthwhile (McColl *et al.* 2001). Anecdotally, we were told that nurses were too busy to complete the questionnaires in work time, and unwilling to take them home. Nevertheless, we believe that the findings are sufficiently interesting to stand simply as the views of 216 self-selecting respondents in their own right, and while we make no claims for statistical generalizability, we would argue for naturalistic generalizability (Stake 1980) or fittingness (Sandelowski 1986, Koch 1994) by the reader of the report, who 'views its findings as meaningful in terms of their own experiences' (Sandelowski 1986).

Inconsistencies and apparent contradictions

Space does not permit the presentation and discussion of all the findings from the study. We will therefore

focus mainly on the quantitative data with reference to three types of inconsistencies in the respondents' views about EBP: first, discrepancies between respondents' views of EBP and the 'received wisdom' or classic view of EBP as expressed in the literature; second, discrepancies between different respondents regarding the nature of EBP; and third, internal contradictions, that is, views expressed by individual respondents in our sample which are mutually contradictory.

Types of evidence

We shall begin by examining the ways in which different types of evidence are claimed by the respondents to influence their practice. To avoid biasing responses to later questions, we did not use the word 'evidence' at this early stage of the questionnaire, but simply presented respondents with a list of what might broadly be considered as 'influences' on their practice, ranging from the findings from different types of research, through policies and guidelines, to the examples set by various colleagues and the respondent's own clinical experience. Respondents were then asked to rate the frequency of use of these broad types of 'evidence' using a five-point Likert-type scale from 'always' to 'never'.

The purpose of this question was to ascertain the extent to which the nurses in our sample actually used the various types of evidence available to them, rather than merely what they considered to be 'best evidence'. Figure 1 shows the extent to which respondents claim that different types of evidence mostly or always influence their clinical practice.

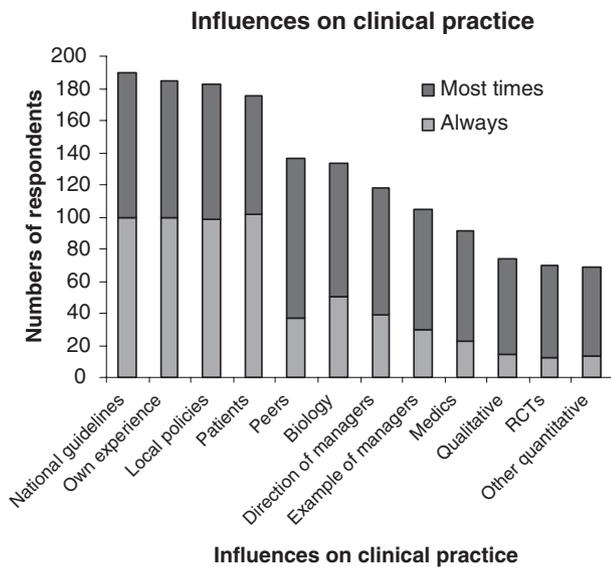


Figure 1
Influences on clinical practice: most of the time and always.

We can see that our respondents considered the four most frequent influences on their practice to be national guidelines, their own past experience, local policies and patients' preferences. Of these, basing practice on guidelines and policies is to be expected, as working in line with local and national policies is a mandatory part of many nurses' jobs. Similarly, taking the preferences of patients into consideration has for several years been highlighted by the UK government as of increasing importance, although we should be aware that the phrase 'patient preferences' can cover anything from searching the literature for experiential writing and/or research findings by service users (le May 2000), to asking for patients' views on choices between different treatment options, and gaining their consent for clinical procedures. Thus, 'the patient's preference will dominate when s/he declines a treatment that clinical circumstances and research evidence indicate is best for his condition' (DiCenso *et al.* 1998). It should be mentioned, of course, that this latter view of 'patient preference' as consent to treatment is a mandatory requirement in most cases, and would thus legally overrule any evidence-based decisions by the clinician.

