

**ORIGINAL PAPER****The Publication Culture of Nursing Science in Finland: analysis of Research Articles Published in the Journal of Nursing Science from 1989 to 2008.****Katri Vehvilainen-Julkunen, PhD, RN, RM, FEANS**

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**Corresponding author:** Katri Vehvilainen-Julkunen, University of Eastern Finland, Department of Nursing Science, POB 1627, 70211 Kuopio, Finland. Email:katri.vehvilainenjulkunen@uef.fi. tel: +358503381957, fax:+358-17-162632**Abstract****Purpose:** Nursing science has developed rapidly as an academic discipline and also as a scientific institution internationally in the past thirty years. Publishing policies in different disciplines can be used in analyzing their development and scientific culture. The purpose of this paper is to describe publication profile of Finnish nursing research and the contents and methods used.**Methods:** The data consisted of 433 articles published in Journal of Nursing Science (in Finnish *Hoitotiede*) during years 1989-2008. The journal is the first national scientific journal founded for nurse researchers in 1989. The data were analyzed using content analysis.**Results:** The publishing has developed from single author papers to group work. A total of 24 % of the papers were single authored. Most of the papers were published in research groups within the discipline (94 %). Only 24 papers included collaboration with other disciplines such as medicine, statistics and education. Half of the papers concentrated on nursing practice and rest mainly on methodological issues or education. Only a few papers focused on health promotion, leadership issues or health policy. The nature of the research studies was descriptive, focus more on qualitative studies and a few intervention studies were published. Data were mostly collected by surveys or interviews and physiological methods were nearly non-existent.**Conclusions:** The focus in Finnish studies has been on patients but on minor scale. The future challenge is to produce knowledge thru research programmes to have impact on clinical practice and health policy. Further studies are needed in evaluation of the state of nursing research in Finland and the contents as well as outcomes of the field.**Keywords:** content analysis, Finland, nursing science, methodology, publications, research**Introduction**

Research publications have become an increasingly important subject as public discussion strongly emphasises the cost-efficiency and productivity of research. With the advent of the information society, intangible products and profiting from their associated rights have become a source of daily income for a growing percentage of mankind. This is also the case for researchers. The publication of research results shows the outside world the results of one's work as concrete products. The current public discussion regarding productivity manifests itself to the individual researcher in the form of demands to produce certain types of publications, which are

rewarded financially in the form of posts and other financial gain (Ketefian & Freda 2009, Ketefian et al 2010).

Nursing science has developed rapidly as an academic discipline and also as a scientific institution internationally in the past thirty years. It is also recognised as the broadest area of higher education in terms of coverage, as well as one of the fastest growing fields (Akid 2001). The publication practices in this field are international; evidence of this includes the rapid growth in the number of impact factor journals (cf. Citrome 2007). According to ISI's Web of Science database, today there are 88 impact factor journals in nursing, whereas two years

ago there were 40. The development of nursing science research has been presented with numerous challenges and the expectations associated with all sciences and research, which include drawing up systematic research programmes, focusing of research, internationalisation and high-quality research education, as well as multidisciplinary (e.g. Moreno-Casbas 2005).

The nature of knowledge in different fields of science is different and consequently their publication profiles have formed in different directions. According to the ideas of Tony Becher (1989), scientific fields differ in terms of their cognitive and social dimensions. The first aspect describes the hardness and softness of scientific fields. Hard fields share common research questions and a coherent view of acceptable scientific research results. In soft fields research is focused on the comprehensive explanation of individual phenomena. They do not have a consensus on theories and accepted research results, but rather several schools of thought and research trends exist. In Becher's classification, scientific fields are divided in the social dimension by organisation of research, working practices and values. Thus, the social rules and cultures of a scientific field guide researchers and determine the speed of development of a field (Citrome 2007, Ketefian et al. 2010).

A report that appeared in 2008 (Puuska & Miettinen 2008) on the publication practices of Finnish scientific fields stated that each main field of science clearly has its own unique publication practices. There is a uniform publication practice in medical science, and the publication practices of the natural sciences are also rather uniform. Both fields mostly publish in international journals that are respected by all Finnish fields of science. The publication practices of other fields of science are more diverse, humanities and social scientists publish the most publications in book form – non-scientific publications are also typical for them. A corresponding type of correlation is found in the number of writers – in scientific fields (medical science, natural sciences and technology) writing is done in groups, in social sciences writing together is becoming more common, and in the humanities writing continues to be mostly done individually. Furthermore, men appear to produce more publications than women.

