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Conocimiento, percepción y actitudes de las enfermeras investigadoras filipinas hacia ChatGPT y su productividad investigadora: un estudio de correlación descriptivo

Filipino Nurse Researchers' Knowledge, Perception, and Attitudes Toward ChatGPT and Their Research Productivity: A Descriptive Correlation Study

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RESUMEN

El estudio describe los conocimientos, la percepción y las actitudes de las enfermeras filipinas investigadoras hacia ChatGPT y la productividad de la investigación. Utilizando un diseño descriptivo correlacional, se enviaron cuestionarios de elaboración propia, validados y pilotados a trescientas setenta enfermeras filipinas investigadoras, tanto noveles (<5 años de experiencia en investigación) como experimentadas (>10 años de experiencia). Se utilizaron estadísticas descriptivas para las características del perfil, mientras que para identificar diferencias significativas entre los dos grupos de participantes en KPA y productividad investigadora se utilizó una prueba t de muestras independientes. La correlación producto-momento de Pearson y un análisis de regresión lineal estándar examinaron la relación entre las variables independientes (KPA) y dependientes (productividad investigadora). El nivel de significación estadística se fijó en p < 0,05. El grupo de participantes más numeroso estaba formado por enfermeras filipinas investigadoras de entre 20 y 30 años con un máster en enfermería. Declararon tener menos de 10 años de experiencia como instructoras y haber publicado entre 1 y 5 artículos de investigación. Las puntuaciones KPA indicaban una comprensión general de las capacidades de ChatGPT como herramienta valiosa para la investigación y una actitud positiva hacia su uso. Los resultados del estudio revelaron además que la prueba t no mostró una diferencia estadísticamente significativa en percepción (t=1,28, p=0,20) y productividad investigadora (t=1,28, p=0,20). Pero los conocimientos (t=4,73, p=0,00) y la actitud (t=1,28,p=0,02) sí resultaron significativos. Un análisis más detallado reveló una R-cuadrado ajustada de 0,145, lo que indica que las variables independientes (conocimiento, percepción y actitud) pueden explicar aproximadamente el 14,5 % de la varianza de la productividad investigadora. Se encontró una correlación positiva estadísticamente significativa entre las actitudes hacia ChatGPT y la productividad de la investigación (β = 0,141, p = 0,012). En este estudio participaron instructoras de entre 20 y 30 años, con máster en Enfermería y menos de 10 años de experiencia.

Declararon tener entre 1 y 5 publicaciones, lo que sugiere una actividad investigadora moderada. Aunque los resultados revelaron una comprensión general del potencial de ChatGPT para la investigación, los participantes dudaron en integrar su uso debido a preocupaciones éticas, que necesitan más educación sobre el uso responsable de ChatGPT en la investigación. Además, los resultados del estudio sugieren que las enfermeras filipinas investigadoras que están más abiertas a utilizar ChatGPT tienden a demostrar una mayor producción investigadora.

PALABRAS CLAVE

ChatGPT; productividad de la investigación; enfermeras investigadoras; Filipinas.