What is more surprising, however, is that nurses cited their own past experiences as exerting the second greatest influence on their practice, ahead of local policies and patients' preferences. The middle positions are occupied mostly by forms of evidence deriving from the views and opinions of managers, peers and colleagues, and the types of evidence least often cited as mostly or always influencing practice were reported as

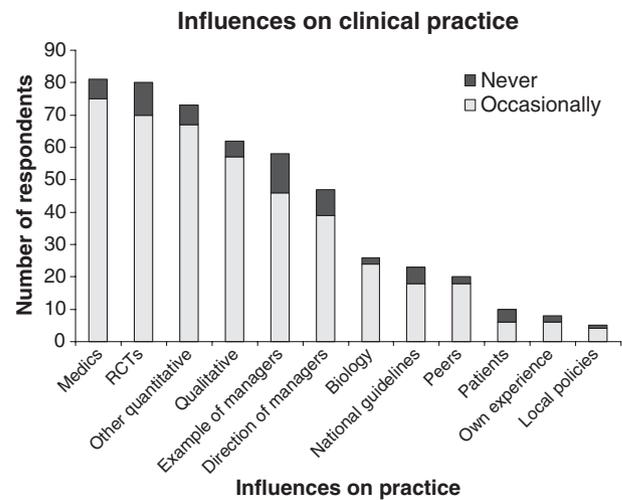


Figure 2
Influences on clinical practice: occasionally and never.

being evidence from qualitative research, randomized control trials (RCTs) and other quantitative studies.

If we examine the types of evidence reported as only occasionally or never influencing practice (Figure 2), we find that the advice of medical colleagues and findings from RCTs are both seen by 38% (81/213) of our respondents as exerting little or no influence, followed by other quantitative research (34%, 73/212) and qualitative research (30%, 62/208). At the other end of the scale, only 2% (5/214) regarded local policies as having little or no influence on their practice, 4% (8/213) viewed their own past experiences as having little or no influence, and 5% (10/212) regarded patients' preferences in this way.

This ordering of influences on clinical practice stands in contrast to most of the published hierarchies of evidence, suggesting that the importance ascribed to various forms of evidence by bodies such as the Department of Health in the UK and the Joanna Briggs Institute in Australia are not translated by our respondents into their everyday practice. Most notably, the high regard for evidence from practitioners' own clinical experience [which was cited by 87% (186/213) as influencing their practice 'most of the time' or 'always'] stands in contrast to the lowly position accorded to clinical experience or expertise in almost all hierarchies of evidence. These hierarchies almost always place findings from quantitative experimental research at the top, although 38% (81/213) of our respondents rarely or never base their practice on RCTs or other quantitative research.

In addition, although national guidelines and local policies are regarded as influential by our respondents, we have seen that the findings from primary research rarely or never influence the practice of over one-third

of them. One explanation for this discrepancy between the high use of guidelines and the relatively low use of research findings might be that practitioners prefer their research findings to be evaluated, interpreted and translated into practice directives by others. While this might be understandable in the busy world of nursing practice, it is in direct contradiction to the original tenets of EBP, which emphasized the importance of practitioners reading and critically appraising research for themselves (EBMWG 1992), and the insistence by a number of advocates of EBP that it should not be regarded as a 'cookbook' approach in which research findings were simply presented as injunctions to practise in a certain way (Sackett *et al.* 1996, DiCenso *et al.* 1998). This discrepancy might be the result of a tension between the individual and the institution, where nurses are encouraged or compelled to practise according to predetermined published guidelines rather than being encouraged to read, evaluate and implement research findings for themselves, as illustrated by R5:

'Evidence-based practice is what the Sister says. Something that is, procedure, that has to be followed in a certain way' (R5).

