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## **TITLE**

Embracing a research culture in conducting research requires more than nurses' enthusiasm

## **Introduction**

The increased emphasis on evidence-based practice in healthcare has led to a move of hospital-based nurse education into higher education institutions. In both developed and developing countries, there was a stronger emphasis on teaching nursing research and developing nursing research in practice in nursing programmes in institutions at both undergraduate and post graduate levels. Research was introduced in the curriculum to increase awareness of research and capacity building to promote research output (Meyer et al. 2003; Department of Health 2005; Woodward et al. 2007). Nurses' input in generating research evidence has also been encouraged by the introduction of advanced nurse practitioner roles, which led to increased opportunities for research participation (Woodward et al. 2007). Despite these efforts, in the west, there has been a general lack of research to guide practice (Thompson et al., 2001) and insufficient research dissemination was reported (Clifford 2004). At the same time Woodward et al (2007) observed complex organisational issues which contributed to skill deficits in interpreting and analysing research. Similarly in the East, research participation and utilisation amongst nurses had remained low (Oh, 2008, Tan et al. 2012, Tsai 2000). Attributing these was also general perception of barriers related to administrative issues (Oh, 2008, Tan et al. 2012, Tsai 2000).

To join the world in the evidence-based movement, Singapore has also been proactive in building a research culture in nursing. The concept of evidence-based practice was enthusiastically introduced as soon as it gained ground in the West. This was evidenced by many seminars since the new millennium (Loke 2001) and also, by the migrating of nursing education to diploma and degree levels through the establishment of polytechnics and the Alice Centre in the local university. However, the success of the research culture in the country remains unexplored. The efficacy of building a research culture need to be established for ascertaining the effectiveness of promoting research in the nursing curriculum in order to enable some insight into its successful transference to nursing practice. Therefore, this study was conducted to explore nurses' perceptions of their research knowledge and their experiences of nursing research activities to determine, if they saw themselves as being able to conduct research in practice. In essence, this study seeks to highlight any gaps in research provision within educational institutions and health organisations so these can be addressed.

## **Background / Literature**

The available literature suggests nurses lack knowledge and skills to undertake research and view it as a separate activity from professional practice which involves emotional and personal investment (Clarke & Proctor, 1999; Hicks, 1995; 1996; Clifford & Murray, 2001; Kuuppelomaki & Tuomi, 2003; Tan et al., 2012). As a result some nurses demonstrated a lack of interest in applying research knowledge and skills to practical application. Indeed, many Finnish nurses have conducted research only because it was part of their academic pursuit (Kuuppelomaki & Tuomi, 2003). Additionally there was a large volume of literature about getting research into practice, but a limited amount of evidence of nurses undertaking research (Woodward et al., 2007). Nevertheless, some nurses were found to be motivated to conduct research to address clinical problems for quality patient care (Tanner and Hale 2002, Tsai 2000). Unfortunately, nurses generally felt unsupported by managers and by medical doctors to conduct research (Bradshaw 2001; Clifford & Murray, 2001; Kuuppelomaki & Tuomi, 2003; Roxburgh, 2006; Tanner & Hale 2002). Motivation and support were in nurses' opinions crucial influencing factors for undertaking research activities (Bradshaw 2001; Clifford & Murray, 2001; Kuuppelomaki & Tuomi, 2003; Roxburgh, 2006; Tanner & Hale 2002). Hence, many nurses not only attributed their lack of participation to their lack of skills, but also to the lack of support, interest and time (Kuuppelomaki & Tuomi, 2003; Roxburgh, 2006; Tan et al., 2012).

Gender issues were also identified as a reason for the lack in research activities amongst nurses, who by majority were female (Hicks, 1996). In other cases, political dynamics were found to have adversely affected practitioners' level of research activities (Coghlan & Casey, 2001; Meyer et al., 2003). For example, nurses who were involved actively in research were perceived as 'outsiders' of the organisation (Meyer et al., 2003). Another barrier to nurses' active research participation was nurses' perceived lack of appreciation for nurses' research which took a qualitative approach (Redwood, 2005).

