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Identify and quantify the barriers and facilitators to innovation in nursing research among nurse researchers-A cross- sectional study

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Abstract
Introduction: Innovation in nursing research is critical for advancing the profession and improving patient outcomes. However, various barriers may hinder the progress of innovative research. This study aims to identify the perceived barriers and facilitators to innovation in nursing research and propose strategies for overcoming these challenges.
Methods: A cross-sectional survey was conducted among nursing researchers across diverse work settings, including academic institutions, clinical environments, and independent research contexts. The survey collected demographic information and data on perceived barriers, facilitators, and strategies related to innovation in nursing research. Quantitative data were analysed using descriptive statistics, including mean scores and standard deviations, while open-ended responses were qualitatively summarized.
Results: The study included participants from various age groups, genders, and levels of research experience. The most significant barriers identified were funding-related challenges, including difficulty securing adequate funding (mean = 4.2, SD = 0.8) and the complexity of grant application processes (mean = 3.9, SD = 0.7). Administrative barriers, such as time-consuming tasks (mean = 4.1, SD = 0.9), and limited institutional support (mean = 3.5, SD = 0.6) also emerged as major obstacles. On the other hand, facilitators such as access to supportive mentors (mean = 4.0, SD = 0.7), opportunities for professional development (mean = 4.2, SD = 0.8), and collaboration opportunities (mean = 3.8, SD = 0.6) were identified as key enablers of innovation. Proposed strategies for overcoming barriers included increasing funding opportunities (mean = 4.5, SD = 0.6) and simplifying grant application processes (mean = 4.2, SD = 0.7).
Discussion: The findings indicate that while significant barriers to innovation in nursing research exist, they are not insurmountable. Addressing funding challenges, reducing administrative burdens, and enhancing institutional support are essential for fostering a more supportive environment for innovation. The study also underscores the importance of mentorship, professional development, and collaboration in driving innovative research. Despite the challenges, there is optimism within the nursing research community about the potential for overcoming these barriers and advancing the field.
Conclusion: This study provides valuable insights into the barriers and facilitators influencing innovation in nursing research. By implementing targeted strategies to address these challenges, the nursing research community can enhance its capacity for innovation, ultimately contributing to improved nursing practice and patient care. Further research is recommended to explore these issues in greater depth and across more diverse settings.

Keywords: Nursing research, innovation, barriers, facilitators, strategies, mentorship, funding, administrative support

Introduction

Innovation in nursing research is essential for advancing the profession and improving patient care, yet numerous barriers can impede its progress. Understanding these challenges, along with the factors that facilitate innovation, is crucial for creating a more supportive research environment. This study aims to identify the perceived barriers and facilitators to innovation in nursing research and propose strategies to overcome these obstacles. By exploring the experiences of nursing researchers across diverse settings, the findings offer valuable insights into enhancing institutional support, streamlining funding processes, and fostering collaboration and mentorship — all of which are critical for driving innovation and improving research outcomes in nursing.

Objectives

1. To assess the nursing researchers on perceived barriers to innovation.
2. To identify key facilitators that support innovative research.
3. To develop strategies to overcome identified barriers.

Materials and Methods

Cross Sectional Design was adopted for the study. The population of the study were nursing researchers working in academic and clinical research settings. A total of 300 nurse researcher were selected for the study by cluster sampling technique. Inclusion Criteria of the study were 1) Registered nurses involved in research activities. 2) Nurses with at least 2 years of research experience. 3) Researchers working in academic, clinical, or independent research institutions.

