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Guest editorial

Complex interventions and nursing: Looking through a new lens at nursing research

In this Editorial we urge researchers in nursing to increase the volume of translational research by embracing new complex interventions research methods thinking. We introduce readers to a multi-state strategy, supported by eight European research funding bodies, which aims to develop an international nursing research faculty. This faculty will be equipped to design, plan and implement programmatic, mixed methods and complex interventions research in nursing. The aim of this strategy – the REFLECTION Research Network Programme – is to inculcate ‘complex intervention thinking’ in both experienced and the next generation of researchers in nursing.

Nurses have a critical role to play in meeting health and social care challenges at the fore of global health concerns. These include an aging population, chronic diseases and new endemics. Nurses engage in an ever widening range of activities, many of which are highly complex and take place in multiple care environments including acute medicine, chronic care facilities, community and residential care homes. Example activities include patient education programmes; the coordination and delivery of packages of psychosocial care; support for patient self-care, etc. Changes in health care organisation internationally (e.g. short hospital periods and growing responsibility for patient self-care) are placing more health care in the hands of nurses, increasing the scope and the overall need for nursing care.

Nursing is thus an increasingly complicated activity. Nursing is also an intervention. Whenever a nurse interacts with someone else to care for them or to teach other nurses, the nurse performs an intervention. Nursing’s complexity is such that it can be seen as the quintessential ‘complex intervention’—defined as an activity that contains a number of component parts with the potential for interactions between them which, when applied to the intended target population, produces a range of possible and variable outcomes (Medical Research Council, 2008). Complex interventions are widespread throughout all of health and social care, from the apparently simple example of pharmacological treatment with its combination of biochemical, social and psychological factors influencing

patient concordance and physiological response, to more obviously complex educational or psychological interventions where a multi-layered set of dynamic features have great bearing on ultimate effectiveness.

Into this maelstrom of complexity comes the fact that the practice of nursing care is by no means assured to be benign. By failing to detect a health care need, giving poor advice or by incompetent and iatrogenic hands-on nursing care, nurses may harm patients (Grol, 2005). In an issue shared with other health care professions, the problem for many nurses is that the knowledge to improve their activities is often uncertain. This has led to multiple calls to improve nurses’ knowledge and for that knowledge to rest on a solid evidence-base. Whilst relatively new to the evidenced-based practice party, nurses have been urged to embrace the principles of the movement through undertaking more experimental tests of their activities (Borglin and Richards, 2010; Richards and Hammers, 2009; Thompson, 2004). However, many nurses have strong cultural, epistemological and research traditions which are at odds with the positivist traditions of biomedicine. Nursing has been riven with disagreements between those that support evidence-based nursing and those of a naturalistic orientation who maintain that nursing is so unique to the time, place and people involved that each interaction is impossible to replicate and test empirically (Rolfe, 2009). These debates are not so much wars of methodology as wars of perspective: i.e. of how to see the world and as a consequence which research questions to ask and which methods to use.

In nursing, the most sophisticated articulation of these issues has been by Hallberg (2006, 2009) in two editorials in this journal. She has essentially urged nurses to throw away the purely naturalistic spectacles and exchange them for eyewear that allows us to seek answers to questions which are specifically useful for future patient care. Her analysis of the perceived systemic failings in European nursing research is based on her observation that only a minority of research in nursing is ‘translational’. For example, between 2000 and 2006, studies from the top 10 scientific nursing journals were mainly descriptive and

did not report the impact of nursing interventions on patients (Mantzoukas, 2009). Of 210 papers published in two international nursing science journals annually, only 15% addressed 'research that may carry strong evidence for practice' (Hallberg, 2006, p. 924). As noted in other health care areas (e.g. Chalmers and Glasziou, 2009) where much research is also wasteful, disconnected and unnecessarily repetitive, this situation must change if nursing is to realise its potential for a secure evidence-based contribution to European health and health care. Hallberg called for this re-focus to develop knowledge 'in a step wise manner, a series of studies from descriptions, theory development, testing, exploring possible explanations, refining models or theories and testing them and implementing valid knowledge in practice. In particular, we need to learn more about the implementation process and about how to make it successful.' (Hallberg, 2009, p. 410).

There are, however, a number of problems. Firstly, developing an evidence base for complex activities and interventions is a considerable challenge. Difficulties in controlling for confounds, specifying both interventions and comparisons and selecting valid indicators of effect can lead either to the application of inappropriate methodological simplicity or a flight from quantification. Secondly, research supervisors are children of the old paradigms. Specific methodological experience and cultures within nursing research departments, are established by senior researchers and supervisors. Sadly, this tradition and past experience, rather than what knowledge is needed to inform practice, often determines what younger researchers do. A final concern is in the implementation of research findings themselves. Failures to describe and understand both inputs and outputs from complex activities can bring the implementation process – itself a complex, poorly understood and badly delivered activity – to a grinding halt. As Richard Grol and colleagues have demonstrated, many health care innovations do not get implemented until a considerable time has elapsed from the time when they were clearly shown to be effective (Grol et al., 2007).

