# An Assessment of the Barriers to Research Involvement among Nurses at a Hospital in the Kingdom of Saudi Arabia 

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## Abstract

Nursing research has become increasingly important in health care environment. This paper explores the barriers to research among nurses at the Ministry of National Guard-Health Affairs in Saudi Arabia. This cross-sectional quantitative study was conducted between November and December 2020. The study has utilized a questionnaire comprising of demographic data and a set of perceived barriers categorized into groups, i.e. nurse, institutional and educational barriers. 482 questionnaires were analyzed. The strongest barrier in the nurse category was not knowing how to get involved at $43.1 \% ~(\mathrm{n}=208$; Agree), not having access to mentors with research experience, $45 \%(\mathrm{n}=217$; Agree) in the institutional category, and lack of training in research, $46.7 \%$ ( $n=225$; Agree) in the educational preparation category. The study showed that multiple factors contributed to lack of engagement in research among this nursing cohort. Therefore, any interventions require a systematic and multiple-pronged approach to support nursing research.
Keywords: Barriers, Research, Nurses, Institution, Hospital, KSA.
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## INTRODUCTION

Research is the basis for acquiring new knowledge, which shapes clinical practice for all the healthcare professionals, and this is true for the nursing profession (Hickman et al., 2018). Nursing research has become increasingly important, in a complex and rapidly changing healthcare environment, with the emergence of new diseases and incidences of global pandemics, such as the COVID 19 virus. However, despite the need for research, studies show that there is a gap in research engagement and the application of Evidence-Based Practice (EBP) to clinical practice among nurses (Shayan, Kiwanuka \& Nakaye, 2019). It is estimated that, approximately 20 to $25 \%$ of everyday nursing care, may be unnecessary or even potentially harmful due to failure to apply EBP (Sarabia-Cobo et al., 2015). This highlights the significance of front-line nurses who provide direct patient care to engage in research and base their practice on research evidence to improve patient outcomes and minimize unnecessary costs (Fink et al. 2005). EBP is defined as the integration of the best available research evidence with clinical expertise, which takes into account the patient's
unique values and circumstances (Straus, Glasziou, Richardson, \& Haynes, 2011).

## LITERATURE REVIEW

A comprehensive literature search was performed to identify published articles relevant to the research question using the following electronic databases: OVID Medline, Pub Med, Embase, CINAHL, Psyc INFO, Proquest, Google scholar and Google to find relevant literature. The key terms used included; nursing, research, barriers, evidence base. The results showed that nurses are not well represented when it came to engaging in health care research, despite being the majority health care group in the care industry (Omer, 2012; Penz \& Bassendowski, 2006). The World Health Organization (WHO) estimates that nursing is the largest occupational group in the health sector, accounting for approximately $59 \%$ (WHO, 2020). A variety of factors contributed to the underrepresentation of nurses engaging or even leading on research projects. Among them, the lack of time or even the lack of Institutional infrastructure that supports nursing research (Björkström \& Hamrin, 2001; Higgins

[^0]et al., 2010). Hagan \& Walden (2017) state that staff shortages and heavy workload does contribute to lack of time and opportunities for nurses to engage in research activities during working hours. They further highlighted that the majority of funded research projects conducted in hospital settings, were initiated and run by physicians who also served as the Principal Investigators (PIs), while research nurses were allocated to mundane administrative tasks (Hagan \& Walden, 2017).

Poor educational preparation was also highlighted as a factor. Incidentally, not all universities require the completion of a formal clinical research project as part of the nurse academic training programs, and this background is likely to affect the nurses' future confidence to participate in research projects as part of their clinical practice (Nilsson Kajermo et al., 1998; Leung et al., 2014). A systematic review published in 2018 which evaluated 1,592 peer-reviewed studies, concluded that there was a paucity of empirical evidence in the development of robust strategies to support EBP and research knowledge for master's degree nursing students (Hickman et al., 2018). The need for clinical practice to be informed by evidence cannot be over-stated, therefore nurses should be supported to develop the necessary research skills so that they are in a position to rigorously evaluate best available evidence and make it applicable to their clinical practice (Shayan, Kiwanuka \& Nakaye, 2019).