ABSTRACT

Understanding how nurse researchers perceive and utilize this technology offers insights into its integration within the nursing education system in the Philippines and globally, The study described Filipino nurse researchers' knowledge, perception, and attitudes toward ChatGPT and research productivity. Using a descriptive correlational design, self-made, validated, and piloted questionnaires were sent to three hundred seventy Filipino nurse researchers, both novice (<5 years of research experience) and seasoned (> 10 years of experience). Descriptive statistics were used for profile characteristics, while an independent sample t-test was used to identify significant differences between the two groups of participants in KPA and research productivity. Pearson's product-moment correlation and a standard linear regression analysis examined the relationship between the independent (KPA) and dependent (research productivity) variables. The level of statistical significance was set at $p < 0.05$. The largest participant group comprised female Filipino nurse researchers aged 20-30 with Master's degrees in Nursing. They reported having less than 10 years of experience as instructors and having published 1-5 research articles. The KPA scores indicated a general understanding of ChatGPT's capabilities, as a valuable tool for research and positive regard toward its use. The study findings further revealed that the t-test did not show a statistically significant difference in perception ($t=1.28$, $p=0.20$) and research productivity ($t=1.28$, $p=0,20$). But knowledge ($t=4.73$, $p=0.00$) and attitude ($t=1.28$,$p=0.02$) were found to be significant. Further analysis revealed an adjusted R-square of.145, indicating that the independent variables (knowledge, perception, and attitude) can explain approximately 14.5 % of the variance in research productivity. A statistically significant positive correlation was found between attitudes toward ChatGPT and research productivity ($\beta = 0.141$, $p = 0.012$). This study comprised female instructors aged 20-30 with Master's degrees in Nursing and less than 10 years of experience. They reported having 1-5 publications, suggesting moderate research activity. While the findings revealed a general understanding of ChatGPT's potential for research, participants hesitated to integrate its use due to ethical concerns, which need further education on the responsible use of ChatGPT in research. Moreover, study findings suggest that Filipino nurse researchers who are more open to using ChatGPT tend to demonstrate greater research output.

KEYWORDS

ChatGPT; research productivity; nurse researchers; Philippines.

1. INTRODUCTION

Artificial intelligence (AI) technology, such as Chat Generative Pre-trained Transformer (ChatGPT), has become increasingly prevalent in various fields, including education and research (Abdaljaleel et al., 2024; Fuller et al., 2024; Renjith et al., 2024). ChatGPT is a language model developed by OpenAI (Bohr & Memarzadeh, 2020; Guo et al., 2020). According to Wu et al. (2023), ChatGPT may appear as a recent innovation in chatbots, but its roots can be traced back to a rich history of advancements in artificial intelligence (AI) and natural language processing (NLP). The groundwork for large language models like ChatGPT was laid decades ago (Baidoo-Anu & Ansah, 2023; van Dis et al., 2023). The concept of artificial neural networks, loosely inspired by the human brain, emerged in the mid-20th century. ChatGPT's functionality offers multifaceted approaches that support and enhance researchers' research activities across different disciplines. These networks are trained on vast amounts of data to identify patterns and relationships. The tool's adaptability and range of applications make it a valuable instrument for researchers seeking assistance at different stages of their work (Kocoń et al., 2023) with a unique ability to generate human-like text based on prompts, which generate ideas, explore new perspectives, and enhance the overall research process (van Dis et al., 2023; Wu et al., 2023).

CHATGPT can significantly enhance the generation of high-quality research proposals and assist in data analysis, collaboration, and mentorship needed by researchers across disciplines (Nakavachara et al., 2024; Whitford, 2022). AI technology in research can potentially revolutionize how information is generated and disseminated. ChatGPT offers a unique opportunity for nurse researchers to enhance their research productivity. It can assist in literature reviews, data analysis, and even research proposal generation. However, Stahl and Eke (2024) argued that as more researchers delve into ChatGPT's potential, it is imperative to point out the ethical considerations accompanying its use. OpenAI, a non-profit research company, has been at the forefront of exploring safe and beneficial AI. Yenduri et al. (2024) narrated that OpenAI introduced the first iteration of the Generative Pre-trained Transformer model, or GPT-1, equipped with a massive dataset of text and code in 2015. Subsequent versions, GPT-2 and GPT-3, released in 2019 and 2020, boasted significantly increased capacity and sophistication (Zhang & Li, 2021). Both could generate more coherent and creative text formats, from poems to code (Lund & Wang, 2023). As AI continues to evolve, researchers can expect even more advanced chatbots capable of conversations, tailored assistance, and potentially even collaboration in various scholarly pursuits (Yenduri et al., 2024).