Another explanation for our findings might be that the discrepancy between what the hierarchies of evidence state should be the most important influences on practice and what our respondents claimed to use most often was as a result of the pragmatic reason that some types of evidence are more available than others. Thus, it could be claimed that the reason for the respondents using evidence from their own experiences more than evidence from research is simply that evidence from experience is far more abundant than research evidence,

particularly evidence from RCTs. However, when we asked the respondents to rate the same influences on practice according to importance rather than frequency of use, the findings were very similar. Table 2 compares the ratings given by our respondents to the importance of various types of evidence with the importance ascribed by a number of published hierarchies of evidence.

Thus, the respondents not only regarded their own previous experiences as exerting a greater influence on their practice than the findings from all types of research (as shown in Figure 1), but we can see from the first column of Table 2 that they regarded their own experiences as being of greatest importance to their practice. Whereas 'expert opinion' (NHS Centre for Reviews and Dissemination 2001, Norman & Ryrice 2004) and 'opinions and experiences...based on clinical experience' (Ellis 2000) are located firmly at the bottom of most hierarchies of evidence, our findings placed experience at the top, with 69% (148/215) of respondents rating it as 'very important'. In addition, Norman and Ryrice (2004) have placed 'opinion of service users' at the bottom of their hierarchy, in contrast to it being seen as the second most important type of evidence by our respondents. Similarly, while RCTs and other experimental studies are at or near the top of all published hierarchies of evidence, findings from RCTs and other quantitative research were placed at the very bottom by our respondents, with only 11% (23/213) of them rating this item as 'very important' for their clinical practice. It can be seen, then, that the practising nurses who responded to our questionnaire effectively turned the hierarchy of evidence on its head.

Table 2
Hierarchies of evidence from diverse sources

	<i>Our respondents.</i> Percentage rating type of evidence as 'very important'	<i>NHS Centre for Reviews and Dissemination (2001, p. 5)</i>	<i>Ellis (2000)</i>	<i>Norman and Ryrice (2004)</i>
1	Own past experience (69%)	Experimental studies	Systematic reviews	Systematic reviews
2	Patient preference (63%)	Quasi experiments	Randomized controlled trials (RCTs) and other controlled trials	RCTs
3	Guidelines and policies (49%)	Controlled observational studies 3a Cohort studies 3b Case-control studies	Large-scale primary studies using other methodologies	Intervention studies without randomization
4	Example and direction of others (30%)	Observational studies without control groups	Descriptive studies and reports	Well-designed observation studies
5	Findings from qualitative research (14%)	Expert opinion	Opinions and experience of respected authorities based on clinical experience and professional consensus	Expert opinion, including the opinion of service users and carers
6	Findings from quantitative research (11%)			
7	Findings from RCTs (11%)			

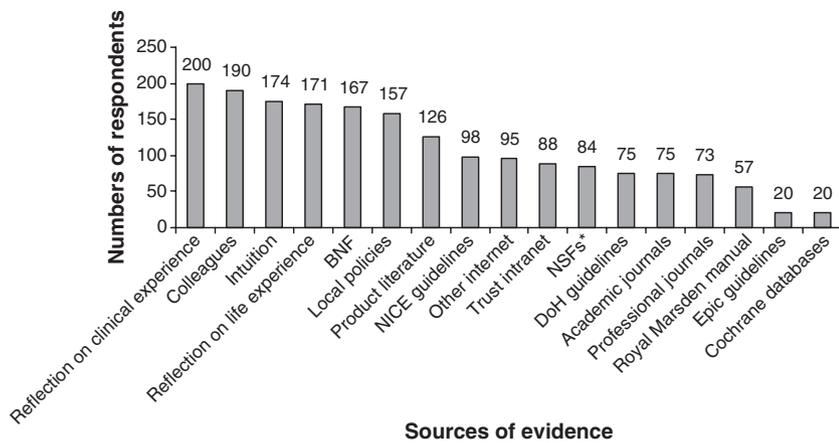


Figure 3
Sources of evidence used more than once each week (213 respondents).