Another WHO report highlighted the importance of improving health outcomes, for families and communities globally and nursing contribution to this effort is invaluable (WHO, 2010). Health care institutions require developing local nursing research policies and invest in infrastructure that supports nurses' participation in research, to enhance critical thinking and develop problem-solving skills (Hoffman \& Elwin, 2004). Ultimately, the goal is to provide safe, efficient and cost-effective care, which is aligned with the patient's individual care needs and values (Grol and Grimshaw, 2003). Nurses constitute the largest occupational group in the health sector and they are uniquely positioned to make valuable contributions to clinical practice, because of the regularity and extent to which they interact with the patients, families, physicians and other members of the multidisciplinary teams (Hagan \& Walden, 2017). Enabling nurses to participate in research not only strengthens the scientific basis for nursing practice but also ensures that direct patient care is defined by evidence (Higgins et al., 2010). This has significant implications for improving patient outcomes, with secondary institutional benefits because of the confidence the patients develop when they receive safe and efficient care.

The goal of this study was to utilize the resource of nursing staff employed at MNG-HA, to gather data that would provide the basis for developing
targeted interventions to address the identified barriers at the Institution and potentially inform the local nursing research policy.

## METHOD

Approval was granted by the Institutional review Board (IRB) and the Nursing Services Research Committee (NSRC) to conduct this study. Subsequently, an internal email communication was sent out to all nurses (Inclusive of all grades) requesting their voluntary participation in the study to assess the perceived barriers. The invitation included a description and purpose for the study, and a consent form, assuring anonymity.

This cross-sectional design, quantitative study, was conducted using a convenient sampling technique.

All participants provided a written informed consent to take part in the study. A questionnaire with a 5-point Likert scale was utilized. The first part of the questionnaire comprised demographic data and the second part comprised a set of perceived barriers categorized into three areas, i.e. nurse (individual) barriers, institutional and educational preparation barriers. The questions were derived from a pre-existing validated questionnaire on facilitators and barriers to research from the Hospital-Based Nursing Research Requirements and Outcomes (HBNRRO) national survey (Kelly, Turner \& Speroni, 2013).

The questions included in the final version were pilot tested with the help of ten registered nurses in MNG-HA with varying clinical experiences who evaluated each questionnaire item to ensure there were no ambiguities and that, the questions were eliciting non-biased responses, appropriate for the study goal. The pilot was returned with only minor adjustments and distributed using Survey Monkey to all nurses using internal email distribution list. The use of the Likert scale provided choice, on the degree to which participants agreed or disagreed with a particular questionnaire item. The sample size was calculated using Raosoft as 352 based on a population size of 4073 nurses, with a $5 \%$ margin of error and $95 \%$ confidence interval (Raosoft, 2004).

## STATISTICAL ANALYSIS

The data were analyzed by Statistical Package for the Social Sciences (SPSS) software (v.21.0) for Windows. SPSS used descriptive statistics, Numbers, percentages, and means to summarize the characteristics of nurses, as well as, Pearson's correlation coefficient and multi-nominal logistic regression to test the correlations of the age, Gender, position with mean of the categories of the questions. Then multinomial logistic regression was used to test coefficient, SE, t value, CI and P-value. The level of significance was set at $P<0.05$.

## RESULTS

Out of the 530 questionnaires distributed, 482 were returned giving a response rate of $90.9 \%$. More than two thirds of the participants were aged 26-45: $48.8 \%$ were $26-35$ years old and $26.1 \%$ were $36-45$ years old.

Participants held a variety of qualifications; more than two-thirds ( $77 \%$ ) held a bachelor's degree, $16.8 \%$ held a post-graduate diploma, while a small number held a master's degree. The detailed demographic characteristics of the nurses are summarized in Table 1.

The barriers identified from the responses were grouped based on thematic categorizations forming three main groups, i.e. individual nurse barriers, Institutional barriers (the Hospital) and those relating to educational preparation (Academic training). One of the recurring barriers in the nurse category was "research is not part of my job role" with a mean score of 2.5. On the other hand, some respondents stated a "lack of interest in research" with a mean score of 2.41 as in Figures 1.

