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Original Article

Strategic Communication Intervention to Stimulate Interest in Research and Evidence-Based Practice: A 12-Year Follow-Up Study With Registered Nurses

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ABSTRACT

Background: Bridging the research–practice gap is a challenge for health care. Fostering awareness of and interest in research and development (R & D) can serve as a platform to help nurses and others bridge this gap. Strategic communication is an interdisciplinary field that has been used to achieve long-term interest in adopting and applying R & D in primary care.

Aim: The aim of the study was to evaluate the impact of a strategic communication intervention on long-term interest in R & D among primary care staff members (PCSMs) in general and registered nurses (RNs) in particular.

Methods: This prospective intervention study included all members of the PCSMs, including RNs, in a Swedish primary care area. The interest of PCSMs in R & D was measured on two occasions, at 7 and 12 years, using both bivariate and multivariate tests.

Results: A total of 99.5% of RNs gained awareness of R & D after the first 7 years of intervention versus 95% of the remaining PCSMs (p = .004). A comparison of the two measurements ascertained stability and improvement of interest in R & D among RNs, compared with all other PCSMs (odds ratio 1.81; confidence interval 1.08–3.06). Moreover, the RNs who did become interested in R & D also demonstrated increased intention to adopt innovative thinking in their work over time (p = .005).

Linking Evidence to Action: RNs play an important role in reducing the gap between theory and practice. Strategic communication was a significant tool for inspiring interest in R & D. Application of this platform to generate interest in R & D is a unique intervention and should be recognized for future interventions in primary care. Positive attitudes toward R & D may reinforce the use of evidence-based practice in health care, thereby making a long-term contribution to the patient benefit.

INTRODUCTION

The World Health Organization (WHO) first highlighted the need to bridge the research–practice gap, also known as the “know–do gap,” 10 years ago, stating that it was one of the biggest challenges in health care (World Health Organization, 2006). Several knowledge translation strategies subsequently emerged, aimed at applying research evidence within public health. Such strategies, which usually foster communication-based relationship building, may help bridge this gap between researchers and practitioners (Orton, Lloyd-Williams, Taylor-Robinson, O’Flaherty, & Capewell, 2011). One knowledge translation (KT) strategy that the Cochrane Public Health Group (CPHG) promotes is dissemination through strategic communication (Jones et al., 2013). The gap between research and practice can be bridged through such strategic communication planning, which quantifies goals based on established channels for specific target groups (Windahl, Olson, & Signitzer, 2008) and promotes willingness to embrace change in the organization (Helfrich et al., 2011). Strategic communication is an interdisciplinary research field that has developed during the 1990s and 2000s. It is rooted in various disciplines, such as media and communication science, business and management, sociology, psychology, and political science, and is constructed around a number of theories from these areas. Strategic communication has been defined as “the purposeful use of communication by an organization to fulfill its mission” (Hallahan, Holtzhausen, Van Ruler, Vercic, & Sriramesh, 2007). This strategy has successfully generated both short-term and long-term interest in research...
as well as a willingness to change work practices based on innovative thinking that will probably benefit evidence-based practice (EBP) among healthcare personnel (Mortenius, Fridlund, Marklund, Palm, & Baigi, 2012a; Mortenius, Marklund, Palm, Bjorkelund, & Baigi, 2012).

Nurses are one of the most important occupational groups for contributing to EBP for the best interests of the patient (Youngblut & Brooten, 2001). Furthermore, nurses are essential members of the EBP team because of their clinical knowledge and expertise (Smith & Donze, 2010). Although their professional knowledge and academic expertise have significantly increased over the past several decades, continued development of their skills and knowledge also is vital for the future of health care. Two decades have passed since the first studies, which revealed the obstacles found in clinical practice, such as lack of time to read and implement research findings, lack of support, and lack of competent colleagues with whom to discuss research (Funk, Champagne, Tornquist, & Wiese, 1995; Nilsson Kajermo, Nordström, Krusebrant, & Björvell, 1998). Research shows that nurses continue to experience these same types of obstacles (Ubbink, Guyatt, & Vermeulen, 2013; Wilhelmsson & Lindberg, 2009). Factors that promote the application of research in nursing have been demonstrated; for example, a positive attitude toward research proved to correlate with implementation of new research findings (Estabrooks, Floyd, Scott-Findlay, O'Leary, & Gushta, 2003). Several studies have shown that nurses have a positive attitude toward research (Bjorkstrom, Johansson, Hamrin, & Athlin, 2003; Bostrom, Kajermo, Nordstrom, & Wallin, 2009), whereas others show that despite this attitude they do not commonly implement research findings in practice (Fink, Thompson, & Bonnes, 2005). A modest but significant positive correlation between critical thinking and implementation of research findings has also been reported (Profetto-McGrath, Hesketh, Lang, & Estabrooks, 2003; Profetto-McGrath, Smith, Hugo, Patel, & Dussault, 2009). According to Profetto-McGrath et al. (2003), nurses with attributes that are consistent with ideal critical thinking, especially those who were open minded, inquisitive, and systematic, were more likely to apply research findings in clinical practice.