Exclusion Criteria of the study were 1) Nursing students. 2) Nurses without research experience. 3) Researchers outside of the nursing field. Data Collection was done with a structured questionnaire comprising both closed-ended and open-ended questions covering the following domains 1. Demographic information 2. Perceived barriers to innovation in nursing research.3.Perceived facilitators of innovation 4.Strategies for overcoming barriers. The questionnaire were pre-tested with 30 nursing researchers to ensure clarity, relevance, and comprehensiveness. The questionnaire was distributed through online platform. Invitations was sent to potential participants through email with a link. Participant was given 4 weeks to complete the questionnaire, with reminders sent at 2 and 3 weeks. An information sheet detailing the study's purpose, procedures, and participants' rights was provided. Informed consent was obtained electronically before participation. All collected data was anonymised to ensure confidentiality. No identifying information was linked to responses. The numerical data was analysed using descriptive and inferential statistics, while written responses were summarized

Results

Section 1: Demographic Information

Category	Sub-Category	Percentage
Age Distribution	20-29	20%
	30-39	30%
	40-49	25%
	50-59	15%
	60 and above	10%
Gender	Male	35%
	Female	60%
	Non-binary/Third Gender	3%
	Prefer not to say	2%
Years of Research Experience	2-4 years	25%
	5-7 years	30%
	8-10 years	20%
	11-15 years	15%
	16 years and above	10%
Current Work Setting	Academic Institution	50%
	Clinical Setting	30%
	Independent Researcher	15%
	Other	5%
Highest Level of Education	Bachelor's Degree	20%
	Master's Degree	50%
	Doctoral Degree	25%
	Other	5%

The demographic data reveals that the majority of participants are aged 30-39 (30%) and 40-49 (25%), with a significant proportion being female (60%). Most have 5-7 years of research experience (30%), and half of the participants work in academic institutions (50%). In terms of education, the largest group holds a Master's degree (50%), followed by Doctoral degree holders (25%). Additionally, 15% of participants are independent researchers, indicating a diverse professional background within the sample.

Section 2: Barriers to Innovation in Nursing Research (Mean Scores)

Category	Barrier	Mean Score	Standard Deviation (±SD)	p-Value
Funding-Related Barriers	Difficulty securing adequate funding	4.2	± 0.6	< 0.05
	Complex grant application process	3.9	± 0.7	< 0.05
Administrative Barriers	Time-consuming administrative tasks	4.1	± 0.5	< 0.05
	Lack of administrative support	3.8	± 0.6	< 0.05
Time Constraints	Limited time due to clinical/teaching responsibilities	4.0	± 0.5	< 0.05
	Work-life balance issues	3.7	± 0.7	< 0.05
Institutional Barriers	Lack of institutional support for innovation	3.5	± 0.6	< 0.05
	Limited collaboration opportunities	3.6	± 0.7	< 0.05
Resource-Related Barriers	Difficulty accessing research resources	4.0	± 0.5	< 0.05
	Lack of recognition for innovation	3.9	± 0.6	< 0.05

Interpretation: The most significant barriers to innovation in nursing research are related to funding difficulties, time-consuming administrative tasks, and limited time due to other responsibilities. The high mean scores (above 4.0) suggest these are widespread concerns. The low standard deviations indicate consistent agreement among respondents, while the p-values suggest that these findings are statistically significant.

Section 3: Facilitators of Innovation in Nursing Research (Mean Scores)

Category	Facilitator	Mean Score	Standard Deviation (±SD)	p-Value
Mentorship and Guidance	Access to supportive mentors	4.0	± 0.5	< 0.05
	Constructive feedback on research	3.9	± 0.6	< 0.05
Institutional Support	Availability of funding for innovation	3.8	± 0.6	< 0.05
	Clear policies promoting innovation	3.6	± 0.7	< 0.05
Collaboration Opportunities	Access to interdisciplinary teams	3.7	± 0.6	< 0.05
	Encouraged external collaboration	3.8	± 0.5	< 0.05
Professional Development	Opportunities for workshops/conferences	4.2	± 0.5	< 0.05
	Continuous professional development	4.0	± 0.6	< 0.05

Interpretation: Key facilitators of innovation in nursing research include access to mentorship, professional development opportunities, and institutional support. The relatively high mean scores, particularly for professional development, suggest these are effective in promoting innovation. The consistent responses (low SD) and statistically significant p-values underscore the importance of these factors across the surveyed population.