In nursing education, it is important to examine Filipino nurse researchers' knowledge, perception, and attitudes toward ChatGPT and its potential impact on their research productivity. Understanding how nurse researchers perceive and utilize this technology offers valuable insights into its integration within the nursing education system in the Philippines and across the globe. The current research landscape is often divided between novice researchers embarking on their scholarly journeys and seasoned researchers with established expertise. When Filipino nurse researchers enter the field, assessing their knowledge and familiarity with ChatGPT is essential. These researchers may have limited exposure to AI technologies during their academic training, making it crucial to their understanding of ChatGPT. In doing so, we can identify the gaps to be addressed in effectively integrating ChatGPT into their research practices. On the other hand, seasoned Filipino nurse researchers, with their years of experience in the field, may have a different perspective on AI technologies. However, little is known about Filipino nurse researchers' knowledge, perception, and attitudes toward ChatGPT and its potential impact on their research productivity.

This study described Filipino nurse researchers' knowledge, perception, and attitudes toward ChatGPT and research productivity that address gaps and ensure that nurse researchers are equipped with the skills to utilize AI tools effectively and responsibly. Secondly, this study sheds light on nurse researchers' concerns about this technology. As a result, the study findings may inform academic discussion on ethical considerations, data privacy concerns, and biases that may arise when using AI tools in healthcare research. In this regard, researchers can work towards developing guidelines and best practices for using AI tools responsibly in their research projects. Lastly, the impact of ChatGPT on research productivity among Filipino nurse resear-

chers can have practical implications for the healthcare research community that can provide evidence on the benefits and limitations of using AI tools in research, helping nurse researchers and the like make informed decisions about incorporating this technology into their projects guiding future studies and collaborations.

2. MATERIALS AND METHODS

2.1 Study Design, Participants, and Data Gathering

This study employed a descriptive correlational approach. It used a survey to describe Filipino nurse researchers' knowledge, perceptions, and attitudes toward ChatGPT and their current research productivity. Filipino nurse researchers were recruited through professional nursing organizations and online research networks. Using the Raosoft online sample size calculator, for a population of 10,000 Filipino nurse researchers with a 5% margin of error, 95% confidence interval, and 50% proportion, the required sample size was 370 (Raosoft, 2004). The inclusion criteria specified two groups: novice researchers with less than five years of research experience and seasoned researchers with more than ten years of experience. A self-administered online questionnaire was developed. The questionnaire included demographics, knowledge, perceptions, attitudes, and research productivity sections. Three hundred seventy (N=370) nurse researchers voluntarily responded to the invitation to participate, which was disseminated through various established networks (e.g., institutional research departments and professional nursing associations). The questionnaire was designed using a web-based platform to ensure ease of access and completion for participants. Eligible participants were informed about the study's purpose and provided online consent before commencing the survey. Their participation remained entirely voluntary throughout the process.

2.2 Study Instrumentation

To gather data, a three-part, self-administered questionnaire was developed. The first section focused on the demographic characteristics of the participating Filipino nurse researchers. Part two delved deeper, assessing their knowledge (6 items), perceptions (6 items), and attitudes (6 items) towards ChatGPT. Part 3 described the research productivity, including activity (6 items), output (6 items), and institutional support(6 items). All questionnaires utilized a 5-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5). Three subject matter experts were consulted to evaluate the self-made questionnaires (CVI=0.95, S-CVI=0.96, and I-CVI=0.94). Items in the questionnaire were subjected to content analysis and pre-testing to ensure validity, resulting in a 0.93 acceptable kappa value. Revisions were integrated before undergoing a pilot study. The questionnaires were then piloted with 20 Filipino nurse researchers to ensure clarity, comprehensiveness, and reliability, with a Cronbach's alpha value exceeding 0.9, confirming the instrument's suitability for the study. The final questionnaires were hosted conveniently on Google Forms with pertinent information about the study purpose, risks, and benefits, confidentiality, privacy, and anonymity.

2.3 Statistical Data Analysis

The IBM Statistical Package of the Social Sciences Program (SPSS) version 26 facilitated data analysis. Descriptive statistics was used to summarize the demographic characteristics of the participants. Similarly, for parts two and three, which assessed knowledge, perceptions, attitudes, research activity, output, and institutional support, descriptive statistics presented the distribution of responses on the 5-point Likert scale. An Independent sample t-test identified significant differences between the two groups of participants in KPA and research productivity, while a standard linear regression analysis assessed the relationship between independent (KPA) and dependent (research productivity) variables. The level of statistical significance was set at $p < 0.05$.