Most research centering on nurses and how they use research, however, was conducted in the hospital setting rather than in the context of primary care. Historically, primary care research has not been prioritized, for which reason interest in and enthusiasm for this field have been limited (Funk, Champagne, Wiese, & Tornquist, 1991; Whitford, Walker, Jelley, Clarke, & Watson, 2005). Because of the contextual differences between these two settings, research results are not always directly transferable between them (Nilsson Kajermo, Alinaghizadeh, Falk, Wandell, & Tornkvist, 2014). Nurses in primary care play a key role, where their use of relevant and evidence-based knowledge is vital to patient care (Nilsson Kajermo et al., 2014). Lack of interest in research within primary care has been linked to two important factors: lack of a supportive infrastructure and lack of a facilitating research culture (Jowett, Macleod, Wilson, & Hobbs, 2009). One way to achieve such a supportive infrastructure involves a cohesive communication concept known as strategic communication. This concept can be used to create a positive attitude toward research in order to increase knowledge of research and development (R & D). Studies in primary care have shown that such knowledge also stimulates interest in changing work practices in the long term (Mortenius, Fridlund, et al., 2012; Mortenius, Marklund, Palm, Bjorkelund et al., 2012). However, no specific study has been conducted to explore the impact of strategic communication on long-term attitudes of nurses toward R & D. Therefore, the aim of the study was to evaluate the impact of strategic communication intervention on long-term interest in R & D among primary care staff in general and registered nurses (RNs) in particular. Specifically, the issues studied were:

- Dissemination of knowledge about R & D in an effort to generate interest in R & D among primary care staff members (PCSMs) and to compare the results for RNs with those of the other PCSMs from a short-term perspective (7 years of follow-up).
- Improving and sustaining interest in R & D among RNs from a long-term perspective (12 years of follow-up).
- Development of innovative thinking among RNs who became interested in R & D over time.
- Impact of communication channels on generating interest in R & D.

METHODS
Design and Settings
This prospective intervention study was aimed at influencing attitudes toward evidence-based platforms in southwest Sweden. The region has about 290,000 inhabitants, including 7,000 healthcare employees, 20% of whom work in primary care. The population has access to publicly funded healthcare at the national, regional, and local levels. The county councils provide care at the regional level, which is the basis of tax-funded healthcare (Glennvärd, Hjalte, Svensson, Anell, & Bankauskaite, 2005).

Primary Care
Primary care is the backbone of health care, with responsibility for medical treatment, preventive health, rehabilitation, and nursing. Legislation introduced in Sweden in 1996 improved scientific expertise within health care through the establishment of R & D units (Regeringskansliet, 1996). The goal was to conduct research outside university hospitals, which in the long term was intended to stimulate a research culture, including at places such as the primary care R & D unit at which the study was conducted. The public sector provides funds for these R & D units in Sweden.
Strategic Communication Intervention

The strategic communication intervention consisted of quantifiable targets for all PCSMs. The goal was to increase knowledge and awareness of, as well as interest in, R & D as a step toward fostering a culture that embraces change among PCSMs. The intervention was structured using a communication plan based on an analysis of the current status (Morténius, Marklund, Palm, Bjorkelund, et al., 2012) and mainly involved dissemination of information through three established communication channels: oral (research seminars and annual research days), written (research bulletins and popular science reports), and digital (intranet and Internet websites). The content of these channels was based on a theoretical and communication platform: an information processing theory, and diffusion of innovation and social learning theory (Bandura, 1977; McGuire, 1968; Rogers, 2003). Communication channels were selected based on the message intended for each target group. The oral channel used a popular science approach to disseminate information about research projects within the organization. The written channel (research bulletin) and the digital channel (Internet) informatively demonstrated how employees from clinical practice applied and benefited from R & D strategies. Interactions among the channels were expected to produce synergies that would promote long-term interest in R & D and innovative thinking. Efforts were made to ensure that all three channels met the needs of PCSMs for information on R & D within the organization. Because R & D was a new concept in the organization (Ahlenius, 1995; Ovhed, Van Royen, & Hakansson, 2005), the focus was placed on dissemination of information and acceptance of its importance for personal development, as well as for the organization as a whole. Follow-up and analysis of the effects of the intervention on PCSMs were carried out after 7 and 12 years (Morténius, Fridlund, et al., 2012).