In the category for institutional barriers, a major barrier was "lack support from managers" with mean value of 2.63 as indicated in Figure 2.

The highest mean on the Barriers Scale were related to institution and educational categories as follows: mean=3.22, $\quad(\mathrm{SD}=0.97)$ and mean=3.21,
( $\mathrm{SD}=0.96$ ) respectively, followed by nurse category with mean=3.06, $(\mathrm{SD}=1.0)$ as indicated in Table 2.

The recurring barrier in the nurse category was "do not know where to start/how to get involved" with $43.1 \%$ (agreed) and $11.6 \%$ (strongly agreed) on the Likert scale. While the recurring barrier in the institutional category was "do not have access to mentors with research experience to help" at $45 \%$ (Agree) and $12.6 \%$ (strongly agree). Then "lack of formal training in research" was the strongest barrier in the educational preparation category with $46.7 \%$ (Agree) and $12.2 \%$ (strongly agreeing) as in table 3 .

The study applied a multi-nominal logistic regression after a Pearson's correlation test to examine potential significant relationships between characteristics and the categories of question The result indicated some correlations between the position of nursing category, with the following values - "It's not relevant to my area of practice" ( $P=0.03$; $95 \%$ CI $0.05-$ 0.71 ), "I have no interest in research" ( $P=0.03$; $95 \% \mathrm{CI}$ .05-1.25). Similarly, positive correlations were found between the nursing position and to Institutional category "There's no incentive/reward for me" ( $P=0.045$; 95\% CI 0.007-0.43). "I do not have access to research resources/support within the Institution" ( $P=0.002$; 95\% CI 0.22-0.47), "I am not aware of Institutional infrastructure to facilitate nursing research" ( $P=0.005$; 95\% CI 0.1-0.32). Further correlations were found between anursing position to education preparation "I find it difficult to come up with research ideas" ( $P=0.01 ; 95 \%$ CI $0.61-2.51$ ) as shown in Table 4.

Table 1: Demographics of study participants ( $\mathrm{n}=482$ )

| Item | $\mathbf{N}(\%)$ |
| :--- | :--- |
| Age group |  |
| $18-25$ | $18 / 3.8 \%$ |
| $26-35$ | $235 / 48.8 \%$ |
| $36-45$ | $126 / 26.1 \%$ |
| Above 45 | $103 / 21.3 \%$ |
| Gender |  |
| Male | $40 / 8.3 \%$ |
| Female | $442 / 91.7 \%$ |
| Level of Education |  |
| Post-graduate diploma | $81 / 16.8 \%$ |
| Bachelor's degree | $371 / 77.0 \%$ |
| Master's degree | $30 / 6.2 \%$ |
| Nationality |  |
| Saudi | $75 / 15.6 \%$ |
| Non-Saudi (Self-description) |  |
| Asia | $380 / 78.8 \%$ |
| Europe | $12 / 2.5 \%$ |
| South Africa | $8 / 1.7 \%$ |
| Middle East | $5 / 1.0 \%$ |
| Australia | $1 / 0.2 \%$ |
| Prefer not to say | $1 / 0.2 \%$ |
| Position |  |
| SN-1 | $223 / 46.3 \%$ |
| SN-2 | $174 / 36.1 \%$ |
| Nurse manager | $51 / 10.6 \%$ |
| Nurse specialist | $34 / 7.0 \%$ |

Table 2: Barriers to research category questions

| Category | Mean | SD |
| :--- | :--- | :--- |
| Nurse | 3.06 | 1.00 |
| Institution | 3.22 | 0.97 |
| Education preparation | 3.21 | 0.96 |

