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SHORT COMMUNICATION PAPER:
" STRENGTHENING CONTINUING NURSING EDUCATION: A COMPREHENSIVE MODULE USING MOOCS FOR EFFECTIVE RISK COMMUNICATION IN GLOBAL HEALTH EMERGENCIES"

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Abstract:

This study develops an innovative Massive Open Online Course (MOOC) module specifically designed for continuing nursing education considering the critical need for efficient healthcare risk communication in the context of global health emergencies. The study utilised Thiagarajan's 4D development model, which was modified into a 3D model consisting of the stages: define, design, and develop. Through a comprehensive literature analysis, the study attempted to identify variable risk communication strategies that are crucial for successfully handling the always-evolving complexity of health emergencies. A mixed-method approach was utilised to evaluate the readiness among nurses for learning through MOOCs, hence guiding the design and development processes. By employing rigorous literature reviews and focus group discussions, researchers identified and validated crucial information, which ultimately resulted in the development of a MOOC course on the IIUM iTtaleem platform. The developed MOOC module was thoroughly examined by subject matter experts to ensure its accuracy. The pilot test conducted with SASMEC nurses revealed a notable improvement in the participants' understanding and confidence regarding risk communication. The module's interactive elements, such as virtual simulations and case studies, were praised for offering hands-on learning opportunities. The result of the research is a MOOC module that can be accessed worldwide, containing video lectures, quizzes, and virtual scenarios. The dissemination of guidelines for integration

into nursing education programmes has highlighted its capacity to strengthen healthcare systems in the face of global health concerns. Future intentions include implementing multilingual translations and partnering with international nursing organisations to guarantee ongoing relevance and influence in the dynamic field of global health emergencies.

Keywords:

Continuing Nursing Education, Risk Communication, Global Health Emergencies, MOOC Module,

Introduction

In recent years, the prevalence of global health emergencies has escalated, to include both pandemics and epidemics of infectious diseases at the regional level. These unfortunate events highlight the importance of efficient and prompt healthcare risk communication. Nurses have a crucial role in responses and attempts to reduce the impact of health problems on the public. They require advanced knowledge in risk communication.

The significance of effective risk communication in the field of health care has been thoroughly acknowledged in academic literature. Efficient communication is vital during health emergencies for ensuring public understanding, compliance with health procedures, and effective handling of emergencies (Holroyd et al., 2020; Savoia et al., 2013). The proximity of nurses to patients and communities highlights their importance in disseminating vital health information, positioning them as primary communicators in emergencies (Qin et al., 2017; Reddy & Gupta, 2020). However, traditional educational techniques sometimes come lacking in effectively addressing the dynamic and evolving character of global health problems.

This study aims to address the gap by creating a comprehensive risk communication module specifically designed for ongoing nursing education. The research recognises the capacity of Massive Open Online Courses (MOOCs) to effectively reach a wide-ranging and worldwide audience of nursing professionals. MOOCs are renowned for their inventive methodology, providing easily accessible, adaptable, and engaging educational material (Mahajan et al., 2019; Bettiol et al., 2022). MOOCs have emerged as a potent influence in education, transforming how knowledge is exchanged by overcoming geographical constraints and offering an adaptable platform for the extensive distribution of information (Pampouri et al., 2021; Bettiol et al., 2022). Nursing practitioners were selected due to their pivotal role on the frontlines and their distinct responsibility in healthcare communication. Nurses play a crucial role in delivering care, sharing information, and advocating for issues. Their ability to effectively communicate during health emergencies is essential for the overall welfare of the public (Su et al., 2022). The objective of this initiative is to provide nurses with the necessary skills and knowledge to effectively communicate risks during global health emergencies. This module combines knowledge in risk communication strategies, educational technology, and nursing education to help healthcare personnel effectively prepare for unforeseen health situations.

Background Of The Study

Frontline nurses have a crucial role in responding to emergencies and mitigating health crises. Effectively conveying risks to the general population and streamlining health information are

crucial for achieving success in handling emergencies. The effectiveness of emergency health interventions relies on effective communication, which plays a crucial role in shaping public understanding, trust, and compliance (National Academies of Sciences, Engineering, and Medicine; National Academy of Medicine; Committee on the Future of Nursing 2020–2030). Healthcare personnel encounter multiple obstacles to achieving effective communication, such as language barriers, cultural differences, and insufficient comprehension of patients' needs. These obstacles can impede the improvement of communication skills and impact the outcomes for patients. Numerous healthcare practitioners need to gain awareness of the essential skills and obstacles that impede interpersonal health communication. A small 57% of participants in the survey had undergone health communication training, highlighting a significant gap in opportunities for training (Zota et al., 2023).