Participants

The study population was composed of all PCSMs (n = 1,276), including 346 RNs, distributed among general RNs, public health nurses, and midwives.

Instrument

A questionnaire was constructed based on a literature review and the experience of the research team, which included a communication expert, healthcare communication researcher, healthcare research experts, and a biostatistician (Morténius, Marklund, Palm, Bjorkelund, et al., 2012). The questionnaire was designed to determine the influence of R & D-related communication on changes in attitudes among PCSMs toward R & D over time. The questions in the current study asked about background (age, sex, profession) and included items on the role of strategic communication: knowledge of R & D activity, interest in R & D, innovative thinking (creation of new ideas) resulting from direct and indirect channels, development of interest in R & D through personal initiative as a result of R & D channels, and development of interest in R & D as a result of communication with a person exposed to R & D channels. The validity and reliability of the instrument have been adequately tested and described elsewhere (Morténius, H., Marklund, B., Palm, L., Fridlund, & Baigi, 2012).

Data Collection

Two sets of questionnaires were sent out, each followed by a reminder. Responses were received at the time of the first measurement from 846 employees, representing 70% of all employees, including 246 RNs (29%). In the final phase, 352 PCSMs participated, including 96 RNs (27%) who had been followed prospectively and who remained in the organization after 12 years (Table 1). Attrition occurred for various reasons, including parental leave, sick leave, incomplete questionnaires, and employees who no longer worked in primary care (lost to follow-up), as well as nonresponders (Morténius, H., Marklund, B., Palm, L., Fridlund, et al., 2012).

Table 1. Descriptive Statistics for the Primary Care Staff Members Who Participated on Both Measurement Occasions (2004 and 2009; N = 352)

<table>
<thead>
<tr>
<th>Registered nurses</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public health nurse</td>
<td>74</td>
<td>21</td>
</tr>
<tr>
<td>Midwife</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>General nurse</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>96</td>
<td>27</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other primary care staff members</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental nurse (assistant)</td>
<td>46</td>
<td>13</td>
</tr>
<tr>
<td>Administrative staff</td>
<td>32</td>
<td>9</td>
</tr>
<tr>
<td>Dentist</td>
<td>31</td>
<td>9</td>
</tr>
<tr>
<td>Assistant nurse</td>
<td>31</td>
<td>9</td>
</tr>
<tr>
<td>Physical therapist</td>
<td>28</td>
<td>8</td>
</tr>
<tr>
<td>Dental hygienist</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>Physician</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>Medical secretary</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>Occupational therapist</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Psychologist</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>256</td>
<td>73</td>
</tr>
<tr>
<td>Grand total</td>
<td>352</td>
<td>100</td>
</tr>
</tbody>
</table>
Statistical Methods
Descriptive statistics were used to analyze the number and proportion of the various PCSMs participating in the study. Fisher’s exact test was used to compare creation of awareness of R & D between RNs and the remaining PCSMs, whereas the chi-square test was used to compare interest in R & D between RNs and the remaining PCSMs when analyzing the difference between the two measurement occasions (Fleiss, Levin, & Paik, 2003). Multiple logistic regression (Hosmer & Lemeshow, 1989) with odds ratio (OR) and a 95% confidence interval (CI) was then carried out to analyze the impact on interest among nurses compared with other primary care personnel, taking the variable of age into account. The chi-square test and Fisher’s exact test were also used to compare category variables. The Mann–Whitney U test was used to compare volume of positive exposure (i.e., the impact of reading the R & D bulletin on interest in R & D). The significance level was set at .05.

Ethics
All participants were invited to complete the questionnaires on the two occasions on a voluntary basis and with guaranteed confidentiality. The study conformed to the principles outlined in the Declaration of Helsinki (The World Medical Association, 2005) and was approved by the Ethics Committee at Lund University, Sweden.