Sources of evidence

In addition to ascertaining which types of evidence were used and valued by the respondents, we also sought to discover how and where they obtained the evidence on which their practice was based. We can see from Figure 3 that the sources of evidence consulted by most nurses on a weekly or daily basis are, first, reflection on their own clinical experiences (94%, 200/213), followed by advice from colleagues (89%, 190/213), intuition (82%, 174/211) and reflection on their own life experiences (80%, 171/214). Interestingly, the Cochrane database, which is generally regarded as a 'gold standard' source of clinical research findings in the UK, is consulted by only 10% (20/191) of respondents on a weekly basis and is never consulted by 43% (82/191) of respondents. Similarly, academic journals such as the *Journal of Advanced Nursing* are consulted by only 36% (75/211) on a weekly basis while 7% (15/211) never consult academic journals. This compares with only one respondent (0.5%, 1/213) who never bases practice on reflection on her/his own clinical experiences and 3% (7/210) who never base their practice on intuition.

These findings about sources of evidence are perhaps to be expected, given the types of evidence valued and used by the respondents (Figures 1–3). Further, the findings would appear to suggest that the reflective or experiential paradigm is favoured by many of the respondents, who prefer to base their practice on evidence obtained from their own experiences and those of their colleagues rather than on text based and online sources of empirical research and knowledge. Part of the reluctance to draw upon these latter sources of evidence might be the perceived or actual unavailability to the respondents of published databases, guidelines and journal articles as well as a lack of access to computers and/or computer databases, as this respondent illustrates:

'The main barrier, I suppose is having access to what the information – what the evidence should be. It's obviously changing all the time. Current evidence is changing, and I suppose the field that we work in is quite generalist. Although I suppose we're specialists in that we're community nurses, the type of subjects that we're doing, giving health promotion information on, is very varied. So trying to keep up to date with everything, and the time constraints...' (R8).

There are at least two possible interpretations of the above findings. The first is that respondents are favouring types and sources of evidence which contradict the generally accepted definitions of EBP. For example, the EBMWG argued that EBP 'de-emphasises intuition, unsystematic clinical experience and pathophysiologic rationale as sufficient grounds for clinical decision-making and stresses the examination of evidence from clinical research' (Evidence-Based Medicine Working Group (EBMWG) 1992, p. 2420). As we can see above, the respondents in this study appear to be telling us that they emphasize intuition and unsystematic clinical experience and de-emphasise evidence from research. Similarly, most definitions of EBP stress the importance of published and publicly verifiable sources of evidence such as research journals and certain accredited online databases, whereas our respondents appeared to favour the more intangible sources such as reflection on their own practice and the verbal reports of colleagues.

A second interpretation, however, could be that while reflection and intuition appear to play a significant role in the practice of most of our respondents, they might not consider such practice to be evidence based. If that was the case, we might expect that the respondents would consider a large proportion of their practice not to be based on evidence. However, Figure 4 shows that nearly all the respondents claim that over half of their clinical practice is evidence based. It would appear that the respondents are telling us that they consider a large part

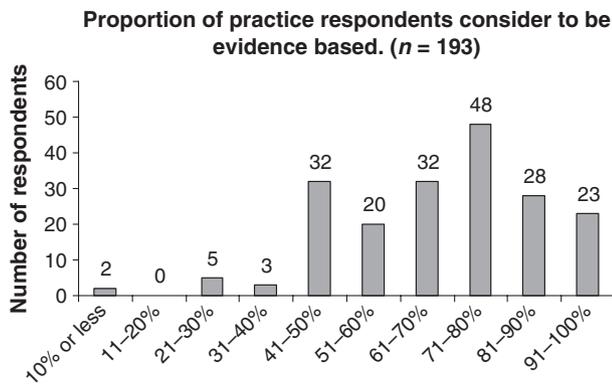


Figure 4
Proportion of practice respondents consider to be evidence based (n = 193).

of their practice to be evidence based, and that they consider reflection, intuition and the experiences of colleagues to be the most common sources of that evidence.