3. RESULTS

3.1 Characteristics of Filipino Nurse Researchers

Table 1 presents the profile characteristics of Filipino nurse researchers. Results indicate that the largest age group was 20-30, with 191 respondents (51.6%). The vast majority of respondents were female (N=301 respondents, 81.4%), and the most common qualification was a Master's degree in Nursing, with 199 respondents (53.8%). Over half of the respondents (N=197, 53.2%) reported having less than 10 years of experience. The most prevalent job position among the respondents was Instructor (N=94, 25.4%), who reported having 1-5 publications (N=264, 71.4%).

Table 1. Profile Characteristics of Filipino Nurse Researchers.

Profile Characteristics	f	%
Age		
20-30	191	51.6
31-40	117	31.6
41-50	11	3.0
51-60	22	5.9
Above 60	29	7.8
Sex		
Male	69	18.6
Female	301	81.4
Education		
Masterate in Nursing	199	53.8
Masterate in other fields	30	8.1
Doctorate in Nursing	9	2.4
Doctorate in other fields	132	35.7
Total Years of Experience		
Less than 10 years	197	53.2
More than 10 years	173	46.8
Position		
Instructor	94	25.4

Profile Characteristics	f	%
Assistant Professor	104	28.1
Associate Professor	74	20.0
Professor	98	26.5
Number of Publication		
No publications	31	8.4
1-5 in the past years	264	71.4
6-10 in the past five years	3	0.8
11-15 in the past five years	47	12.7
More than 16 in the past five years	25	6.8
Type of HEI		
Private	239	64.6
Public	131	35.4
Area of Specialization		
Adult Health	138	37.3
Maternal Health	16	4.3
Child Health	12	3.2
Mental Health	39	10.5
Community Health	127	34.3
Research	17	4.6
Nursing Leadership and Management	21	5.7

3.2 Knowledge, Perception, and Attitudes Towards ChatGPT among Filipino Nurse Researchers

Table 2 presents the knowledge, perception, and attitudes towards ChatGPT among Filipino Nurse Researchers. The highest knowledge mean score (M=4.64, SD=0.50) "I am familiar with ChatGPT and its capabilities.. Respondents also agreed that ChatGPT could be a valuable tool for improving the efficiency of research activities and has the highest mean score (M=4.42, SD=1.09). However, there was hesitation in integrating ChatGPT into research workflows due to ethical concerns (M=4.13, SD=0.34).

Table 2. Knowledge, Perception, and Attitudes Towards ChatGPT among Filipino Nurse Researchers.

Knowledge, Perception, and Attitudes Towards ChatGPT	Mean	SD
Knowledge		
I am familiar with ChatGPT and its capabilities.	4.64	0.50
I understand the potential benefits of using ChatGPT in research.	4.59	0.54
I know the limitations and potential risks associated with using ChatGPT in research.	4.59	0.54
I understand the basic functionalities of ChatGPT for generating text.	4.39	0.52
I am aware of the potential applications of large language models in research.	4.39	0.49
I have used ChatGPT in my research before.	4.37	0.52
Category Mean	4.50	0.52
Perception		
ChatGPT could be a valuable tool for improving the efficiency of research activities.	4.51	1.09
ChatGPT could help researchers generate new research ideas and hypotheses.	4.49	1.08
ChatGPT can be a valuable tool for reviewing literature and summarizing research findings.	4.42	1.08
ChatGPT in research raises ethical concerns about plagiarism and authorship.	4.12	0.33
Researchers should be transparent about their use of ChatGPT in their research publications.	4.10	0.30
ChatGPT could be a reliable source of factual information in research.	4.09	0.29
Category Mean	4.29	0.70
Attitudes		
I would hesitate to integrate ChatGPT into my research workflow due to potential ethical concerns.	4.13	0.34
I would consider using ChatGPT as a supplementary tool for research tasks.	4.11	0.32
The widespread adoption of ChatGPT in research could lead to scientific misconduct if not used responsibly.	4.11	0.31
I want to learn more about best practices for using ChatGPT in research.	4.10	0.30
I would be comfortable using ChatGPT in my research.	4.09	0.29
Institutions should provide researchers with training and resources on using ChatGPT effectively.	4.09	0.29
Category Mean	4.11	0.31