The quality and scope of nursing research has been analyzed internationally. Swedish researcher Rahm Hallberg (2006) analysed 80 international articles with the aim of producing information on the relevance of research related to nursing science. According to the results, only two percent

represented results research and 12% quasi-empirical research. Another significant observation was the lack of intervention research. Instead, at that time as much as 23% was reported as descriptive qualitative research. The emphasis in international writings is on strongly involving the consumer and user of health services in research entities. (also Rahm Hallberg 2009, Mantzoukas 2009; cf. Sarvimäki & Lutzen 2004, Cecil, Thompson & Parahoo 2006, Luker 2006, Polit & Beck 2009). An analysis by Lundgren and partners (2009) of the nature of nursing science in Scandinavia, which was based on doctoral theses and used material from year 2003, explained various publication practices in Finland, Sweden and Denmark. Although the analysis focused on only one year, the authors noted that Swedish doctoral theses were heavily influenced by a biomedical orientation and journals. The Finnish material used in the analysis consisted of doctoral theses from Åbo Akademi, on which basis Finland was situated in the most original line, and in a line that produced theoretical knowledge on care. Several analyses have also been conducted in Finnish, mostly repeating the same information: the research is descriptive in nature, the methods for collecting material have been questionnaires and interviews. The small number of intervention studies is also apparent in Finnish studies (Academy of Finland 2003), as is the abundant use of qualitative methods. Among others, Cecil, Thompson and Parahoo (2006) noted that articles intended for high-level journals generally included empirical original material, they were written in research groups and the subject of interest was some clinical problem and patients. To summarise, earlier analyses of research were mostly focused on examining the content of information.

Traynor, Rafferty & Lewison (2001) published a bibliometric analysis of nursing research in Great Britain from 1988 to 1995 based on articles published in scientific journals. The central goal of the analysis was to examine the research of the field, classifying it into introverted or extroverted research. Introverted research focuses on investigating the characteristics of professionals and the profession, while extroverted research focuses on the patient perspective. According to the results, the research is non-typical compared with biomedical research. One of the features of the research was that funding for the research and group work were connected to each other and financiers were hardly mentioned. The articles were quite different in nature. The research appears introverted, in contrast with nursing practices and results of nursing work. Furthermore according to the analysis the research has been short-term and

small in scale. Therefore, in terms of research quality it does not achieve the golden rules of high-level research, such as several authors, international collaboration and interdisciplinary collaboration (Houfek et al. 2010). Naturally, the situation can be explained by the development stage of the field, the need of the field to be examined internally and undergo theoretical discussion, and the need of researchers to quickly publish the results of narrow projects in their own countries. Furthermore, the research is usually not conducted full-time, so small-scale projects are easy to manage. The lack of research funding is also a limiting factor (see Moreno-Casbas 2005, Fealy & McNamara 2007, Ketefian et al. 2010).

### Finland and nursing research

The first academic nursing science institution in Finland was established in 1979 at the University of Kuopio (nowadays University of Eastern Finland) (Vuorio 2006, Eriksson et al. 2008). Thereafter, in addition to Kuopio's institution, the Universities of Oulu, Tampere and Turku as well as Åbo Akademi have continued in the 2000s as academic institutions of the field. The development of Finnish nursing science has been characterised by various stages, like the development of science in general. In the initial decades these stages included the development of the scientific institution (institutions of nursing science and training programmes) and a grasp of research in the form of doctoral theses (see Moreno-Casbas 2005, Mendoza-Parra et al. 2009). The 1990s saw the beginning of a systematic development of the research programmes in all Finnish units, and the basis for producing knowledge was defined. In the first decade of the 2000s the question is how to make research have a greater impact, and how significant is research in the caring of people. Research can consequently be expected to be increasingly restricted and based on programmes, while publication activity becomes more international.

The development of nursing science in Finland has been assessed by means of a few analyses of research and by limiting or restricting the research subject. The starting points of these analyses have been journals and theses of the field (Sinkkonen 1988, Tuomi 1997, Suominen & Leino-Kilpi 1998). The results produced information especially on research content, the subject of research and the methods used. To summarise the results of the analysis of Finnish research, the nature of research has been descriptive and has produced practical information. Material for the Finnish analyses is limited to the year 1995. The previous analyses did not look at the publication

practices of the field and nor did they evaluate the development of the field.

### Aim and research questions

The purpose of the study is to describe the development of the field of nursing research in Finland from two types of perspectives, i.e. publication and production of content, and to produce information for an instructive discussion of the scientific field and to steer research activity. The individualised research problems are as follows: 1) What do the publication tradition look like? 2) What are the aims of the research and by what methods is it conducted?