There is, however, some suggestion from this study that those respondents who prioritize findings from published research and those whose practice is influenced to a greater extent by RCTs consider their practice to be more evidence based than other respondents. This issue will be explored further later in this paper.

Application of evidence

The published literature is diverse and confusing when it comes to discussing how evidence should be applied to practice. On the one hand, different writers promote very different ways of prioritizing and applying different types of evidence. Thus, some writers argue that only the highest available evidence from the hierarchy should be used (Evidence-Based Medicine Working Group (EBMWG) 1992, Sackett *et al.* 1996), others claim that evidence from anywhere in the hierarchy can be used, so long as it is appropriately weighted (Hewitt-Taylor 2003), others propose different hierarchies (Evans 2003) and different gold standards (DiCenso *et al.* 1998) for different practice situations, while yet others reject the concept of a hierarchy completely, claiming that each clinical encounter should be assessed on its own merits.

In addition to different writers proposing different approaches to the application of evidence to practice, we have already identified at least one published paper (Ellis 2000) that appears to promote several of these contradictory approaches. In a similar vein, Aslam (2000) has argued for using only the highest evidence from the hierarchy, such that 'the key is always to use the best evidence available'. Later in the same paper, however, she argues that evidence should be weighted according to its position in the hierarchy and 'all

available evidence', including clinical judgements and the preferences of the patient, should be used. Similarly, DiCenso *et al.* (1998) have stated that the RCT is at the top of the hierarchy of evidence 'for evaluating the effectiveness of a nursing intervention', but that a decision based on the findings from an RCT might be 'overridden' by 'clinical expertise and patient preference', which can be found at the bottom of most hierarchies. The rather confusing message being disseminated here would appear to be that practitioners should use 'best' evidence except when they choose to override it with 'worst' evidence.

In view of the high degree of contradiction and broad disagreement in the published literature concerning how evidence should be applied to practice, we anticipated that there might be confusion among our respondents. We attempted to measure the extent to which the respondents supported a number of these contradictory positions by asking them to rate their agreement on a five-point scale with the following statements (percentage of those agreeing or strongly agreeing with each statement in brackets):

- When making clinical decisions, all sources of information are useful, but practitioners should give the greatest weight to those they consider to be most important (83%, 177/213).
- When making clinical decisions, practitioners should give equal consideration to all sources of information (66%, 141/213).
- When making clinical decisions, it is acceptable to disregard some sources of evidence (52%, 111/212).
- When making clinical decisions, the sources of information the practitioners should use depend entirely on the situation they are faced with (81%, 171/212).
- When making clinical decisions, the practitioner's own experience should over-ride all other sources of information (8%, 16/213).
- When making clinical decisions, practitioners should use evidence from published research in preference to other sources of information (23%, 48/211).

These statements were written in such a way that agreement with some of them logically precluded agreement with others. For example, it is not logically possible to agree that (b) all types of evidence should be given equal weighting, and also either (c) some types of evidence may be disregarded as unreliable, or (f) evidence from published research should be given preference. As expected, cross tabulations revealed some inherent tensions in the data, which may of course simply reflect respondents' misunderstanding of the questionnaire. Alternatively, this could be construed as heterodox

interpretation of the application of EBP, that is, of espousing a number of partially or completely contradictory views. The measures of ordinal association reported, Kendall's τ_b for symmetric tables (Field 2005), reflect the mutual concordance (both the extent of agreement and disagreement) between various pairs of statements. This measure cannot be taken as a measure of the inconsistencies in the responses, as the following paired statements are contraries, not contradictions (it is not illogical to disagree with both statements, but we would argue that it is illogical to agree with both).

Some of the more striking internal inconsistencies in the views of individual respondents are highlighted below.