The integration of theory and practice in nursing research was documented by Jolley (2002) who asserted research should not be confined to academia but needed to be integral to professional development. However, Cooke et al (2002) outlined barriers due to infrastructure difficulties and Adamsen et al (2003) highlighted variances in the nursing curriculum in research training. Gill (2004) also cites difficulties in integrating research into nursing and McNicholl et al (2008) suggested a paradigm shift in organisation culture to promote research. Additionally Rycroft-Malone (2008) stated that unless there was a culture change the analytical research skills would not lead to evidential usage. Joyce (2009)

suggests education has some accountability in ensuring research theory and practice was alienated and Jones (2010) added the requirement of a time allocation was necessary to enable research to flourish.

The small amount of available literature provided an insight into nurses' ability and experiences in undertaking research by outlining their lack of skills and knowledge in research as an explanation for their low level research activities. The nurses perceived the lack of support by organisations and medical doctors further inhibited their interest and motivation to undertake research. It is therefore important to determine if the issues and problems were similarly faced by nurses in Singapore so that measures could be adopted to negate these aspects.

### **Methodology/Methods**

This study employed a mixed-methods exploratory descriptive design, using a questionnaire based on closed and opened questions to measure nurses' demographic data, research knowledge, skills and experiences and nurses' perception of access to research activities and organisational support. The questionnaire was developed based on the literature review. Content validity of the questionnaire was achieved amongst 10 clinical nurses in Singapore before piloting amongst 10 nurse lecturers and 5 clinical nurses in Singapore. The questionnaires were then distributed to nurses in 4 research seminars focusing on research methods and the questionnaires were completed and returned at the end of the seminars. The study was approved by the University ethics committee. Respondents had the opportunity to decline participation and the questionnaire provided guidelines about how to access research support in the local context.

Four research seminars which focused on research methods were held on separate occasions between July and August 2011 in Singapore. Nurses (n=211) from both educational settings and clinical practice attended one of these research seminars. One hundred and eighty-eight of seminar attendees participated in the study making a response rate of 89.1%. Of those returned, 146 questionnaires were analysed, because 1 was incomplete, 1 was completed by clinical educator and 40 was by nurse lecturers.

For responses to the closed questions, descriptive statistical analysis was performed to provide insight to the research profile of the respondents. For responses derived from open-questions, an interpretative phenomenological approach was utilised make sense of nurses' experience in conducting research. Ball (2009) suggests nurses connect to a phenomenological approach because of its emphasis on the distinctiveness of the individual's real life experiences. In terms of this research it offers the researchers the

opportunity to interpret respondents experiences using a Heidegger hermeneutic approach (Heidegger, M. (1962) rather than simply describing the data using Husserlian bracketing (Husserl 1963, original 1913). This hermeneutic interpretative approach allowed themes to emerge from the respondents' narratives and interpreted by utilising the researchers own knowledge of nursing research. Hence the analysis was informed by the respondents narratives, by the researchers' knowledge and by other authors related to the fields of healthcare.

## **Data /Results**

### Respondent profile

Of the 146 usable questionnaires, 11 (7.5%) were by male and 135 (92.5%) were by female respondents. Most respondents (n= 64) were in the age between 20-29 and 30-39 (n=48). All nurses were in full time employment. Fifteen nurses were in either managerial or director positions, 10 were nurse specialists or clinicians and 121 nurses provided direct patient care. Seventy six (52.1%) of these nurses were employed in large tertiary teaching hospitals and the remaining 70 (47.9%) were affiliated to district hospitals and nursing homes. All settings had strong emphasis for evidence-based practice. However, whether this then led to opportunities for all to conduct research is revealed in further analysis in the next few sections.

All nurses (n=146) were holding either a diploma in nursing or a certificate in nursing. Many had higher degrees (First degree: n=71; Master's: n=3; PhD: n=1). Thirty nurses planned to pursue a higher degree (First degree: n=49; Master's: n =4; PhD: n=1). Presumably, all would have some exposures to research as a subject in the nursing curriculum at different stages in their education.

### Respondents research knowledge and skills

Nurses might have exposures research in nursing education. This did not necessarily mean that nurses have acquired the required knowledge and skills to conduct research independently. Indeed, for methodologies and research designs, while 76 (52%) nurses claimed to have knowledge of all three research approaches, there were still a significant number of nurses 20 (13.7%) claiming no knowledge of any research paradigms. While not many nurses claimed knowledge of all research paradigms, nurses claimed to have specific research methods with more claiming knowledge of the quantitative methods (n= 117, 80.1%) compared to qualitative approaches (n=113, 77.4%). Mixed-methods approach

which is a very useful nursing method, and yet it was least understood by nurses (n=92, 63%).