### Material and Methods

The material consisted of articles published in the Journal of Nursing Science (in Finnish *Hoitotiede*) between 1989 and the end of 2008 (n = 433). The Journal of Nursing Science was selected for the analysis because it is the first official national publication forum for nursing science since 1989. It is published by The Finnish Association of Nursing Research (*Hoitotieteiden Tutkimusseura*, HTTS ry). Furthermore, the purpose and mission of the journal is to publish new knowledge in the field. According to its guidelines, the purpose of the Journal of Nursing is "to provide new knowledge in nursing science and its research results and to act as a scientific discussion forum. The journal publishes scientific articles related to nursing and its theoretical bases, scientific articles related to education and research in the field, and various reviews and surveys related to the field of nursing." The journal was initially issued four times a year and usually contained six articles. Since then the number of issues per year has grown to six and each issue contains 4-6 scientific research articles. The data of this study included only the journal's scientific articles and excluded reviews and dissertation announcements as well as discussion forums. For the collection of material, a separate form was compiled to collect data on every issue of the journal. The form contains information on the authors, their affiliations and collaboration with other scientific fields. The second section looks at the content and methods of the articles. The data collection form was developed based on previous international studies and research reports (Cecil, Thompson and Parahoo 2006, Luker 2006, Rahm Hallberg 2009). The principal researcher and a post-doctoral research assistant familiar with research in nursing collected data based on the summaries of each article and filled out the forms in 2009. Some of the data were analysed together and parts that were unclear were assessed together until

consensus was reached. The data were entered into an SPSS version 17 and analysed statistically. The results are presented with frequencies and percentages.

## Results

### Publication tradition of nursing science

A total of 433 articles that were published in the Journal of Nursing Science from 1989 to 2008 were analysed. Table 1 summarizes the data describing the publications. The majority (96%) of the publications were written in Finnish and only 4% were written in another language, in this case Swedish. An analysis of the authors of the publications reveals that there were 103 articles written alone and 330 written in a group. About one-fourth (24%) of the publications from 1989 to 2009 were written by one person. Seventy-two percent of the articles written alone were written during the first decade of the journal, i.e. between 1989 and 1997. Since 1998 the writing of publications in groups has grown significantly. The majority of articles came from collaboration within the field of science (94%). A total of 26 articles included collaboration with other sciences. Medicine (38%) and statistics were popular partners. Other fields were individual cases such as education, public administration and social sciences.

**Table 1. Background information of the publications in Journal of Nursing Science 1989 - 2008 (n=433)**

Background information	n	%
<b>Language</b>		
Finnish	415	96
Swedish	18	4
<b>Interdisciplinary collaboration</b>		
Yes	26	6
No	407	94
<b>Disciplines in collaboration (n=26)</b>		
Medicine	10	38
Statistics	6	23
Education	2	8
Others	8	31

### Content and methods used in publications

The greatest share of publications, nearly half, (46%, n=201) in the journal dealt with nursing practice. The second most common topics in the articles were methodological questions and nursing education, while health policy, health promotion, questions of leadership or the career development of health care

professionals were less frequent subjects of research (Table 2).

**Table 2. The contents of publications in Journal of Nursing Science 1989 - 2008 (n=433)**

Contents	n	%
Nursing practice	201	46
Methodology	61	14
Nursing education	55	13
Nursing theory and concept analysis	33	8
Health promotion	29	6
Nursing leadership and management	25	6
Philosophy and ethics	16	4
Meta-analysis	11	3
Health policy	2	0
<b>Total</b>	<b>433</b>	<b>100</b>

Qualitative methods were used in nearly half (47%, n=204) of the studies published in the journals. Quantitative research was published in about one-third of the works (34%, n=147). Furthermore, 16% of the publications used combinations of the aforementioned methods. The most popular method for analysing material was content analysis (31%, n=133). In addition, participatory action research was used as a method seldom, only in three studies out of 433. Literature reviews constituted one-fifth of this material (21 %, n=91), which can be considered a relatively high figure. Qualitative methods such as ethnomethodology, grounded theory or phenomenology were reported only in a few studies.

The majority (95%) of nursing research in the Journal of Nursing Science was on a descriptive level and was comprised of a combination of descriptive and explanatory research. Only 4% of the publications were intervention studies and furthermore there were only individual cases of action research. The most popular methods for collecting data were questionnaires (37 %, n=159), interviews (28 %, n=121) and analyses of literature (25 %, n=106). Physiological measurements were used in five studies out of 433.

Patients were the most frequent subjects of material collection or informants (31%), while nursing staffs were studied less than patients. Nevertheless, there was little or no nurse – patient material or student – nurse material. Furthermore, hardly any material was collected from doctors or nurses or patients and their close relatives (Table 3). The size of the material in the publications varied greatly – from under ten to over 1,000 – depending naturally on the methodological selections of the study. Over half (52%) of the studies contained sample size 100 or less.