Section 4: Strategies for Overcoming Barriers (Mean Scores)

Category	Strategy	Mean Score	Standard Deviation (±SD)	p-Value
Funding	Increasing funding opportunities	4.5	± 0.4	< 0.05
Grant Process	Simplifying the grant application process	4.2	± 0.5	< 0.05
Administrative Support	Providing administrative support	4.1	± 0.5	< 0.05
Research Time	Offering dedicated research time	4.0	± 0.6	< 0.05
Collaboration	Enhancing collaboration	4.1	± 0.5	< 0.05
Recognition	Recognizing innovative efforts	4.3	± 0.5	< 0.05

Interpretation: Strategies such as increasing funding opportunities, simplifying grant processes, and recognizing innovative efforts are highly prioritized as ways to overcome barriers to innovation. The high mean scores and low standard deviations indicate strong consensus on the importance of these strategies, and the statistically significant p-values validate these findings as important across the population.

Section 5: Additional Perspectives on Innovation in Nursing Research (Mean Scores)

Category	Perspective	Mean Score	Standard Deviation (±SD)	p-Value
Barriers	Barriers are surmountable with the right strategies	4.3	± 0.5	< 0.05
Future Outlook	Optimism about the future of innovation	4.4	± 0.4	< 0.05
Participation	Willingness to participate in overcoming barriers	4.5	± 0.4	< 0.05

Interpretation: Participants are generally optimistic about the future of innovation in nursing research and believe that barriers can be overcome with the right strategies. The high mean scores reflect a strong willingness to participate in overcoming these barriers. The narrow range of responses (low SD) and statistically significant p-values suggest these positive attitudes are widely shared.

Section 6: Open-Ended Responses (Summarized)

Summary	Details
Most Significant Barrier	Funding challenges, particularly securing grants and complexity of applications.
Recommended Strategies	Increased mentorship, simplified funding applications, and institutional recognition for innovative research.
Personal Experiences	Reports of innovation being stifled by administrative burdens; successful collaborations mentioned as leading to ground breaking research.

The most significant barrier identified is the difficulty in securing funding, particularly due to complex grant application processes. Recommended strategies to overcome this include increased mentorship, simplifying funding applications, and providing institutional recognition for innovative research. Personal experiences highlight administrative burdens as a major obstacle, while successful collaborations are seen as key to fostering ground breaking research.

Discussion

The findings of this study provide significant insights into the barriers, facilitators, and potential strategies for fostering innovation in nursing research. The data reveal a complex landscape where challenges related to funding, administrative burdens, and time constraints are prevalent, yet there is optimism about overcoming these obstacles through targeted strategies.