While one of the respondents suggested the need for “...*support to understand research terminologies*”. Some respondents (n=9) indicated a reluctance to undertake research was due to a lack of confidence and support, as evidenced in this quote, “*reluctant to undertake research, not confident, lack of understanding*” . Knowing ones’ own limitations, respondents were keen to acquire research knowledge and skills; 126 respondents (86.3%) would read research papers on patient care and nursing practice. Many nurses also accessed research papers from the various online sources; academic electronic search engines (n=101; 69.2%) and common search engines (n=82; 56.2%). However, many (n=37; 25.3%) were not aware that a support system was in place for free access of papers by employers and educational settings. While that was the case, 99 nurses (67.8%) claimed to be unwilling to pay for access. Nevertheless, some nurses (n=23; 15.8%) would seek colleagues to access papers and seek peer support to discuss papers (n=33; 22.6%). However, based on cross tabulation, nurses (n=47) who did not access papers electronically were those who did not approach colleagues for support.

#### Respondents experience in conducting research

A very small number of the respondents had experience in conducting research. Also, these experiences were limited to rendering help to colleagues who are conducting the research, many of whom were medical doctors. The research methods nurses were generally exposed were either survey based research (n=87 59.6%) or randomized controlled trials (n= 43 29.5%). This explained why many nurses claimed to have knowledge of either survey-based research (n=131, 89.7%) or randomised controlled trial (n=97, 66.4%). Nevertheless, nurses claimed experience in the qualitative paradigm in participant observation (n=71 48.6%), and in semi-structured interviews (n=44, 30.1%).

When asked if nurses had knowledge in data analyses, many claimed to have no understanding for both quantitative (n= 72, 49.3%) and qualitative methods (n=86, 58.9%). This strongly suggested that the experience in research for nurses did not go beyond data collection and the actual involvement in research as a co-investigator was limited. This finding is consistent with the qualitative finding in which nurses felt that they were expected to have adequate knowledge to identify research questions, but not the skills to conduct research in order to follow through their research questions:

*“...expected to have research ideas knowledge but no one briefs us how to conduct it, so can lose interest... no one explains how to do it”*

This observation was consistent with the qualitative finding that many nurses felt that research opportunities are confined to the medical professionals. As expressed by one respondent that it was more common for doctors to do research for they had the resources and the privilege to access protected time for research:

*“More doctors do research, they can afford their own research team. Data collection tends to be undertaken by nurses during their nursing duty shift”.*

### Respondents' perception of the focus and nature of support in research activities

Many nurses (n=124, 84.9%) wanted to improve their knowledge and skills for conducting research. While the results demonstrated that nurses had conducted research as part of a research team led by medical or nursing professionals, many nurses not only conducted research to help colleagues (n= 75 51.4%) but they had also conducted research for their own academic pursuit (n=50, 34.2%).

Indeed many nurses (n=107 73.3%) value research activities in terms of its ability to develop them into a more valuable team member with some (n=62, 42.5%) claiming that their jobs involved research. Additionally many (n=80, 54.8%) saw their job as being closely related to research and a large number (n=67 45%) viewed the importance of research as an activity for improving patient care. Indeed, the qualitative data revealed nurses view on how the provision of clear guidelines and transparency between researchers, institutions and patients involved, would ultimately benefit patients.

While many nurses supported the view that conducting research is important for patient care, nurses generally felt that more research support was experienced if the care took a medical rather than a nursing focus. As pointed out by a respondent there is,

*“more support medical research rather than nursing research”.*

As such, the ability to conduct research is very much dependent upon,

*“supportive managers and doctors sharing their knowledge and ideas...”.*

Nurses perceived that people in critical positions were unsupportive towards nurses conducting and this introduced a negative outlook towards undertaking research.