- 51% (121/212) of respondents agreed or strongly agreed both that (a) different types of evidence should be weighted according to which is considered most important and that (b) all types of evidence should be given equal weighting. The association between the rankings of the two variables was statistically significant (Kendall's $\tau_b = 0.14$, $P = 0.04$).
- 33% (70/211) agreed both that (b) all types of evidence should be given equal consideration and that (c) it is acceptable to disregard some types. The association was not statistically significant (Kendall's $\tau_b = -0.01$, $P = 0.87$).
- 22% (46/210) agreed both that (b) all types of evidence should be given equal consideration and that (f) greater preference should be given to published research findings, a statistically significant association between rankings (Kendall's $\tau_b = 0.21$, $P = 0.001$).

The fact that so many respondents held contradictory views about the application of evidence would seem to imply a great deal of confusion about exactly what it means to base practice on the evidence. The contradiction appears to centre around, on the one hand, the view held by 66% (141/213) of respondents that equal consideration should be given to all types of evidence when making a clinical decision, and on the other hand, the broadly accepted idea that some form of weighting or privileging should be given to certain types. As we have seen, significant numbers of respondents appear to subscribe to both views simultaneously.

Definitions of evidence-based practice

The most commonly cited definition of EBP is that offered by Sackett *et al.* (1996), which involves 'integrating individual clinical expertise with the best available external clinical evidence from systematic research'. They go on to clarify that individual clinical

expertise is 'the proficiency and judgement that individual clinicians acquire through clinical experience and clinical practice', and 'the randomised trial, and especially the systematic review of several randomised trials ... has become the "gold standard" for judging whether a treatment does more harm than good'. Somehow, these two disparate forms of evidence must be integrated into a clinical decision, although importantly:

'External clinical evidence [from research] can inform, but can never replace, individual clinical expertise, and it is this expertise that decides whether the external evidence applies to the individual patient at all and, if so, how it should be integrated into a clinical decision' (Sackett *et al.* 1996, p. 72).

Sackett *et al.* (1996) are making two claims here: first that the RCT is the 'gold standard' for making decisions about the effectiveness of treatment, but second that this gold standard evidence can be overridden by the experience of the individual practitioner in any particular case. Given the ubiquity of this definition, we might expect broad agreement from our respondents with its basic tenets. However, we have seen that findings from RCTs are regarded by only 11% (23/213) of our sample as being 'very important', and only 8% (16/213) believe that the practitioner's own experience should take precedence over research findings.

Published evidence

In almost every hierarchy of evidence, published research takes precedence over non-published sources such as clinical experience and the advice of colleagues. However, we have seen that only 23% (48/211) of the respondents agree with this statement. Furthermore, the majority of those who agree that published evidence should be prioritized also agree with statements which contradict it, such as the statement that all types of evidence should be given equal consideration ($P = 0.001$, above).

In bivariate analysis, attending a study day had a significant positive association with prioritizing published research as a source of evidence [48/117, 41% attendees and 4/31, 13% non-attendees agreed, $\chi^2 7.32$, $P 0.007$, $df = 1$, odds ratio (OR) 0.21, 95% confidence interval (CI) 0.07–0.69]. This may be interpreted either as providing an indication of the effectiveness of study days in promoting the traditional focus on research as the primary source of evidence or as an indication that nurses interested in this topic self-selected themselves for the study days. With regards to clinical grading, an inverse association was found. D grade nurses were significantly more likely to prioritize published research

findings as a source of evidence than nurses of higher grades (χ^2 for trend 5.26, $df = 1$, $P = 0.02$). These associations were confirmed when possible confounding variables were taken into consideration, using a logistic regression model. Respondents were more likely to prioritize published research evidence if they had attended an EBP study day [OR 0.16 (CI 0.04–0.63, $P = 0.009$)] or were of clinical grade D: when compared to nurses of grade D, nurses of grades E, F and G were significantly less likely to prioritize published evidence [OR 0.16, 0.11, 0.10, 95% CI 0.05–0.54, 0.03–0.40, 0.03–0.34, $P = 0.003$, 0.001, < 0.001 respectively] (details available from investigators). This can be seen in Figure 5 by comparing the proportions of those who agree and disagree with the statement 'practitioners should use evidence from published research in preference to other sources of evidence' for different grades. (In this figure, the low number of Grade H respondents and those giving a neutral or uncertain response have been omitted.)