3.3 Filipino Nurse Researchers' Productivity

Table 3 presents the Filipino nurse researchers' productivity. Regarding research activity, the highest mean score (M=3.86, SD=0.90) was "I actively participate in research activities beyond teaching and service", while the lowest mean score was "I regularly collaborate with colleagues on research projects (M=3.34, SD=0.94). The highest mean score for the research output (M=3.79, SD=0.96) was "I have mentored students in research projects." Contributing to book chapters (M=3.31, SD=0.96) appears to be the least frequent research output. The highest mean for institutional support was "My institution provides adequate resources (e.g., library access and research funding) to support faculty research" (M=3.79, SD=0.96). while the lowest mean score (M=3.30, SD=0.96) was "My department provides mentorship and support for research development." Similarly, there is room for growth in feeling comfortable seeking guidance and resources from colleagues for research endeavors (M=3.30, SD=0.96).

Table 3. Filipino Nurse Researchers' Research Productivity.

Research Productivity	M	SD
Research Activity		
I actively participate in research activities beyond teaching and service.	3.86	0.90
I actively seek funding opportunities to support my research.	3.82	0.93
I dedicate sufficient time to conducting research.	3.71	1.02
I am involved in developing new research ideas related to nursing practice.	3.35	0.94
I regularly collaborate with colleagues on research projects.	3.34	0.94
Category Mean	3.62	0.95
Research Outputs		
I have mentored students in research projects.	3.79	0.96
I am actively disseminating my research findings to the nursing community.	3.65	1.06
I have published at least one peer-reviewed research article in the past year.	3.68	1.04
I have presented my research findings at conferences or professional meetings.	3.34	0.94
I have contributed to book chapters or other scholarly publications.	3.31	0.96
Category Mean	3.55	0.99
Institutional Support		
My institution provides adequate resources (e.g., library access and research funding) to support faculty research.	3.79	0.96
My workload allows me to dedicate time to research activities.	3.79	0.96
My institution encourages and recognizes faculty research productivity.	3.65	1.06

Research Productivity	M	SD
My department provides mentorship and support for research development.	3.30	0.96
I feel comfortable seeking guidance and resources from colleagues for research endeavors	3.30	0.96
Category Mean	3.57	0.98

3.4 Independent t-test to Examine Differences in Knowledge Perception, Attitudes, and Research Productivity in Using ChatGPT

Table 4 presents the Independent t-test to examine differences in knowledge perception, attitudes, and research productivity using ChatGPT. Results indicate that novice researchers (M=4.23) had a higher mean knowledge than seasoned researchers (M=3.89). Novice researchers also had a higher mean perception (M=4.31) than seasoned researchers (M=4.30) and a higher mean attitude (M=4.14) than seasoned researchers (M=4.07). However, novice researchers had a lower mean research productivity (M=3.66) than seasoned researchers (M=3.56). The study findings further revealed that the t-test showed a statistically significant difference in knowledge (t=4.73, p=0.00) and attitude (t=2.45, p=0.02) between novice and seasoned researchers.

Table 4. Independent t-test to Examine Differences in Knowledge Perception, Attitudes, and Research Productivity in Using ChatGPT.

	Novice		Seasoned		t	p
	Mean	SD	Mean	SD		
Knowledge	4.23	0.72	3.89	0.68	4.73	0.00
Perception	4.31	0.56	4.30	0.58	0.21	0.84
Attitude	4.14	0.32	4.07	0.25	2.45	0.02
Research Productivity	3.66	0.76	3.56	0.76	1.28	0.20

Note: *p≤0.05, **p≤0.01, ***p≤.001.