*“... the doctor is not supportive of research activities.*

Some responses drew on the concept of there being support from managers to undertake research without providing the means for nurses to undertake it due to lack of appreciation of research as a nursing activity:

*“Furthermore the management might not find the need for such activities”.*

When organisational support was not felt, some nurses became disillusioned of the value of conducting research in nursing

*“...it makes no difference if I do research or not”,*

as it was generally felt that conducting research was

*“...more about meeting department goals in meeting key performance indicators than contributing to improvement in nursing practice”.*

### Respondents' perception of organisational support

Many nurses (n= 95 65.1%) perceived opportunities in conducting research in their area of specialties. While nurses saw opportunities for research, many more (n= 109, 74.6%) generally felt that they were not given protected time to conduct research; there was only one respondent who indicated, in the qualitative section, that time was being provided to undertake research. This finding is similar to that of Cooke et al (2002) which outlined barriers for health professionals undertaking research because it was not viewed as *“legitimate work...or as part of a career path”*, and staff wishing to engage in research faced *“a lack of infrastructure and support for research...”*(p435).

Comments from respondents included, *“...clinical service comes first so problems in allocation of time for research, impacts on ability to undertake good research – obstacles and discouragement”* and suggested solutions such as the, *“...need for protected time to undertake research”* and the *“...need for it to be written into job descriptions”*. The need for an infrastructural revision to enable nursing research is verified by Jones (2010) who asserts the concept of nursing time requires consideration when asking them to undertake competing tasks as *“Knowledge of what nurses do and how they do it is essential...”* (p188). An overwhelming barrier to research was seen as the lack of time allocation to undertake research

The findings from this study demonstrate research seen as an addendum to normal practice and undertaken in own time as articulated by one respondent *“Research is done as an extra activity”*, and by another as, *“Time for research viewed as a privilege”*. While nurses' perceived inadequate support, only 65 of them (44.5%) felt supported by their line managers and medical doctors in their research activities, many (n=100, 68.5%) were unaware of available funding to support research activities and so unknowingly reduced their potential opportunities for conducting research.

## Discussion

Nurses in this study had all been educated to at least a diploma level in nurse education or held a first degree. They were likely to have been exposed to a significant research component in the nursing curriculum in their education. This was verified by a larger number claiming to have knowledge and skills in research. Nevertheless, at the same time, nurses claimed the need to increase research knowledge and skills and suggested that management address these deficits and provide and encourage research opportunities.

Adamsen et al. (2003) highlighted variances in the nursing curriculum in research training leading to “...*the majority of nurses who today work in clinical practice do not have formal or reliable research-related qualifications*” (p444). Whether this was the case with the Singapore nurses is not known. Certainly, the findings suggested variability in nursing research knowledge and skills with many not having the confidence to conduct research independently. In this regard, it is pertinent to evaluate the research component of the existing nursing curriculum and rethink how the research process could be taught so that it is learnt for useful application in clinical contexts.

Having suggested how the imparting of research knowledge and skills should be re-thought in nurse education, it is important to highlight that research should not be confined to academia but should also be integral to professional development (Jolley 2002). To enable this, research knowledge and skills implanted in the nursing curriculum needed to be followed through in healthcare institutions where nurses are employed. As such any understanding of the research process instilled in education can be continuously experienced in real situational work contexts so there knowledge and skills can be improved and enhanced.

While mapping the quantitative data with the qualitative, the findings revealed that nurses with little experience in conducting their own research wished to participate in research activity. However, they faced frustrations in terms of organisational culture and infrastructure. A number of respondents commented upon this aspect, additionally one respondent attributed this to the lack of research knowledge at nursing managerial level, as to her “...*not all managers are research savvy...*”. The respondents also offered solutions for support such as a need for an “...*experienced research facilitator to guide through...protected time...adequate funding*” and these were all important factors for conducting research.

Indeed as revealed in this study, nurses saw the importance of research in nurse professional practice for patients. Nurses in this study recognised the potential of creating



opportunity for teamwork in research activity and believed that it could lead to improvements in the quality nursing through the bringing of critical elements of inclusiveness and recognition. Nurses qualified this by discussing the need to develop the effectiveness of the team to increase knowledge and involvement in research activities. Hence, in contrast to previous research studies (Clifford & Murray, 2001; Kuuppelomaki & Tuomi, 2003), nurses not only had a strong interest but also a great enthusiasm for research. Yet at the same time findings from this study concur with previous work that research regarded a difficult process for nurses and was basically a rare opportunity for many (Clarke & Proctor, 1999; Hicks, 1995; 1996; Clifford & Murray, 2001; Kuuppelomaki & Tuomi, 2003). Findings in this study specifically demonstrated that there was willingness and strong enthusiasm of nurses to participate in research activity but that organisational culture and the requirements of practice infrastructure inhibited its development. Hence even though respondents embraced the important reasons for undertaking research as gaining evidence to keep up to date to support practice they were also aware of the need for organisational support, information and collaboration. The overall responses indicated the lack of research opportunities as being contributable to these being skewed towards benefiting medical doctors. Consequently to address this there is a need for a paradigm shift in organisation culture. Without this shift to promote research in nursing, evidence based practice cannot flourish (McNicholl et al 2008).

