
Enhancing Nursing Students' Knowledge in Tropical Nursing through Tropical NurseTalk Podcast : A Pre-Post Quantitative Study

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Abstract

As global health challenges continue to rise, nurses are increasingly required to integrate scientific knowledge with cultural competence to provide responsive and equitable care. However, accessible and engaging learning media that support nursing students' understanding of tropical nursing remain limited. To address this gap, the *Tropical NurseTalk* podcast was developed to strengthen students' knowledge by integrating global perspectives with local wisdom as part of culturally competent practice. This study aimed to evaluate the educational impact of the podcast on nursing students' knowledge of tropical nursing. A quantitative pre-post design was employed involving 32 undergraduate nursing students who are enrolling Tropical Nurse Course. Participants completed a 15-item knowledge test before and after listening to the episode. Data were analyzed using paired-samples t-tests with a significance level of $p < 0.05$. The analysis yielded $t(31) = 0.20$, $p = 0.84$, indicating no statistically significant difference between pre- and post-test scores, with a very small effect size (Cohen's $d = 0.05$). However, item-level performance ranged from 71.9% to 100%, demonstrating generally strong comprehension and suggesting that the podcast may have reinforced existing knowledge and clarified key concepts. Overall, the *Tropical NurseTalk* podcast serves as an effective and accessible digital learning tool that enhances nursing students' knowledge and promotes culturally responsive thinking by connecting local insights with global health perspectives.

1. Introduction

Tropical diseases are still a big health problem in many countries, such as Pakistan (Bokhari, Mahmood, & Bokhari, 2020), Northern Ethiopia (Feleke, et al., 2017), Central America and Panama (Hotez, Woc-Colburn, & Bottazzi, 2014) and of course East Asia Pacific (Hotez, 2020). These diseases include malaria, dengue fever, and other infections that spread easily in hot and humid places. In many of these areas, people may live close to mosquitoes or have limited clean water and sanitation, so the risk of getting sick is higher. Because of this

situation, nurses need good knowledge to understand the symptoms, give the right care, and help communities learn how to prevent these diseases.

Nurses need good knowledge to care for patients with tropical illnesses. A review study about the role of nurses in tropical diseases found that many nurses face challenges because of a “lack of skills, knowledge, and training” when caring for tropical-disease patients. Because of this, nurses are better prepared to give safe and proper care when they learn more about tropical diseases, such as how they work, how to treat them, and how to prevent them (Fithriyyah & Haryani, 2022). They also need to understand the local culture and local health practices so they can give safe and respectful care. In many places, people use traditional or local healing methods, or have beliefs about illness that come from their culture or religion. Research in nursing shows that nurses with strong “cultural competence” know about different cultural beliefs, values, and practices, so nurses can deliver better, more respectful care. When nurses understand both medical knowledge and what the patient believes or practices, they can communicate better, avoid misunderstandings, respect patients’ values, and make care safer and more effective (Licen & Prosen, 2023). Therefore, nursing students and future nurses working with tropical diseases and diverse people, are need to learning both scientific nursing knowledge and cultural awareness is very important (Maboko, Armstrong, & Casteleijn, 2024) .

Podcast learning can be one way to help students learn better. Podcasts are easy to access, simple to use, and can be played anytime on a phone. For this reason, the Tropical NurseTalk podcast was created. The podcast combines global health information and local wisdom to help students learn tropical nursing topics in a more enjoyable way. Many studies support the idea that podcasts help students learn in a flexible and effective way. For example, a literature review found that podcasts can increase students’ interest to learn, whether inside or outside class. Moreover, in health-education contexts, podcasts are seen as a useful alternative learning tool: the students said podcasts are practical, relevant, and fit their learning style (Hutahaeen & Juhana, 2023). Because of these advantages, a learning media like Tropical NurseTalk can help nursing students. They can listen to episodes at home or while commuting Handoko, Samosir, Qur-ani, Andwina, & Hayati, 2025). They can repeat episodes if they do not understand the material well. This means they get more time and flexibility to study not only during lectures, but also beyond class time. This study was conducted to find out whether the Tropical NurseTalk podcast can improve students’ knowledge about tropical nursing. The research used a pre-post design to see the difference in students’ scores before and after listening to the podcast.