Table 3: Categorization of responses

|  | Strongly agree $n(\%)$ | $\begin{aligned} & \text { Agree } \\ & n(\%) \end{aligned}$ | Neither agree nor disagree n (\%) | Disagree $n(\%)$ | Strongly disagree n (\%) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Nurse |  |  |  |  |  |
| It's not relevant to my area of practice | 17(3.5) | 121(25.1) | 155(32.2) | 149(30.9) | 40(8.3) |
| I have no interest in research | 22(4.6) | 107(22.2) | 139(28.8) | 174(36.1) | 40(8.3) |
| I don't have the motivation | 39(8.1) | 157(32.6) | 129(26.8) | 135(28.0) | 22(4.5) |
| I do not know where to start/how to get involved | 56(11.6) | 208(43.1) | 127(26.3) | 77(16.0) | 14(3.0) |
| Research is not part of my job role | 25(5.2) | 93(19.3) | 164(34.0) | 160(33.2) | 40(8.3) |
| Institution |  |  |  |  |  |
| I do not have time | 72(15.0) | 182(37.7) | 124(25.7) | 93(19.3) | 11(2.3) |
| There's no incentive/reward for me | 54(11.2) | 141(29.2) | 147(30.5) | 120(24.9) | 20(4.1) |
| I do not have access to mentors with research experience to help | 61(12.6) | 217(45.0) | 129(26.8) | 66(13.7) | 9(1.9) |
| I do not have access to research resources/support within the Institution | 52(10.8) | 178(36.9) | 152(31.5) | 88(18.3) | 12(2.5) |
| I do not have support from my manager | 24(5.0) | 36(7.5) | 197(40.9) | 193(40.0) | 32(6.6) |
| I am not aware of Institutional infrastructure to facilitate nursing research | 32(6.6) | 160(33.2) | 165(34.2) | 114(23.7) | 11(2.3) |
| Educational preparation |  |  |  |  |  |
| I have no formal training in research | 59(12.2) | 225(46.7) | 107(22.2) | 79(16.4) | 12(2.5) |
| My Nurse training did not prepare me with skills to undertake research | 17(3.5) | 120(24.9) | 165(34.2) | 154(32.0) | 26(5.4) |
| I find it difficult to come up with research ideas | 32(6.6) | 181(37.6) | 164(34.0) | 88(18.3) | 17(3.5) |

Table 4: Multi-nominal logistic regression between position and categorization of questions (* $\boldsymbol{P}<\mathbf{0} .05$ )

| Category | C0FFICIENT | SE | $\boldsymbol{t}$ | $\boldsymbol{P}$ <br> Value | $\mathbf{9 5 \%}$ CI |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Nurse |  |  |  |  |  |  |  |
| It's not relevant to my area of practice | 0.38 | 0.11 | 3.21 | $0.03^{*}$ | $0.05-0.71$ |  |  |
| I have no interest in research | 0.65 | 0.21 | 3.04 | 0.03 | $0.05-1.25$ |  |  |
| I don't have the motivation | 0.35 | 0.14 | 2.43 | 0.07 | $-0.5-0.75$ |  |  |
| I do not know where to start/how to get involved | 0.04 | 0.07 | 0.67 | 0.53 | $-0.14-0.24$ |  |  |
| Research is not part of my job role | 0.51 | 0.25 | 2.01 | 0.11 | $-0.19-1.23$ |  |  |
| Institution |  |  |  |  |  |  |  |
| I do not have time | 0.07 | 0.1 | 0.72 | 0.50 | $-0.22-0.37$ |  |  |
| There's no incentive/reward for me | 0.22 | 0.07 | 2.87 | 0.04 | $0.007-0.43$ |  |  |
| I do not have access to mentors with research experience to <br> help | 0.40 | 0.25 | 1.63 | 0.17 | $-0.28-1.10$ |  |  |
| I do not have access to research resources/support within <br> the Institution | 0.35 | 0.04 | 7.69 | 0.002 | $0.22-0.47$ |  |  |
| I do not have support from my manager | 0.08 | 0.08 | 1.05 | 0.35 | $-0.13-0.30$ |  |  |
| I am not aware of Institutional infrastructure to facilitate <br> nursing research | 0.21 | 0.03 | 5.54 | 0.005 | $0.10-0.32$ |  |  |
| Educational preparation |  |  |  |  |  |  |  |
| I have no formal training in research | 0.03 | 0.08 | 0.35 | 0.74 | $-0.20-0.27$ |  |  |
| My Nurse training did not prepare me with skills to <br> undertake research | 0.1 | 0.09 | 1.0 | 0.35 | $-0.16-0.36$ |  |  |
| I find it difficult to come up with research ideas | 1.56 | 0.34 | 4.59 | 0.01 | $0.61-2.51$ |  |  |