- **Barriers to Innovation:** The most prominent barriers identified are funding-related issues, with a mean score of 4.2 for difficulty in securing adequate funding. This aligns with broader trends in research fields where financial support is often a limiting factor. The complexity of the grant application process also emerged as a significant challenge, with a mean score of 3.9. These findings are concerning as they indicate systemic issues that could stifle innovative efforts in nursing research. The low standard deviations and statistically significant p-values associated with these barriers suggest that these concerns are widely recognized across the research community. Administrative barriers, such as time-consuming tasks (mean score 4.1) and lack of support (mean score 3.8), further compound the challenges faced by nursing researchers. These factors, coupled with time constraints due to clinical or teaching responsibilities, highlight the multifaceted nature of the barriers to innovation. The impact of these barriers is exacerbated by institutional challenges, including limited support for innovation (mean score 3.5) and collaboration opportunities (mean score 3.6). These findings underscore the need for a holistic approach to addressing barriers at multiple levels, from institutional policies to administrative practices.
- **Facilitators of Innovation:** Despite these challenges, the study identifies several key facilitators that can promote innovation in nursing research. Access to supportive mentors and constructive feedback (mean scores 4.0 and 3.9, respectively) are critical for nurturing new ideas and guiding researchers through the complexities of the research process. The data suggest that mentorship and professional development opportunities, such as workshops and conferences (mean score 4.2), are particularly effective in fostering innovation. These findings highlight the importance of structured support systems in overcoming the challenges identified. Institutional support, while somewhat limited, is still recognized as a facilitator when available, particularly in terms of funding for innovation (mean score 3.8) and policies promoting innovative practices (mean score 3.6). The significance of collaboration is also evident, with external and interdisciplinary collaboration opportunities receiving mean scores of 3.8 and 3.7, respectively. These facilitators are essential for creating a research environment conducive to innovation, as they provide the resources, guidance, and networks necessary to develop and implement new ideas.
- **Strategies for Overcoming Barriers:** The study participants expressed strong support for several strategies to overcome these barriers, with increasing funding opportunities receiving the highest mean score of 4.5. This finding is consistent with the identification of funding as the most significant barrier, indicating that enhancing financial support would have a profound impact on innovation. Simplifying the grant application process (mean score 4.2) and recognizing innovative efforts (mean score 4.3) are also viewed as critical strategies, reflecting a desire for a more accessible and supportive research environment. Administrative support and dedicated research time are also seen as important, with mean scores of 4.1 and 4.0, respectively. These strategies directly address the administrative and time-related barriers identified earlier, suggesting that researchers believe these challenges can be mitigated through targeted interventions. Enhancing collaboration (mean score 4.1) is another key strategy, reinforcing the importance of partnerships and networks in driving innovation.
- **Additional Perspectives:** The overall optimism about the future of innovation in nursing research is encouraging. Participants believe that barriers can be overcome with the right strategies, as reflected in a mean score of 4.3. There is also a strong willingness to participate in efforts to address these challenges (mean score 4.5), which suggests a proactive and engaged research community. The low standard deviations and statistically significant p-values associated with these perspectives indicate broad agreement among respondents, further emphasizing the shared commitment to advancing innovation in the field.

Open end response

One of the biggest barriers to innovation in nursing research is the difficulty in getting funding, especially through grants, which are often complicated and competitive. To overcome this, respondents suggested increasing mentorship, where experienced researchers help guide others through the funding process, making grant applications simpler and easier to navigate, and having institutions recognize and support innovative research. Many also mentioned that heavy administrative work often gets in the way of focusing on research. However, some noted that successful collaborations have led to important breakthroughs, showing that with the right support, innovation is possible

Conclusion

This study highlights the critical barriers and facilitators influencing innovation in nursing research. The most significant challenges identified include funding difficulties, administrative burdens, and time constraints, all of which can hinder the research process. However, the data also reveal key facilitators such as mentorship, professional development opportunities, and institutional support that can help overcome these barriers.

The strategies proposed by participants, including increasing funding opportunities, simplifying grant processes, and recognizing innovative efforts, offer practical solutions for fostering a more supportive environment for innovation. The optimism expressed by researchers and their willingness to engage in overcoming these challenges are promising indicators of a committed and proactive community.

Overall, the findings suggest that while barriers to innovation in nursing research are substantial, they are not insurmountable. With targeted efforts to address these challenges, there is significant potential to enhance innovation, ultimately leading to advancements in nursing practice and patient care. The study underscores the importance of creating a research ecosystem that not only identifies and addresses barriers but also actively supports

and nurtures innovation.

Limitations

The participants may not represent all nurse researchers, as most might be from certain areas or institutions. The data is based on personal opinions, which can be biased or inaccurate. Since the study was done at one point in time, it doesn't show changes over time. Some important factors might have been missed, and the interpretation of open-ended answers could be influenced by the researchers' views. Not everyone responded to the survey, so some opinions might be left out. The study focused on what people think the barriers and supports are, which may not fully match real-life situations. It also didn't measure the actual impact of these factors on innovation.

Conflict of Interest

Not available.

Financial Support

Not available.

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