So you want to do research?
6: Reporting research

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The objective of writing is both communication and persuasion (Gilbert, 2001), so reporting your research is an essential stage of the research process and ‘is not just an exercise for our private enjoyment’ (Miles and Huberman, 1994). Dissemination of research is essential if your findings are to be of benefit to others, to be open to critical examination by your peers, and to promote service development based on sound evidence.

A research report or paper should highlight what the research adds to the body of knowledge, how the research process has been conducted and the limitations of the research and findings.

One of the traditional ways of disseminating findings from research is through the publication of the research paper. However, publishing your research in a journal is not the only way to disseminate research findings. For example, if the study has been funded by a grant from a charity or other grant awarding body, it is likely that an end-of-project report is required to be submitted to the awarding body.

This last article in the series reviews some of the key issues that need to be considered when preparing your research findings for dissemination, whether as a publication or report.

Getting started
Writing up of research should be planned carefully because it is an important part of the research process.

As the research develops so should the shape of your report or paper. Some parts can be written before the data collection stage has been completed, e.g. the background to the research (including accounts of previous research), its theoretical grounding, aims and objectives of the research and methodology to be used.

If the research is collaborative, it is important to decide at the outset who will be the contributing authors and what their respective responsibilities will be in the whole process. It may sometimes be helpful to ensure that these agreements are made in writing. While this might appear to suggest lack of trust in one’s colleagues, it is not unknown for research teams to come to grief because such arrangements are not in place. Written agreements outlining the responsibilities of the respective authors can be helpful to make sure everyone is aware of their specific role in the process. It is also helpful to map out other possible publications which might or will arise from the research, together with decisions on who shall lead and who are the contributing authors.

Decisions on who should be contributing authors should be based on their level of contribution to the research, in addition to their input at the writing stage. The authors should have made a significant contribution to the research, e.g. at the conceptual, design or analytical level, or contributed to the writing and editorial stage.

Writing for an audience
Whether writing a report for a small audience or paper for a journal, it is important to be aware that when we write we are doing so for a specific audience and effect. Knowledge of the type of audience our writing is aimed at will help the writing process.

Leese et al (1996) identified four distinct audiences to which the results of research and development in primary care are disseminated. These are:
- Policy makers
- Managers and health professionals
- Researchers
- Service users

ABSTRACT
This last article of the series reviews some of the key issues that need to be considered when preparing your research findings for dissemination. Dissemination is an integral part of the research process and this article outlines some of the initial steps that need to be taken, including the establishment of agreements between authors. The importance of writing for a specific audience and how this determines the content of the report is then discussed. An overview together with guidelines on how to report qualitative and quantitative research is presented. General guidance on the choice of title, writing an abstract, listing references and acknowledgments are discussed. The article concludes with an outline of some of the key criteria editors use when reviewing a paper for publication.
The academic and scientific community

Consequently, consideration should be given to the stance your writing takes, i.e. that your writing reflects both the needs of the target audience and the type of effect you are hoping to achieve. For example, if the intended audience is policymakers, theoretical or methodological advancement resulting from your research should be secondary to its findings and implications for health-service organization. If the audience is researchers, the aim of the report might be to provide a deeper understanding of the topic, add to existing information or advance methodological procedures in that area.

In addition to the type of audience, one should also take into consideration the variety of article types, e.g. editorials, debates, reviews, letters etc, each of which has a different but specific function to inform. For example if your research included an extensive and methodologically sound review of the literature which could only be summarized in your research paper because of limited space, then submission to an appropriate journal as a review article could be considered.

Read the journal in which you wish to publish. This will give you a feel for the types and style of papers considered by the publication. However, the golden rule is always read the journal’s ‘instructions to authors’. It is essential to consider the publication’s target audience and the message of the article to be submitted. Failure to do so is likely to result in rejection by the editor.

What you write is also determined by the nature of the research you are reporting on. As discussed earlier in the series (Meadows, 2003a,b), research methodology can be broadly categorized as either qualitative or quantitative. Quantitative research focuses on the use of standardized methods (e.g. questionnaires) to collect information which is then transferred into numbers for statistical analysis. The aim of qualitative research is to help in the understanding of social phenomena in a natural rather than an experimental setting, with emphasis on the meanings, experiences, attitudes and views of the participants through the analysis of narrative, rather than providing quantified answers to a research question (Hoinville et al, 1978; Pope and Mays, 1995). Because of these dissimilar methodologies, the manner in which the research findings are reported differ considerably.

**Qualitative research**

There is little consensus on how qualitative research should be reported (Robson, 2002). Miles and Huberman (1994) considered that the conventional format found in the reports of quantitative research is ‘too schematic and constraining’ and that the reporting of qualitative research should respect its strengths, such as its emphasis on meaning, holism and the data being grounded in the experiences of the research participants. When preparing a paper for an academic journal it is advisable to look at the format of previous papers and follow any guidelines included in the journal. Some journals even have specific policy for the reporting of qualitative research.