**Table 3. The sources of materials in publications in the Journal of Nursing Science published during 1989 - 2008 (n=433)**

Material	n	%
Patient/client	132	31
Nurse	77	18
Student	47	11
Nurse leader	18	4
Nurse teacher	8	2
Patient and nurse	16	4
Student and nurse	0	0
Physician and nurse	7	2
Patient's relative	26	6
Relative and nurse	7	2
Other	113	26

## Discussion and Conclusions

### Study limitations

The article describes the results of an analysis of the publications of a Finnish scientific journal. The material and analysis have their own limitations. The Journal of Nursing Science publishes articles especially related to the development of the science, so the description of research may be distorted to that extent. Furthermore, Finnish researchers who speak Swedish publish a large amount of material in Scandinavia. The reliability of the analysis would be improved if they also included articles on nursing science and/or nursing scientists published in other Finnish scientific journals or in international journals. However, because the purpose of the study is to get a general overview of nursing research in Finland, the choice of the journal was accurate. The data were collected and analyzed by a structured data collection form to enhance rigour of the study.

### Discussion of the main findings

The publication tradition of nursing research is very clearly congruent with the development stages of a new science. In the initial stage the publications of a field are written alone. With a few exceptions, doctoral theses were also written in Finnish around 1990. The reason for this was a special need to produce knowledge in this field for a broad audience in the Finnish language. Another element of the early stage of research in a new scientific field is the training of researchers – pioneers therefore often need to work alone during the early stage. When comparing nursing science on a general level to Finnish research publication, its publication practices appear to be mostly the same as practices of the social sciences (cf. Puuska & Meittinen 2008).

With regard to the subject of research, the results give a different picture than the one given in the report on the situation in Great Britain by Traynor, Rafferty and Lewison (2001). The focus in Finnish research has been on a strong patient orientation or use of patients as informants as well as clinical questions. As late as the 1980s, the focus of Finnish nursing research was on internal questions, i.e. it was more introverted and more information was produced from the perspective of the nursing staff (Traynor, Rafferty & Lewison 2001). Development features such as an increase in group work, which are related to the expansion of research customs in the scientific field and the diversity and criticality of the early stage of research, are already becoming evident in publications, but there is still very little interdisciplinary collaboration. Groups have published articles on small-scale and individual projects. Writing in groups also appears to be led by and benefiting from a supervisor (Moreno-Casbas 2005, Houfek et al. 2010).

Based on this material, the image given of nursing science research continues to be partly splintered, and this confirms that the research is oriented toward doctoral theses and other theses without strong post doctoral research. The descriptive nature of the research and the lack of intervention research is in line with results obtained in international studies. Also, physiological measurements do appear to be used in Finnish research, which is odd considering the holistic nature of nursing science and considering the comprehensive view of humans (the ethos of the science). It could even be argued that, based on the analysed articles, a psychological or mental view of humans continues to appear in the definition of the research subject of nursing science, instead of also seeing people as physical beings. The methods for collecting and analysing material used in the studies are also relatively traditional and established. More

qualitative research has been published than quantitative research, and researchers mostly depend on analysis of content when analysing the material (Rahm Hallberg 2006, 2009, Moutsakas 2009). However, the situation has hardly changed in this regard since the early period of the field (Suominen & Leino-Kilpi 1998).

A distinct challenge for the field of research is for researchers to develop projects that are more ambitious and longer term, and to develop a more professional approach to research, in addition to numerous other challenging jobs. The visibility and significance of nursing science in health policy should also be highlighted. In assessing the scientific field and the research results it produces, quality publishing is an essential subject, but mere high-quality scientific publishing is not enough, particularly in fields that function actively in practice; it is also necessary to determine the impact of research results, at least on people being treated and more broadly on all health policy (Polit & Beck 2009). The overall view of humans held by nursing science also requires familiarisation with a variety of methods for collecting material, including the use of physiological measurements; these are particularly important in assessing the impact of nursing care and in analysing treatment related to a person's physical needs.

Health promotion, health policy and leadership were less frequently addressed in the articles of the Journal of Nursing Science. One explanation can be that this research is published in different kinds of publication forums – this is clearly an area for further research. On the other hand, we can ask whether this gives a description of the field as an introverted science if the most important journal does not address the field's social factors and influences. This also challenges the editorial staff of the journal and the definition of the journal's field: this kind of definition can have an effect on the types of articles offered to the journal for publication. In recent years research funding has become one of the criteria for the productivity of research. This study did not investigate references to funding. Future research should examine how and who funds nursing research and how it relates to funding of medical research, for example. The relationship between publications and research programmes of the field's research units and international activity should be analyzed. This topic offers numerous subjects of further research, such as research funding, internationalisation of the field, a bibliometric citation analysis of Finnish and international nursing science publications and their dissemination.

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