In other words, the higher the grade of the nurse, the less the importance placed on published research as a source of evidence. Length of service ($U = 2543$, $P = 0.31$) or number of years qualified ($U = 2553$, $P = 0.74$) did not affect the way published evidence was treated. If we assume that D grade nurses are relatively novice practitioners compared with higher grades, then this finding is in keeping with the work of Schon (1983) on reflective practice, and also with Benner's (1984) findings that expert nurses reject research findings and

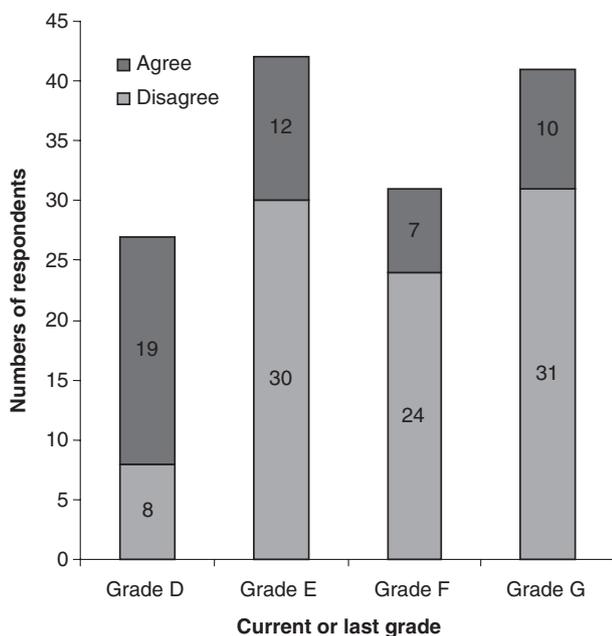


Figure 5
Published sources of evidence should be prioritized.

other propositional knowledge in favour of intuition. However, our finding that there was no association between length of time since qualification and the prioritization of published research to some extent contradicts Benner's assertion that expertise develops naturally over time.

Reasons for adopting EBP

Most respondents cited a number of reasons for adopting EBP, the most commonly stated being that research has shown EBP to be the most effective way to practice (87%). We have already shown that this belief that EBP is itself based on empirical research evidence is, in fact, unsubstantiated.

Another reason for adopting EBP, cited by 57% (118/209) of respondents, was the belief that EBP is obviously or self-evidently the best way to practice. This stated reason for practising in an evidence-based way runs counter both to the spirit of EBP and to overt statements in many definitions, which claim that the purpose of EBP is to challenge traditional practices that appear to be self-evident, or what Phillips (1994) referred to as 'folklores'. It is somewhat contradictory, then, to adopt as self-evident a form of practice that purports to challenge practice based on self-evident claims, and suggests that EBP is itself acquiring 'folklore' status.

Other respondents claim to have adopted EBP because they had been told to by their trust or department (57%, 119/209), because they had been told on courses or seminars that it is effective (56%, 120/212), or because colleagues had told them that it is most effective (45%, 96/212). In these instances, the reasons for basing practice on evidence are counter to the tenets of EBP, which rejects the unsupported opinion or authority of others in favour of practising according to the findings of research (Evidence-Based Medicine Working Group (EBMWG) 1992).

Limitations of the study

It might be argued that our study is severely compromised by the response rate. Our response rate was, indeed, surprisingly low, and we attribute this to our unorthodox method of questionnaire distribution (Fowler 1995, Asch *et al.* 1997, Dillman 2000, McColl *et al.* 2001, Edwards *et al.* 2002, 2007, Bhandari *et al.* 2003, Sala & Lynn 2005, American Association for public opinion research (AAPOR) 2006). Our respondents were a self-selected group, and unlikely to be typical of nurses in our chosen NHS Trust, and we suggest that they represent the most altruistic and

motivated individuals, with an interest in EBP. The findings of our survey, and most particularly our analysis, cannot therefore be generalized beyond the limits of our data (Altman 1991), for example to nurses in other NHS Trusts, although we have no reason to assume that our Trust is atypical. We make no claim that our respondents represent a random sample of nurses in the Trust, but while we would not wish to make statistical generalizations beyond this sample, we nevertheless believe that these 216 individual voices are raising issues that deserve further consideration.