Figure 1: Mean score of nurse barriers to research


Figure 2: Mean score of institution barriers to research


Figure 3: Mean score of education preparation barriers to research

## DISCUSSION

Forty-three percent of respondents in this study stated that they "did not know where to start/how to get involved in research." A low level of confidence in research skills may be linked to the fact that, not all udergraduate nursing students complete a formal research project during their academic training and this background is likely to affect the nurses' confidence to engage in research after they graduated. Studies also show that inadequate knowledge of research methods can be a barrier for nurses' utilization of research.

Other factors characterized as institutional barriers, such as "lack of time to do research" or "lack of support from managers" were cited in this study. This is consistent with other studies, which highlight lack of time as a major obstacle to participating in research. Staff shortages and heavy workload in the clinical area only serve to compound these challenges. As some studies suggest that, most hospital based research projects are led by physicians, who also act as PIs while research nurses are assigned administrative
roles, this is likely to reinforce the feelings of intimidation to engage in research. It is therefore imperative that, hospitals take steps to change these perceptions by supporting the development of skills among their nursing staff, to engage in research and assimilate best available evidence, into their clinical practice. Implementation of these changes requires not just individual enthusiasm on the part of the nurses, but more importantly, interdisciplinary collaboration at departmental and institutional level. Some of the actionable steps should come in the form of workshops, where hospital Institutions provide supportive training for their nursing workforce on how to come up with research ideas - how to design, implement, analyze and disseminate the results.

## CONCLUSION

The results showed multiple contributing factors to lack of engagement in research among nurses, while also highlighting some correlations between different variables. Individual nurses' personal drive or motivation certainly played a role in engaging in research but equally important were the individual's undergraduate academic background and indeed, institutional factors. This highlighted the fact that interventions to address these challenges require a systematic and multi-faceted approach. In line with the goal to improve health outcomes for families, the researchers and management team at MNG-HA committed to working together to create an enabling institutional environment that cultivates a strong culture for nursing research. The goal was to strengthen interdisciplinary collaborations between key departments within the institution, such as the nursing services and nursing education departments, which support ongoing in-service education. An implementation strategy was devised to occur over a 12 -months period, followed by an evaluation to assess the impact.

In line with the objectives of the study, the researchers presented the following recommendations to the nursing management team. The first was to utilize the General Nursing Orientation (GNO) as an opportunity to raise awareness of Institutional, research resources as part of induction for all new employees, facilitated by representatives from the Institutional review Board (IRB) and the Nursing Services Research Committee (NSRC). Secondly, to collaborate with Nursing Education Department (NED) for additional inservice education for the existing nursing workforce to improve research involvement and utilization of EBP. Thirdly, the Nurse Managers would play a role by filtering information and posting specific research opportunities on a ward-based information screen to increase access to information for all nurses. Fourth, the management team were to consider supporting prospective nurse researchers with protected time (minimum 1 day/month) to undertake research. Fifth, to explore starting either intra or inter-institutional journal
club to encourage participation of all nurses from across specialties. Finally, an annual research event to raise awareness as well as to celebrate nursing contributions to research and inspire the next generation of young nursing researchers.

## Limitations \& scope for further research

The authors acknowledge that the study was limited to MNG-HA central region only and therefore a limited target audience. Engaging other branches of the MNG-HA hospitals in other regions of the Kingdom, would certainly have broadened the scope and provided much richer data. The invitation to participate in the study was sent by email and this yielded a limited response, whereas additional printed handouts might have increased the response rate. Additional research will be beneficial, including other M-NGHA branches to measure the impact of the interventions from this study.

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Author contribution: LM, AA, and NM did the literature search, and collected and interpreted the data. LM, AA, and NM drafted the original manuscript, with ongoing edits and the final version. MA, ISH, and AC provided oversight \& review of the final manuscript prior to submission.

## Abbreviated title: Barriers to research involvement among nurses

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