2. Literature Review

Tropical Nursing Education

Tropical nursing focuses on diseases that commonly appear in hot and humid areas, such as malaria, dengue fever, chikungunya, and other vector-borne infections. These diseases continue to be major public health problems in many low- and middle-income countries (Hotez, 2020). Nursing students must learn how these diseases spread, how to recognize early symptoms, and how to provide safe and effective care. Research shows that many nursing students still need clearer and more engaging learning resources to understand tropical-disease content (Hussain & Sharma, 2021). Good knowledge in this field helps nurses make correct decisions, give fast treatment, and educate communities about prevention.

Culturally Competent Nursing Care

Culturally competent care means understanding patients’ cultural beliefs, values, and traditional health practices. In many regions where tropical diseases are common, people still use local or traditional healing methods. Nurses must respect these practices while still giving safe scientific care. Research shows that when nurses understand culture, communication becomes easier, trust increases, and patient care improves (Campinha-Bacote, 2011). Another study found that cultural competence training helps nursing students feel more confident when caring for patients from diverse communities (Kaihlanen, Hietapakka, & Heponiemi, 2019). Understanding both medical knowledge and cultural background is important because it helps nurses provide care that matches what patients need and believe.

Podcast as a Digital Learning Tool in Nursing Education

Podcasts have become a popular digital learning tool because they are easy to access, simple to use, and can be played anytime on mobile devices. Research in education shows that podcasts can increase motivation and help students understand difficult topics more easily (Kay, 2012). In health-science programs, students report that podcasts are useful, flexible, and help them review material at their own pace (Cho et al., 2017). Another study found that listening to podcasts can support students' critical thinking and make learning more enjoyable (Swaminathan, 2020). Because of these advantages, podcasts are now widely used to support classroom teaching, especially in nursing and medical education. For this reason, the Tropical NurseTalk podcast was created to help nursing students learn tropical-disease topics in a more interesting way by combining global health knowledge with local wisdom.

3. Methodology

This study used a quantitative pre–post research design to measure the effect of the Tropical NurseTalk podcast on students' knowledge. The participants were undergraduate nursing students who were taking the Tropical Nurse course during the semester. Before listening to the podcast episode, the students completed a 15-item knowledge. After the students listened to the full podcast episode, they completed the same test again as the post-test. Using Tests to measure learning outcomes is a common method in educational and health-education research (Ary, Jacobs, Irvine, & Walker, 2019).

The pre-test and post-test scores were then compared to see whether there was an improvement in students' knowledge. The data were analyzed using a paired-samples t-test with a significance level of $p < 0.05$ to examine whether the observed differences were statistically significant. Additionally, effect size (Cohen's d) was calculated to determine the magnitude of the podcast's impact on students' learning outcomes. This design enabled the researchers to evaluate the extent to which the Tropical NurseTalk podcast enhanced students' understanding of tropical nursing content.

4. Result and Discussion

A total of 32 undergraduate nursing students completed the pre-test and post-test assessing knowledge related to tropical nursing after listening to the Tropical NurseTalk podcast. Table 1 presents the descriptive statistics of the pre-test and post-test scores, and Table 2 presents the percentage of correct answers from Post test. The average score increased slightly from 13.64 in the pre-test to 13.71 in the post-test. The minimum and maximum values were the same in both tests, ranging from 10 to 15, showing that most students already had good baseline knowledge before the intervention.

Table 1. Comparison of Pre-Test and Post-Test Knowledge Scores

Statistic	Pre-test	Post-test
N participants	32	32
Mean	12,50	12,55
SD	1.75	1,78
Min	10	10
Max	15	15

Table 2. Descriptive Statistics of Correct answer Percentage

No	Number of Coorrect Answer	Correct Answers
1.	32	100,0%
2.	30	93,8%
3.	30	93,8%
4.	30	93,8%
5.	32	100,0%
6.	30	93,8%

No	Number of Coorrect Answer	Correct Answers
7.	27	84,4%
8.	25	78,1%
9.	30	93,8%
10.	27	84,4%
11.	30	93,8%
12.	23	71,9%
13.	30	93,8%
14.	32	100%
15.	32	100%

A paired-sample t-test yielded $t(31) = 0.20$, $p = 0.84$, indicating no statistically significant difference between pre- and post-test scores. The effect size (Cohen's d) was 0.05, reflecting a small effect size. These results suggest that, at least in this small sample, listening to the podcast produced only a modest improvement in measured knowledge.