3.5 Relationship among Knowledge, Perception, Attitudes, and Research Productivity in Using ChatGPT

Table 5 presents the significant relationship among knowledge, perception, attitudes, and research productivity. Results indicate that knowledge (r=-0.06, p=0.22) and perception (r=-0.06, p=0.27) did not correlate statistically with research productivity. However, a statistically significant positive correlation was found between attitudes toward ChatGPT (r=0.119, p=0.02) and research productivity. The analysis revealed an adjusted R-square of.145, indicating that approximately 14.5 % of the variance in research productivity can be explained by the independent variables (knowledge, perception, and attitude). A statistically significant positive correlation was found between attitudes toward ChatGPT and research productivity (β=0.141, p=0.012).

Table 5. Relationship among Knowledge, Perception, Attitudes, and Research Productivity in Using ChatGPT.

				Research Productivity						
Predictors	r	p	SE	β	95% CI		t	p	Adj. R^2	R
					LL	UL				
Knowledge	−0.06	0.22	.095	.026	−.160	.214	.286	.775	.013	
Perception	−0.06	0.27	.122	−.105	−.380	.100	−1.146	.253	.016	.145
Attitude	.119*	0.02	.146	.141	.080	.656	2.511	.012*	.012	

Note: B=Unstandardized regression coefficient, SE=Standard error of the coefficient, β=Standardized regression coefficient, CI=Confidence Interval, LL=Lower Limit, UI=Upper Limit, Adj. R2=Adjusted R square. *p≤0.05, **p≤0.01, ***p≤.001.

4. DISCUSSION

The study findings indicated a general understanding of ChatGPT's potential benefits and limitations for research purposes, and Filipino nurse researchers possess a relatively good understanding of ChatGPT's basic functionalities. In a study by Abdelhafiz et al. (2024) 67% had heard of ChatGPT, but only 11.5% had employed it in their research (n=200) to rephrase paragraphs and find references. Another study found that only 40% of the audience had tried *ChatGPT*. More trainees had tried *ChatGPT* compared with faculty. Those who had used ChatGPT were more interested in using it in a wider range of contexts going forward (Hosseini et al., 2023). Moreover, several studies mentioned that ChatGPT is a valuable tool for researchers seeking assistance at different stages of their work (Frieder et al., 2024; George & George, 2023) and even university students (Chan & Hu, 2023; Sallam et al., 2023; Thi Thuy An, 2023).

Regarding research productivity, Filipino nurse researchers appear to be more active in research beyond teaching and service activities (M=3.86, SD=0.90). However, they collaborate less frequently with colleagues on research projects (M=3.34, SD=0.94), which indicates that they may feel less comfortable seeking guidance and resources from colleagues. The most frequent research output is mentoring students in research projects (M=3.79, SD=0.96). Filipino nurse researchers author or co-author peer-reviewed articles (M=3.31, SD=0.96). The push to get more nurses involved and take leadership roles in telemedicine, e-visits, and online teaching has given many nurse scientists opportunities to prepare for the virtual research world. Filipino nurse researchers perceive their institutions as providing adequate resources (e.g., library access and research funding) to support faculty research (M=3.79, SD=0.96). However, some institutions seem to provide less support for research development (M=3.30, SD=0.96). Similarly, Filipino nurse researchers may feel less comfortable seeking guidance and resources from colleagues for research endeavors (M=3.30, SD=0.96). The Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing (2011) offered a framework for nurse researchers that may help them stay productive during shutdowns or slowdowns of their experiments, clinical trials, and human subjects enrollment. Albayati (2024), Raman et al. (2023) and Dwivedi et al. (2023) highlighted that ChatGPT might supplant human researchers and the unique skills they bring to the research process, including critical thinking, creativity, and empathy, along with their productivity and higher-order thinking.