Implications

As a result of the low response rate, our analysis proceeded on the assumption that there is no basis for statistical generalization of our findings beyond our respondents. However, we feel that exploring the associations present in the data offers a useful opportunity to raise awareness and generate hypotheses for future work, rather than test any inferences within the data.

One of the aims of this study, and the one we have chosen to focus on in this paper, was to determine whether the confusion and contradictions apparent in the published literature were reflected in the views of our respondents. While we did indeed find a great deal of confusion and contradiction in the views of our respondents, there was a general consensus amongst them that the hierarchies of evidence outlined by many writers should be turned on their head. Thus, whereas most published hierarchies emphasize the importance of findings from RCTs and other experimental research, our respondents placed greatest importance on their own past experiences and the preferences of their patients. Similarly, when asked to state the types of evidence which mostly or always influenced their practice, over 80% cited guidelines and policies, their own experiences and patient preferences. Thus, we can see a strong coherence between the types of evidence that the respondents felt to be important and the types that they actually used in their everyday practice. The fact that these types of evidence were not those suggested in the published hierarchies is difficult to account for and raises a number of questions for further discussion and exploration. One explanation might be that the types of research evidence advocated by most writers are simply inappropriate or out of step with what our respondents felt to be the demands of everyday practice. An alternative explanation lies in the confusion inherent in the most widely quoted definition of EBP (Sackett *et al.* 1996) that evidence from 'gold standard' RCTs can be trumped by evidence from

clinical experience which is usually found at the bottom of the hierarchy. This raises a number of unanswered questions about what Sackett refers to as the 'integration' of different types of evidence into a clinical decision. We propose to explore this further when presenting the interview data from this project.

Our findings confirmed the confusion and contradiction in the literature about how different types of evidence should be integrated and applied to practice, particularly with regard to the hierarchy of evidence. Not only were a variety of different views expressed by different respondents, but large numbers of individuals expressed two or more incompatible views at the same time. Once again, it is difficult to account for this finding. However, given that another of our findings was that the most common sources of evidence are reflection, intuition and advice from colleagues, it could be argued that the respondents have generally eschewed the scientific or technical rational paradigm in favour of practice based largely on what feels to be the right thing to do at the time. If that is indeed the case, then it is important to note that our respondents nevertheless consider that working within this reflective or intuitive paradigm is itself a form of EBP.

Conclusion

If the stated opinions and practices of our respondents are to be believed, then the huge body of literature and investment in EBP over the past 15 years has borne little fruit. The fundamental message of EBP, that it empowers individual practitioners to make informed judgements based on their evaluation of the findings from high-quality research, has certainly not been embraced by our respondents, nor, it would appear, by their managers. There is, in our opinion, a huge amount of work to be done by the EBP community, first in exploring the clinical relevance and importance of various types of evidence in addition to their scientific importance; second, in arriving at a consensus on how (if at all) evidence from different levels of the hierarchy should be combined into an evidence-based clinical decision; and third on how the mechanism for doing so is to be communicated in a clear, meaningful and straightforward way to practitioners. It is clearly not enough to say, as some writers do, that evidence from a variety of sources must be 'synthesized' without spelling out precisely what that means. A related issue is whether it is within the spirit of EBP to offer pre-packaged evidence-based guidelines to practitioners or whether EBP entails, as the original advocates of EBP insisted, equipping them with the literature searching

and evaluation tools to arrive at their own decisions in each individual situation.

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