RESULTS
The analysis following the first 7 years showed that 99.5% of RNs had gained awareness of R & D as a result of the communication initiatives. The comparable figure for the rest of the PCSMs at the same point in time was 95% (p = .004). A comparison of the two measurement occasions at 7 and 12 years ascertained both stability and improvement of interest in R & D among RNs, compared with the remaining PCSMs (55.2% vs. 41.4%; p = .032; Table 2). Results of logistic regression adjusted for the age variable confirmed higher odds of interest over time among RNs compared with the remaining PCSMs (OR, 1.81; 95% CI, 1.08–3.06). Communication channels played a significant role in this development: annual research days (p = .045), scientific seminars (p = .032), and a research bulletin (p = .003) (Table 3). Statistical analysis of the digital channels was not possible due to an insufficient number of responses. An analysis specifically concerning the role of indirect information sources found that their impact on interest was stable over time. The greatest impact was achieved when a colleague took note of and informed others about R & D projects (Figure 1). Moreover, the RNs who did become interested in R & D also demonstrated an increased intention to adopt innovative thinking in their work over time (p = .005).

DISCUSSION
The results show the impact of strategic communication on creation and retention of interest in R & D among PCSMs, with a focus on RNs over time. Interest in R & D among RNs subsequently evolved into innovative thinking in clinical practice. The creation of a positive attitude toward interest and innovation in R & D that extends over a 12-year period is a valuable platform for future implementation of EBP in healthcare. Previously tried interventions and implementation models aimed at increasing the application of research in clinical practice have highlighted a need for multiple initiatives for structural incorporation of EBP at different levels: worldwide, national, administrators, educators, faculty, researchers, services, local workplace, and culture (Ubbink et al., 2013).

The goal of this intervention was to build long-term awareness and interest over time at different levels, rather than to launch a dedicated campaign on which such interventions and implementation models are typically based. This intervention could foster willingness to embrace change within the organization over time (Helfrich et al., 2011; Mortenius, Fridlund, et al., 2012). One example of an implementation platform that does not seem to promote this long-term perspective is PARIHS, an established framework among RNs in which

### Table 2. Stability and Improvement of Interest in Research and Development Between Occasion 1 and Occasion 2 (2004 and 2009)

<table>
<thead>
<tr>
<th>Communication Channels</th>
<th>n</th>
<th>%</th>
<th>Median (IQR)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered nurses</td>
<td>Yes</td>
<td>48</td>
<td>55.2</td>
<td></td>
</tr>
<tr>
<td>Other primary care staff members</td>
<td>Yes</td>
<td>79</td>
<td>41.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>39</td>
<td>44.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>112</td>
<td>58.6</td>
<td>.032</td>
</tr>
</tbody>
</table>

Note. Chi-square test was used to compare registered nurses (RNs) with other primary care staff members (PCSMs). PCSMs, n = 352; RNs, n = 96.

### Table 3. Comparison of the Impact of Communication Channels on Creation of Interest in Research and Development Among Registered Nurses Measured on Two Occasions (2004 and 2009)

<table>
<thead>
<tr>
<th>Communication Channels</th>
<th>%</th>
<th>Median (IQR)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual research days</td>
<td>63.8</td>
<td>.045</td>
<td></td>
</tr>
<tr>
<td>Scientific seminars</td>
<td>57.4</td>
<td>.032</td>
<td></td>
</tr>
<tr>
<td>Research bulletins written</td>
<td>4.0 (2–5)</td>
<td>.003</td>
<td></td>
</tr>
</tbody>
</table>
context, facilitation, and evidence are factors that play a major role in implementation of research findings (Rycroft-Malone, 2004). This framework could be enriched to a greater degree by encouraging interest in R & D in advance. According to this incremental behavior process, the strategy is to first provide awareness and interest that gradually produce innovative thinking, especially critical thinking, as was demonstrated in this study (McGuire, 1968). A positive attitude toward and interest in R & D are important factors for incorporation of research and application of new research findings (Estabrooks et al., 2003). Therefore, it is important to support this attitude so that it persists over time, which is generally the most difficult part of effecting behavioral change. One study has shown that recent nursing graduates in particular lose interest in research after a few years in clinical practice (Forsman, Rudman, Gustavsson, Ehrenberg, & Wallin, 2010). Including R & D and EBP as standing items on the agenda is therefore of great importance (Palm, 2006; Windahl et al., 2008).

Part of the communication strategy was to carry out recurrent activities such as annual research days and scientific seminars, thereby highlighting what is happening within R & D that could affect RNs and generate interest over time. By simultaneously following up on such activities with a research bulletin that PCSMs read and discuss in the employee break room, the R & D reported therein advances yet another step on the discussion agenda, which this study has shown to be important for both direct and indirect communication channels. The results showed that interest in R & D had increased via indirect channels, when colleagues discussed their R & D projects or a popular science report. During the intervention, nurses who were active in research were underscored as good examples and could therefore serve as role models. They acted as opinion shapers by describing their R & D projects and as role models by showing that they were able to successfully pursue higher studies. Highlighting role models (Bandura, 1977) and opinion shapers (Rogers, 2003) is one part of the theoretical field of strategic communication used in the intervention. The oral channel is mainly used to modify attitudes (Palm, 2006), which is in line with our results. The use of different channels for the same target group with messages prepackaged in various ways to suit the type of channel was the part of the concept (Rogers, 2003). Intensification and the attention aimed specifically at RNs in general and the role models in particular were probably significant factors for the accelerated positive attitude toward R & D in this group.