However, despite the benefits documented, our study found hesitation towards integrating ChatGPT into research workflows due to ethical concerns. Such a finding was supported by other studies highlighting that ChatGPT's use leads to a lack of human oversight and accoun-

tability (Dwivedi et al., 2023; Lund & Wang, 2023; Raman et al., 2023). Corollary to this, ChatGPT potentiates deception or manipulation of users (i.e., vulnerable or emotionally distressed) (Cao et al., 2023). Meanwhile, Huh (2023) had a more elaborate list of ChatGPT-related research and publication ethics issues, including publication ethics issues, fabrication, falsification, plagiarism, authorship dispute, and duplicate publication. Ethical considerations are paramount when using ChatGPT in nursing research. Nurse researchers must protect patient privacy and confidentiality when utilizing this technology. They should adhere to ethical guidelines and obtain informed consent from participants before using their data in the AI system. Transparency is also crucial in the use of AI models like ChatGPT. Nurse researchers should communicate to participants and stakeholders that AI technology is employed in the research process, which may foster trust and ensure that participants know the potential implications and limitations of using ChatGPT. Researchers must exercise caution and carefully validate the information generated by ChatGPT before incorporating it into their work (Khlaif et al., 2023). Overreliance on ChatGPT for research tasks may inadvertently hinder the development of critical thinking and writing skills, potentially reducing their ability to engage in independent, analytical, and creative research processes (Chukwuere, 2024; Dergaa et al., 2023).

On the contrary, our findings indicate that knowledge and perception did not demonstrate statistical significance as predictors of research productivity. This implies that mere acquaintance with or a particular view of ChatGPT may not result in increased research output (Rice et al., 2024). While knowing about ChatGPT's functionalities is important, it does not guarantee its effective use in research. Researchers might need additional training or experience to translate that knowledge into concrete applications that enhance productivity. In contrast, a statistically significant positive correlation was found between attitudes toward ChatGPT and research productivity. This result indicates that Filipino nurse researchers with more positive attitudes towards ChatGPT tend to demonstrate higher research productivity. A positive attitude suggests they are receptive to ChatGPT's capabilities, which may lead them to explore how ChatGPT can be integrated into their research workflow (Fuchs, 2023). ChatGPT can automate tasks like literature searches, data analysis, and draft generation. According to Haleem et al. (2022) by embracing these functionalities, researchers might free up valuable time to focus on more complex aspects of their work, ultimately boosting their productivity. ChatGPT could serve as a collaborative tool, assisting researchers in brainstorming ideas, refining research questions, and suggesting new approaches. This collaborative aspect can fuel creativity and lead to more productive research efforts. If researchers leverage ChatGPT to help write and structure research papers, communicating their findings might become clearer and more concise. As a result, this can expedite the publication process, contributing to higher research output. Also, positive attitudes might indicate a willingness to experiment and find solutions with ChatGPT when facing roadblocks, as ChatGPT could offer alternative approaches or identify missing information, ultimately keeping the research moving forward.

ChatGPT presents a significant opportunity to impact the research productivity of Filipino nurse researchers, with both benefits and challenges at hand. While the tool has the potential to enhance efficiency, foster collaboration, and boost research output, it also raises concerns regarding biases, plagiarism, and the possible decline in critical thinking and writing abilities. To maximize the benefits of ChatGPT in nursing research, Filipino nurse researchers must embrace a well-rounded and deliberate approach, which involves creating thorough training programs, validation procedures, and ethical standards. This strategic move will enable them to harness the capabilities of this cutting-edge technology while upholding the integrity, excellence, and influence of their research pursuits. In the realm of nursing research, selecting an AI language model may hinge on the specific demands and criteria of the research endeavor. Some models might be more suitable for literature reviews, data analysis, or hypothesis formulation, whereas others could excel in generating research proposals or drafting scientific papers. Choosing the most fitting AI language model should be informed by a comprehensive grasp of the model's strengths, limitations, and precise research goals. By meticulously comparing the available choices, nursing researchers can utilize the most appropriate AI technology to elevate their research

initiatives and propel meaningful progress. With the healthcare sector undergoing continuous transformations, the significance of Filipino nurse researchers in shaping the future landscape of nursing research cannot be overstated. This research is a tribute to their invaluable input and a clarion call for the ongoing exploration and ethical application of AI language models like ChatGPT in advancing nursing excellence.