As a consequence, during the last 10 years, a great deal of thought has been given to research methods which investigate how to develop and determine the components, efficacy, effectiveness, applicability and translational utility of complex health care interventions. Published guidance has now progressed to the point where researchers are recommended to investigate complex interventions and activities through a mixed methodological process of development, feasibility/piloting, evaluation and implementation, where there is a dynamic interchange (rather than a uni-directional procession) between process stages (Medical Research Council, 2008). These developments echo persistent calls for the integration of research methods and traditions in nursing research. Sequencing qualitative and quantitative methods (Sandelowski, 2000) where each method provides reciprocal guidance to sampling and data analysis and where the findings from one adds to the findings from the other are now strongly advocated in complex interventions (Campbell et al., 2007) and nursing (Pluye et al., 2009).

This thinking may offer a relief from the epistemology wars of the past. As noted by Galvin et al. (2008) the

integration of phenomenological research and the use of descriptive understandings can aid our knowledge generation in situations where clinical trials can often leave conundrums unanswered. This is to be warmly welcomed, although some may still find it distasteful that in this conceptual framework, the search for meaning is apparently subjugated to the need to directly improve patient care. Nonetheless, if one accepts that nursing is a complex applied science which requires complex and mixed research methods to improve its implementation, the question of methodological research competence in the nursing research community still arises. A cursory examination of most research training curricula will leave the reader in no doubt that most courses favour specific theoretical orientations. Even where multiple methods are taught, these are rarely if ever drawn together in a specific mixed methods paradigm. Our courses rarely consider how research methods can be planned in a programmatic way to deliver Hallberg's vision. If they did, her prescient criticisms would not be required.

So we have a situation ripe for change. A nursing research tradition characterised by work which is predominantly descriptive, cross-sectional, context specific and introspective requires shifting to one which is translational, experimental, longitudinal, generalisable and implementation focussed (Hallberg, 2009). The research skills deficits, clinical uncertainties and poor translational focus of nursing knowledge requires a fundamental shift if nurses are to practice their craft with sufficient confidence that good not harm will result from their actions.

Happily, we can now report that these challenges are being specifically addressed. In 2011, eight European funding bodies in a partnership brokered by the European Science Foundation (ESF), agreed to provide financial support to an ambitious five year international programme – the REFLECTION Research Network Programme – to tackle these crucial issues in nursing science. Together with other concerned colleagues, REFLECTION is coordinated by members of the European Academy of Nursing Science (EANS) and will bring leading European researchers in nursing together with other multidisciplinary experts in research methods within an overarching complex interventions research framework. Through summer schools and seminar programmes REFLECTION will disseminate cutting-edge research methods to current nursing researchers, the new generation of early stage European researchers and to countries where the translation of research knowledge is still being developed.

Although the REFLECTION network programme builds on EANS' Framework 6 European Union Marie Curie funded 'ASCEND' summer school programme (MSCF-CT-2005-029164) for early stage researchers in Europe, in which a multi-disciplinary faculty from 21 European countries has taught more than 250 nurse researchers from 24 nations across Europe, it is a radical departure from the past. REFLECTION will now share knowledge and expertise in advanced translational complex interventions research methods in nursing through a curriculum designed around teaching integrated, mixed methods, programmatic, translational and specific complex

interventions research methods in both summer schools and masterclasses.

Key immediate tasks for the REFLECTION network will be to develop an interdisciplinary European Faculty network of researchers, equipped to design, plan and implement programmatic, mixed methods and complex interventions research in nursing. Knowledge and expertise will be shared by running summer schools for early stage researchers in Europe using a complex interventions research methods curriculum. Experienced researchers in nursing and research supervisors will be able to attend masterclasses where international experts will engage them in the specific methods and skills required to implement translational research programmes. REFLECTION will facilitate our profession in developing research programmes for nursing which are multi-state, multi-disciplinary, and directed at improving the evidence base of nursing to meet core international health and social care concerns.

The REFLECTION research network programme will provide the bedrock upon which the next phase of research in nursing can stand. Our aim is to move the evidence base for nursing from the parlous state described by Hallberg to one where our clinical activities can be undertaken with confidence and increased certainty. It is an ambitious aim. On the way we hope that national education programmes for nurse researchers will become increasingly based on understanding nursing as a complex interdisciplinary and translational activity. We want to create a step change in the quality and focus of research in nursing. We want to enable our practice to be informed by evidence that has a true translational perspective. This can only be to the benefit of all nurses, and ultimately for ourselves as modern citizens and health care consumers, with all our own complex health and social care needs.

Conflict of interest: David A Richards is chair of the steering committee of the REFLECTION Research Network Programme and secretary of the European Academy of Nursing Science (EANS). Gunilla Borglin is a board member of EANS.

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