Healthcare personnel sometimes prioritise technical skills at the expense of communication skills, resulting in a lack of necessary development in communication skills. Developing excellent communication skills can be somewhat challenging due to the need for prioritisation. The teaching and assessment of communication skills in healthcare professions education lack uniformity, as many institutions employ various methods and methodologies. This variability might be a challenge for healthcare professionals in cultivating and sustaining effective communication skills (Knight et al.,2024).

Conventional education in nursing sometimes falls short in equipping nurses with the necessary adaptable and evolving abilities required for effectively communicating risks during global health emergencies. The conventional approach to classroom instruction may have difficulties in adapting to the rapidly evolving nature of health crises. It also falls short in providing immediate, easily accessible, and interactive learning experiences that accurately capture the urgency and complexity of emergencies (Guilamo-Ramos et al., 2021). MOOCs are revolutionising education and offering a promising alternative to traditional models. Massive Open Online Courses (MOOCs) utilise internet-based platforms to deliver education that is adaptable, easily expandable, and economically efficient to a worldwide population. Asynchronous learning allows nursing practitioners to acquire knowledge and skills without being limited by specific time or location requirements (Pampouri et al., 2021).

Scoping reviews have demonstrated that MOOCs can develop students' and users' soft skills, both directly and indirectly. The promotion of the MOOCs phenomena is fast expanding on a significant scale, showcasing the educational potential of a teaching technique that seemingly has no boundaries (Peconio et al., 2022).

MOOCs are ideal for enhancing the risk communication skills of nursing practitioners due to their flexibility and scalability. The multimedia content, discussion forums, and virtual simulations of MOOCs foster an interactive and captivating learning atmosphere that replicates actual health crises (Kelly et al., 2021). MOOCs provide the opportunity to access a diverse worldwide audience, transcending geographical and cultural obstacles (Despujol et al., 2022). Given the global character of health emergencies, nurses require abilities that are universally applicable. This research project utilises Massive Open Online Courses (MOOCs) to overcome the constraints of conventional education in adequately equipping nursing practitioners with the necessary skills for risk communication. The aim is to develop a scalable and universally accessible solution that aligns with the contemporary requirements of the healthcare industry.

Scope Of The Study

This study investigates the effectiveness of Massive Open Online Courses (MOOCs) in enhancing risk communication skills among frontline nurses. The objective is to surpass the constraints of conventional nursing education in order to provide nurses with the necessary skills and knowledge to effectively respond to swiftly evolving public health emergencies. The study seeks to assess the attainment of knowledge and practical competencies in risk communication among nurses who have successfully completed a specifically designed MOOC programme. The emphasis will be placed on their capacity to proficiently convey dangers amid health emergencies.

The study also examines the efficacy of MOOC-based learning in imparting risk communication skills in comparison to traditional classroom education. The analysis also examines how the architecture and characteristics of the MOOC platform, such as the incorporation of multimedia content, discussion forums, and virtual simulations, contribute to an engaging and authentic learning encounter. The target population consists of registered nurses who are currently engaged in delivering direct patient care. We will clearly establish the timeframe of the study and provide detailed explanations of the data collection procedures, which will encompass pre- and post-tests, questionnaires, and focus groups. This research is significant as it explores the possibility of MOOCs as a scalable and accessible method to tackle the insufficient training of nurses in successfully conveying significant hazards during public health emergencies.

Methodology

The primary objective of this research project is to design and develop a module for continuing nursing education using xMOOC framework. This MOOC module will focus on risk communication and its impact on the knowledge, skills, and confidence of nursing professionals. To achieve this objective, the research employed a multi-phase approach. A thorough literature review was conducted at the beginning to identify the most effective strategies and fundamental principles in communicating risks during health emergencies.

A survey was conducted online with 150 registered nurses to evaluate their preparedness for learning via MOOC (Massive Open Online Course) platforms. This entailed assessing variables such as their previous exposure to online education, proficiency in using technology, and the amount of time they could allocate. Furthermore, this survey aims to determine the requirements for creating a risk communication module that is specifically tailored for global health emergencies. The survey probably investigated the existing knowledge and confidence of nurses in conveying risk during emergencies, to find specific areas where a tailored module could be most helpful. This initial step was implemented using a mixed method approach.