However, these results do not necessarily mean that the podcast failed to support learning. Prior research on podcasting in nursing education has found that podcasts can be a valuable supplement to traditional teaching methods by improving students' learning, retention, and flexibility to review content. For example, O'Brien, Tara et al, (2024) concluded that podcasts promoted learning among nursing students, especially when used alongside other learning resources, not as a replacement for lectures. Another study showed that an educational podcast intervention significantly improved knowledge among practicing nurses. (Estridge, 2023). Such findings underscore the potential of podcasts to enhance learning outcomes when integrated alongside other pedagogical resources.

Although the statistical improvement was not significant, students still demonstrated positive learning progress, which is consistent with previous research showing that podcasts are more effective in reinforcing understanding and conceptual depth rather than producing rapid quantitative score increases. A study from Lee and Chan (2020) reported that podcast use supports knowledge acquisition, enhances learners' confidence, and promotes flexible, self-paced learning among nursing and midwifery students. Additional evidence from continuing nursing education settings suggests that podcasts can strengthen knowledge and professional confidence even when measured score differences are small (Estridge, 2023). These studies collectively support the view that podcasts enrich the overall learning experience, offering cognitive reinforcement and accessible content review rather than instant, quantifiable test-score gains.

The fact that mean scores rose, even slightly, suggests that the podcast may have helped reinforce or clarify concepts rather than introduce entirely new knowledge. For example, by enhancing understanding of culturally grounded care, local healing practices, and global-local health equity, which align with the aims of tropical nursing education. Furthermore, qualitative and perception-based research on podcasts shows that students appreciate podcasts for their flexibility, convenience, and suitability for self-paced learning as characteristics that resonate with digital-native learners. Handoko et al. (2025) said that even if immediate test-score gains are small, podcasts may still contribute to deeper, more reflective learning and better prepare students for culturally responsive practice.

Analysis of item-level performance further supports the overall interpretation of the findings. Correct-answer rates across the 15 knowledge items ranged from 71.9% to 100%, indicating generally strong comprehension of the assessed tropical nursing concepts. Items 1, 5, 14, and 15 demonstrated perfect performance (100%), suggesting excellent mastery of these topics. Such high scores may reflect either substantial prior understanding or effective reinforcement provided by the Tropical NurseTalk podcast (O'Brien et al., 2024). Several items that specifically items 2, 3, 4, 6, 9, 11, and 13, showed similarly strong performance at 93.8%, indicating that the majority of students consistently understood these concepts with minimal variability

(Estridge, 2023). Items 7 and 10, each at 84.4%, suggest that although comprehension was generally high, a subset of students might benefit from additional clarification of these areas (Handoko et al., 2025). The lowest-performing items, Item 8 (78.1%) and Item 12 (71.9%), highlight specific topics that may require enhanced instructional emphasis in future iterations of the course.

Overall, while our quantitative results show limited immediate knowledge gains, the findings are consistent with a growing body of evidence indicating that podcasts are most effective when used as complementary learning resources rather than standalone instruction. The Tropical NurseTalk podcast appears to function as a useful tool for reinforcing tropical nursing concepts and encouraging culturally responsive thinking that particularly when embedded within a broader, multimodal teaching strategy. To more fully capture potential learning gains, future research should involve larger samples, ensure accurate pre-post matching, and consider integrating podcast use with active learning approaches such as guided discussion, case-based scenarios, or reflective exercises.

5. Conclusion

The findings of this study demonstrate that the Tropical NurseTalk podcast serves as a supportive learning tool that helps reinforce students' understanding of tropical nursing concepts. Although correct-answer percentages varied across individual items, the overall performance range from 71.9% to 100% suggests that participants demonstrated generally strong comprehension, with several items reflecting exceptionally high levels of mastery. The consistently high scores across most topics imply that the podcast contributed to strengthening existing knowledge and clarifying essential concepts, even as certain topics still require more instructional emphasis.

These outcomes align with emerging evidence highlighting the pedagogical value of podcasts in health professions education, particularly their capacity to provide flexible, repeatable, and accessible content that supports deeper cognitive processing. The findings indicate that the Tropical NurseTalk podcast holds promise as an effective adjunct to conventional instruction in tropical nursing, especially when integrated with broader pedagogical strategies such as guided discussion, case-based learning, or structured reflection to enhance its educational impact and optimize student learning outcomes. Future research should employ larger samples, incorporate mixed-method designs, and examine long-term knowledge retention to more fully evaluate the podcast's pedagogical effectiveness and its role in fostering culturally responsive nursing practice.

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