There has been criticism in health communication based on linear messenger receiver models that do not use other aspects of communication theories (Kuruvilla & Mays, 2005); dialogue and interactive communication with distinct uses of communication theories have emerged through communication research (Wilson, Petticrew, Calnan, & Nazareth, 2010). For example, making research findings available in the reader’s

**Figure 1.** Comparison of impact from indirect communication channels (heard from someone who described research) on creation of interest in research and development among registered nurses, measured on two occasions (2004 and 2009).
native language, such as the study of popular science reports, has proven to be a successful concept to overcome the language barrier so EBP can be applied by nurses (Ubbink et al., 2013). When nurses see that others in their own profession engage in research, they may also become motivated to give research a try.

RNs are one of the largest employee groups in primary care who have daily contact with patients; they have therefore also been considered to be vehicles for EBP (Youngblut & Brooten, 2001). The nurses stated that they consider EBP to be a more important factor than did the other employee groups (Carlford & Festin, 2014). This may be because of the strong focus on nursing research and because EBP is discussed in terms of the role of nurses and their responsibility as healthcare providers. The interest generated among nurses that has led to innovative thinking may be viewed as a linear process that leads to greater use of research findings in clinical practice. This finding is in line with Profetto-McGrath, who believes that nurses who exercise critical thinking, especially if they are open minded, inquisitive, and systematic, are more likely to apply research in their work (Profetto-McGrath et al., 2003). Development of critical thinking can equip RNs with the necessary skills and dispositions (e.g., habits of mind, attitudes, and traits) to support EBP (Profetto-McGrath et al., 2003). Furthermore, the nursing role has substantially changed in recent years to underscore their responsibility to implement evidence-based care in an effort to ensure that the patient care they deliver is consistent with science and proven experience. Nurses also supervise nursing students in their clinical rotations. This places greater demands on them to remain up to date in R & D, especially for advanced level education. The changing role and great demands placed on nurses could possibly make them more willing to adopt the concept and show increased interest (Campbell & Profetto-McGrath, 2013). Another important factor is that the culture of the organization can be an obstacle to interest in applying knowledge gained through R & D. Professional management can overcome this obstacle by implementing a long-term policy to help integrate theory and practice (Smith, Hampson, Scott, & Bower, 2011). With the aid of strategic communication, EBP can become a common indicator for the formation of critical thinking and an innovative approach to meet both patient demand and new challenges in clinical practice in the future.

STRENGTHS AND LIMITATIONS
The study design was longitudinal and covered a lengthy period of several years. It can therefore be assumed that the results obtained on the two measurement occasions have a higher level of confidence compared with cross-sectional studies. The multivariate analyses performed regarding possible confounders increased the level of confidence (Holford, 2002). The theory-driven methodological implementation process, together with a validated evaluation instrument, should be considered reliable tools for implementation of EBP (Estabrooks, Squires, Cummings, Birdsell, & Norton, 2009; Wilson et al., 2010). In addition, the involvement of a communication strategist in the cohort increased the significance of the intervention (Brownson, Jacobs, Tabak, Hoehner, & Stamatakis, 2013). Moreover, relevant controls for study participants could not be found because approaches used at R & D units in Sweden vary (Tydén, 2009), nor were baseline data available. These two factors limit the generalizability of the study to some extent.

LINKING EVIDENCE TO ACTION
- Build platform to promote research, then implement research findings.
- Establish strategic communication as a tool to modify attitudes and behavior.
- Adopt a strategic communication plan with quantifiable goals based on established channels for specific target groups to inspire interest in R & D.
- Measure improvement within the cohort following the intervention over time.

CONCLUSIONS
Strategic communication is a significant tool for creation of interest in R & D within primary care, especially among RNs. This process contributes to the creation of positive attitudes toward R & D for the long term and, to a certain extent, even permanently. The benefit of interest in R & D among RNs compared with other professionals is a relevant finding that deserves special attention in this context. As the largest personnel group, nurses should be in the vanguard of primary care, because basing clinical practice on research evidence will improve patient outcomes. WVN

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