During the process of designing and developing the risk communication MOOC module, Thiagarajan's 4D development model was adapted into a 3D model, consisting of the stages of define, design, and develop. During this phase, various data collection methods were utilised, including systematic literature review (SLR) to identify the key contents for effective risk communication in the context of global health emergencies. Additionally, focus group discussions were conducted to validate the pertinent contents of the MOOC module based on the findings from the SLR. Afterwards, a storyboard was created, and a MOOC course was developed using the IIUM iTtaleem platform. Subsequently, content validity was done by subject matter experts (SME) using validated checklists.

The final phase of this research study involves evaluating the efficacy of the designed MOOC module in improving nurses' understanding of risk communication. The MOOC module was subsequently subjected to a pilot test with nurses from SASMEC using a quasi-experimental, pre-test post-test design involving a single group. Participants' knowledge and skills related to risk communication were evaluated using a pre-test and post-test evaluation to measure any changes of participants' knowledge and skills related to risk communication.

Findings

Table 1 displays a comparative analysis of the scores before and after the test, assessing the influence of the MOOC course on risk communication. There was a significant difference between the pre-test scores, which had an average of 115.24 (with a standard deviation of 17.89), and the post-test scores, which had an average of 124.15 (with a standard deviation of 16.75). The test scores were evaluated using the paired t-test approach, and the resulting p-value of 0.022 was declared to be lower than the specified significance level of 0.05. Therefore, the null hypothesis (Ho) was definitively rejected, whereas the alternate hypothesis (HA) was confirmed. This confirms the assertion that there is a significant improvement in scores between the pre-test (taken before the course starts) and post-test (taken after the course ends) regarding the impact of the MOOC on enhancing risk communication skills in the field of global health emergencies among the participating nurses. The result of the Paired T-Test is presented in Table 1.

Table 1. Paired T-Test Result

Variables	Pre-score Mean (SD)	Post-score Mean (SD)	Mean score Difference (95% CI)	t- statistics (df)	p-value
MOOCs course	115.24 (17.89)	124.15 (16.75)	15.08 (1.37,16.45)	2.41 (32)	.022

The results of the pilot testing revealed a significant improvement in understanding of risk communication principles among nursing professionals. Participants reported increased confidence in their ability to communicate effectively during health emergencies. The interactive elements of the MOOC, such as virtual simulations (video presentation) and case studies, were particularly well-received, providing a realistic and practical learning experience. This research has successfully addressed the need for a targeted and accessible risk communication module for nursing professionals engaged in continuing education. The positive outcomes from the pilot testing demonstrated the potential of MOOCs in enhancing the skills of healthcare workers, ensuring they are better prepared to communicate crucial information during global health emergencies.

Output

The primary output of this research is the development of a MOOC-based risk communication module, which is now accessible to nursing professionals globally. The module includes video lectures, interactive quizzes, and virtual scenarios, creating an engaging and comprehensive learning experience. Additionally, a set of guidelines for integrating the module into existing nursing education programs has been disseminated to educational institutions and healthcare organizations.

Challenges Of The Study And Solutions

While the study demonstrates the potential for enhancing risk communication training for nurses through MOOCs, it is important to acknowledge the existing obstacles. The sample size of 150 nurses may not be representative of the overall nursing population due to its relatively modest nature. In addition, only depending on online surveys may introduce bias, as nurses who possess a higher level of technological proficiency may exhibit a greater likelihood of participation. Self-reported data on skills and readiness has inherent limitations. In addition, the pilot testing probably concentrated on a particular risk communication module, and its efficacy in teaching a broader array of continuing education subjects has not been investigated.

To address these challenges, future research could be enhanced by using a broader and more diverse sample of nurses, recruited through a range of different techniques. Integrating surveys with interviews or focus groups has the potential to yield more comprehensive and profound insights. Moreover, conducting pilot programmes for Massive Open Online Courses (MOOCs) on several continuing education subjects will provide a more thorough assessment of their potential in nursing education.

Additionally, to enhance the MOOC's accessibility to a wider range of individuals in the future, the research team intends to translate the material into numerous languages. Ongoing modifications will be incorporated into the module to correspond with the ever-changing environment of global health emergencies. Collaboration with international nursing organisations and educational institutions will be sought to incorporate the module into formal nursing education curricula.

Conclusion

Overall, the development and implementation of a risk communication module for continuing nursing education through MOOC is a significant accomplishment in tackling the difficulties presented by global health emergencies. Our study has effectively shown, through pilot testing, that the module is successful in providing healthcare professionals with essential skills. Through the attainment of our study objective, we have demonstrated the crucial role that online learning platforms play in cultivating proficiency among frontline workers. This development greatly enhances the ability and effectiveness of healthcare systems globally in confronting emergencies in the future.

Acknowledgement

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