5. STRENGTHS AND LIMITATIONS

The study highlights the underresearched area of Filipino nurse researchers' KPA towards ChatGPT. This targeted approach provided valuable insights into their needs and perspectives within the healthcare research landscape. Employing a survey with multiple sections allowed a holistic examination of demographics, KPA towards ChatGPT, and research productivity. Further research with a more robust design might be needed for stronger causal inferences. The study relies on participants' self-reported information about KPA and research productivity, which can be susceptible to bias, as individuals may overestimate their knowledge or underreport challenges. The sample may not represent all Filipino nurse researchers. Further research with a larger and more diverse sample could enhance the generalizability of the findings.

6. IMPLICATIONS

Undoubtedly, ChatGPT has the potential to enhance efficiency, foster collaboration, and boost research output. Nonetheless, it does give rise to apprehensions regarding bias, plagiarism, and the possible erosion of critical thinking and writing skills. To effectively leverage ChatGPT in nursing research, nurse researchers must adopt a well-balanced approach, which involves creating comprehensive training programs, validation procedures, and ethical standards. This will enable them to harness the capabilities of this innovative technology while upholding the integrity, quality, and influence of their research efforts. Nurse researchers can employ specific tactics to optimize the benefits of ChatGPT for research productivity. Initially, they should define clear research goals and pinpoint tasks suitable for ChatGPT to ensure the technology's targeted and purposeful use. Moreover, nurse researchers should consistently verify the training data utilized for ChatGPT. By integrating various inclusive data, they can reduce biases and improve the outcomes' dependability. Monitoring and assessing the system's performance is vital to preserving data precision. Therefore, a deep understanding of nurse researchers' knowledge, perceptions, and attitudes toward ChatGPT is essential for enhancing research productivity within the nursing domain. With the continuous advancement of AI, nurse researchers must embrace these technologies, modify their research approaches, and engage in interdisciplinary collaboration to influence the future landscape of nursing research in the Philippines and beyond.

7. CONCLUSION

The findings revealed a general understanding of ChatGPT's capabilities and a positive attitude towards its use in research. However, ethical concerns emerged as a potential barrier to integration. Interestingly, the study identified a positive correlation between a more open attitude toward ChatGPT and higher research productivity. These findings suggest several avenues for future research: (1) Develop and implement educational programs to address ethical concerns and promote the responsible use of ChatGPT in nursing research. This could involve workshops, seminars, or online modules. (2) Conduct follow-up studies with a more diverse participant pool regarding age, experience, and academic rank. (3) explore the specific research tasks for which Filipino nurse researchers find ChatGPT most valuable. (4) Employ longitudinal designs to track changes in KPA and research productivity over time as Filipino nurse researchers gain experience with ChatGPT. (5) Conduct comparative studies to explore Filipino nurse researchers' KPA in relation to their international counterparts. This can provide insights into global trends and potential collaborative efforts.

AUTHORS' CONTRIBUTIONS

CPT, MGN: Conceptualization, data curation, formal analysis, investigation, methodology, project administration, resources, software, supervision, validation, original draft writing, review, and editing**. MTR, SPT, RDL, MRC, AUF, IIP**: validation, visualization, writing the original draft, writing the review. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

DATA AVAILABILITY

All datasets are available from the corresponding author on a reasonable request.

DECLARATION OF CONFLICTING INTERESTS

The authors declared no potential conflicts of interest.

ETHICAL CONSIDERATIONS

This research was endorsed by the Ethics Review Committee of the Institution (IRB-FR-No. 01012024), guaranteeing its compliance with the ethical principles delineated in the 2013 revision of the Declaration of Helsinki. Each participant received comprehensive information regarding the study's aims, possible risks, benefits, and their entitlement to discontinue participation at any point. This approach ensured that participants could autonomously and willingly decide on their involvement. The research design minimized potential risks to participants, with all procedures adhering to the strictest safety protocols outlined in the Declaration and relevant institutional guidelines. All data collection and storage processes followed stringent confidentiality measures to safeguard participant identities throughout the research endeavor.

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