Despite a lack of consensus on the reporting format, Miles and Huberman (1994) and Robson (2002) have produced guidelines on reporting qualitative research, which have been summarized in Box 1.

Robson (2002) provides a checklist of sections in a report of a qualitative study which would cover most aspects found in a qualitative research report and are as follows:

- The first pages should include the title, abstract, contents list and introduction explaining the purpose of the report, the research question, and outline of the research and structure of the report.
- The literature review should highlight the existing state of knowledge about the subject, an evaluation of this work and the relationship of this previous work to the present study.
- The methodology includes how and why the data were obtained, methods used to collect the data, approaches taken to data analysis and discussion of the integrity of the data and ethical issues.
- Data are at the heart of the report. It is important to remember that often in qualitative research data collection goes hand-in-hand with analysis and as a consequence it is often inadvisable to have separate sections or chapters on data and analysis.
- The final chapter should address the research question asked and what the answer(s) are, how

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**Box 1. Guidelines for qualitative reports**

- A qualitative report should inform us about the rationale for the study and what it was about.
- It should tell us clearly and in some depth what was done, by whom and how. It should demonstrate how the key concepts emerged and which variables appeared and disappeared and what were the important components of the data which led to important insights.
- It should provide basic data in the form of vignettes, organized narrative, photographs or other displays of data so that the reader can also draw conclusions.
- Conclusions should be articulated and described in broader meanings and in the context of ideas and action they can affect.

(After Miles and Huberman 1994; Robson, 2002)
and what are the links of the research to those discussed in the literature review, what lessons have been learned from the study, implications of the findings and specific suggestions for further research.

One important aspect about reporting the findings from qualitative research is that the data should never undergo statistical analysis or be quantified in any way, no matter how tempting this may be. It is perfectly acceptable to report, for example, how many women and men or GPs took part in the study, but it is important to remember that the findings from qualitative research are based on the analysis of the narrative of individual experiences. Furthermore, it should be remembered that the study participants for qualitative research have not been selected to be statistically representative of the population being studied, but to provide variations in the nature of their views and experiences. Statements such as ‘x% of respondents experienced strain and worry resulting from caring for family members’ should be avoided. A more appropriate example may be, ‘Caring for family members was seen by some respondents to be a considerable strain and worry’ (Fenton and Karlson, 2002).

Examples of the narrative are often taken from the transcripts of the interviews or group discussions, and are reproduced in the report to illustrate a point or describe the participants understanding of a concept. This is illustrated by two examples taken from a report on a series of interviews with a number of ethnic groups in their experiences of psychiatric illness (Boxes 2 and 3) (O’Connor and Nazroo, 2002).

Qualitative data can also be displayed in a number of ways, including charts, graphs, matrices and networks, and the researcher must be open to all means of ensuring that the data and findings are displayed in a systematic and powerful way. Often charts, diagrams, graphs etc, can communicate complicated concepts and arguments more effectively than the written word.

Quantitative research
While there is little consensus on how qualitative research should be reported (Robson, 2002), there is a conventional model of how quantitative designs should be presented (Box 4). This format might vary slightly according to the type of audience being targeted and the journal the research paper or report is being submitted to. However, generally the format in which the research is presented will follow the conventional approach. When reporting fixed-quantitative research in a scientific journal, it should be in a manner and of sufficient detail to enable someone else to replicate it.

Other elements in the reporting process
In addition to the introduction, methods, results, discussion and conclusion, a research paper or report will also require:

- A title
- An abstract
- References
- Acknowledgments.

The title should be concise but informative. It should not give the results of the study, but it should mention the subject, the focus of the research and the type of design. For example, ‘An assessment of the impact of cancer on the psychological well being of newly diagnosed cancer patients before and during a course of radiotherapy’ (Chandra et al, 1998).

The abstract should be able to tell the reader why the study was done and what was done, what was found and what the conclusions were. The abstract should stand alone in being able to describe the research. Journals often require abstracts to be structured in the same way as the paper, e.g. background, methods, results, discussion and conclusion.

References should always be read first and cited accurately. Avoid citing too many papers and limit the list to those that are directly relevant to the research being reported. Always follow the house style of the journal to which you are submitting (e.g. Harvard or Vancouver). If your research is in the form of a report that is not for publication and no particular format has been requested, choose a style.

Box 2. Example 1
Linked with the idea of stoicism was the concept of hope and ‘looking at the brighter side’. For example, a Pakistani man, whose business had gone bankrupt, described how:

‘There’s always a light at the tunnel, day follows night, it goes round in circles sometimes. You get your hard times but always followed by good times.’

Box 3. Example 2
Finally, relaxation was a strategy that was seen by some to have more support in some cultures rather than others.

‘I’m not going to sit down and start to worry about it…worry about it you’re going to start greying quick and get old before your time.’
RESEARCH METHODS

you feel comfortable with and retain it throughout the report. References should always be at the end of the paper or report, and not as a footnote on each page.