Evidently, in the current organisation culture in which there are limited internal resources, nurses were further compromised by their lack of knowledge of external sources available from various research funding streams. Additionally other barriers compounded opportunities for conducting research were alluded to as manpower shortages, family commitments, shift patterns, and research activity compromising work. In fact, respondents highlighted these problems also impacted upon team working due to,

*“...difficulties bringing people together staff undertake research when working shifts”,*

Nurses had also linked this to time constraints as explained by one nurse:

*“Difficult to multitask between paid work and non paid research work and family. It is meant for people who are 100% working everyday as researcher.*

These compounding factors need to be taken into consideration because if knowledge and access to external funding were sourced, nurses' potential for conducting research could be increased to enhance nurses' research experience which in turn, could promote the organisational research culture to further enhance it.

The sample of nurses in this study showed great enthusiasm for research. This was first indicated by their participation in the research seminar at own cost and time and also their willingness in participating in the current research. Further evidence of nurses' enthusiasm gleaned from this study, revealed their zeal for higher education and their claim of wanting to be involved in research activities in order to become valuable team members who have the ability to improve patient care. One cannot deny that such great enthusiasm for research activities would not have been found in every nurse in Singapore. Claiming generalisability and representation of the findings was not the aim of this study, the important finding as revealed, was that such strong enthusiasm amongst nurses, did not help in breaking down the barriers of organisational culture and constraint in conducting research. In this regard, unless the organisation cultural barriers are reviewed, the development of analytical research skills will not necessarily lead to evidential usage (Rycroft-Malone 2008). Simultaneously, there is a need for education which has the ability to impact upon the organisational culture to start driving leadership and organisational effectiveness forward (Joyce 2009). These changes would be influential in enabling nurses to conduct clinical research so it becomes viewed as part of normal practice this in turn would enable nurses to draw upon support from their organisation and from colleagues in both nursing and non-nursing disciplines, naturally without the need of any conscious efforts.

## **Conclusions**

By employing a mixed-methods approach, the emerging themes from the qualitative data were mapped against the quantitative findings. This provided some valuable and interesting insights into nurses' views on the barriers affecting their ability to undertake research and the need for organisational culture and infrastructure changes. Issues revolved around the lack of transferability of nurses' knowledge and skills due to time constraints and the ability to undertake team working in research, alongside limited organisational support due to work requirements were critical findings. While, the findings cannot be generalised to the entire clinical nursing population in the country, the sample were well represented of Singapore, as all had been exposed to a nursing curriculum which included a research component. Evidently, research knowledge especially in terms of research terminologies, methodologies and methods were not lacking amongst these nurses. For this reason, barriers to nurses conducting research cannot be attributed to the lack of fundamental research knowledge and skills alone. The complexities of the research process is compounded by the complexities of practice working responsibilities in the clinical environment and these factors need to be addressed to negate barriers and to allay fears amongst nurses in undertaking research.

Findings in this study were disturbing, because nurses were expected to have been able to embrace evidence based practice with no boundary, as a result of the concept of evidence-based practice being introduced in the country a decade ago (Loke 2001). Also, as the majority of these clinical practice nurses who participated in this study were employees of large teaching hospitals or district hospitals and clinical research driven, then one would expect support in embracing the research culture was in place to advance nursing practice. In view of these findings, there ought to be a significant need for a strong emphasis on educational training from imparting research knowledge to facilitate research skills in experiencing the research process within higher education which can be transferred into practice settings. This is critical as the learning experience should continue into nurses' continuing employment. This calls for an urgent review of existing organisational culture and infrastructure with an aim to improve organisational support in terms of providing equitable mentoring support, protected time and financial support for nurses to conduct research in practice. The findings also demonstrated that in places where organisational support was available, awareness of such opportunities for access to educational and organisational support needed to be made equitable and transparent. This in turn would enable more nurses especially those who are highly enthusiastic about conducting research, to be able to do so within the context of the competing nursing practice demands.

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