A good writing style is important when reporting your research findings, so spend time trying to improve your style to be readable. Ask your colleagues to read the report. Never doubt that your style can be improved – you may be surprised how much improvement can be made by the editor to your ‘perfect’ paper. Always use simple words, avoid using colloquial language and jargon and use an active rather than passive tense wherever possible.

Often the paper will go through a number of drafts, sometimes resulting in significant changes before you and your co-authors are satisfied. This can take many weeks, perhaps months, but it is time well spent if a clear improvement is seen in the paper. However, constant tweaking to make minor improvements must be avoided as this kind of behaviour leads to delay in publication.

Box 4. The key areas of a quantitative research report for a scientific journal

- **Title** – Describes in summary the main purpose of the study.
- **Abstract** – A concise summary of the research approx 150–500 words.
- **Introduction** – Provides a background to the study, previous research in the area, purpose of the research, research question or hypothesis to be tested.
- **Methods** – A detailed description of the procedures including: the number of study participants and their characteristics and how selected together with sample size calculations; equipment and materials used including a description of the questionnaires/interview schedule and tests used; how these were scored; the reliability and validity of scales and tests used; description of the setting where the study took place; statistical methods used to analysis data; duration of the study.
- **Results** – Number of participants and their descriptive statistics (e.g. age, sex etc.); description of the quantitative data analysis findings using where possible tables, graphs and figures.
- **Discussion** – Was the research question answered or hypothesis supported? What are the main findings from the study? What was the relationship between the study’s findings and previous research? What are the implications of the research findings? What questions has the research raised and what are the suggestions for further research? What are the limitations of the research and how could the research have been improved?
- **Conclusion** – A summary of the purpose of the research and its key findings and implications.
- **References** – All references cited in the report in standard format or requested by the scientific journal.

**Submitting your paper to a journal**

It is more than likely that if you are submitting the results of your research to a journal with a view to publication, it will be reviewed before being accepted. The review process can differ between journals, but in most cases it might be first read by the editor and then by two or more reviewers with knowledge in the area, who will critically review the paper and advise the editor. The author(s) will then be advised about the outcome, which might be ‘accept without revision’ (although this is unlikely), ‘revise and review’, ‘reject and resubmit’ or ‘reject’. The outcome is dependent on a number of factors, including the particular journal you submit to, and the journal’s ranking in the list of leading journals. So how can the chance of your paper being accepted be raised and what is it that editors and reviewers look for in a paper?

Broadly, papers need to describe research that is original and important, where the methodology used is correct and that journal readers will find it interesting. Your paper will gain favour with the editor and reviewers if the research question(s) has been clearly stated, the message is clear and important and your methods and results are clearly presented. Your paper will need to demonstrate brevity and clarity in style, with good grammar and spelling. It is important to remember to include an abstract.

Editors and reviewers do not like papers which describe unimportant or unoriginal research and very long papers. Papers are usually rejected because they have either incorrect or flawed research methods, e.g. statistical analysis, unrepresentative samples in quantitative research, provide no statistical justification to the size of the selected sample, have problems in the recruitment of patients to the study, or the discussion or conclusion is unrelated to the results. Other reasons include no evidence of ethical approval, very badly written and presented papers, paper sent to more than one journal at the same time and conflicts of interest, e.g. if the post of the author reporting the findings from a drug trial is also funded by the pharmaceutical company producing the drug. If you are in any doubt, contact the journal’s editor – most are very happy to talk to you.

Before submitting your paper to editorial review it might be helpful to evaluate your own research using the checklists of the Critical Appraisal Skills Programme (CASP) at www.phru.nhs.uk/~casp/casp.htm. Follow the links to learning resources and critical appraisal tools.
Conclusion
The focus of this paper has been on the final but equally important phase of a research project, the dissemination of the outcomes of the research. Dissemination, whether through submission of a report to a funding body or publication in a journal, should be seen as an integral part of the research process and as such should be addressed early on in the project, and not seen as simply something to be done at the end of the research.

Careful consideration should be given to the messages from the research and audience at whom the reports are aimed. Particular care should be given to the originality and importance of the research, the choice of methodology, the conclusion drawn and the style in which the research is presented. Dissemination of research is essential if our findings are to be of benefit to others, as a consequence dissemination should receive the attention it deserves.


Meadows KA (2003a) So you want to do research? 1: An overview of the research process. Br J Community Nurs 8(8): 369–75

KEY POINTS
- Dissemination of research is essential if our findings are to be of benefit to others, and to be open to critical examination by our peers as well as promote service development, based on sound evidence.
- One of the traditional ways of disseminating the findings from research is through the publication of the research paper, which describes the research and its findings.
- Knowledge of the type of audience our writing is aimed at will help the process.
- One important aspect of the reporting the findings from qualitative research is that on no account should the data undergo statistical analysis.
- Papers need to describe research which is original and important, where the methodology used is correct and that journal readers will find it interesting.