Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 12173 – 12179
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.5813

Evaluation of the Attitudes, Actions, and Preferences of Pharmacists About Ongoing Education

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Abstract

Pharmaceutical care is a dynamic field that requires continuous education (CE) to ensure pharmacists remain proficient in addressing advancements in healthcare. Understanding pharmacists' attitudes, actions, and preferences toward CE is crucial for designing effective programs that align with their needs and overcome barriers to participation.A cross-sectional study was conducted among 500 licensed pharmacists using a structured, self-administered questionnaire. Participants were recruited from various practice settings, including community pharmacies, hospitals, academia, and medical representatives. The survey assessed demographic characteristics, attitudes toward CE, participation frequency, preferred learning methods, and barriers to engagement. Data were analyzed using descriptive and inferential statistics, including multivariate logistic regression to identify predictors of positive attitudes and high CE participation.Of the participants, 78% strongly agreed or agreed that CE is essential for professional development. Common barriers to participation included time constraints (62%), lack of access to quality programs (45%), and financial limitations (30%). Preferred CE formats were online courses (65%) and workshops (50%), with high interest in clinical practice topics (82%), drug safety (58%), and pharmacy management (40%). A significant association was observed between professional roles and preferences for CE formats and topics ($p < 0.05$). Pharmacists strongly value CE for professional growth, favoring flexible and workplace-relevant learning formats. Addressing barriers such as time, cost, and access to quality programs is critical to enhancing participation. Future CE initiatives should include routine needs assessments and offer diverse, cost-effective, and practical learning opportunities tailored to pharmacists' professional roles and preferences.

Keywords: *Climate Change, Human Psychology, Emotional Impact, Cognitive Responses, Bibliometric Analysis.*

Introduction

Pharmaceutical care is an evolving field that demands continuous professional growth among pharmacists to ensure they remain proficient in their roles, keeping pace with advancements in medical science and societal challenges (Aldosari et al., 2020; Chan et al., 2021). The concept of continuing education (CE) has emerged as a cornerstone of professional development, aimed at improving the knowledge, skills, and overall performance of pharmacists (Tofade et al., 2010). International organizations, such as the International Pharmaceutical Federation, advocate for accessible CE programs and robust quality assurance mechanisms to ensure pharmacists are well-equipped to address emerging healthcare needs (Hajj et al., 2022).

Pharmacists who actively engage in CE programs have been shown to enhance their professional capabilities and improve patient outcomes (Gallegos et al., 2021; Sepp et al., 2021). However, implementing effective CE programs requires an understanding of pharmacists' learning behaviors, attitudes, and

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preferences. Recognizing these elements is vital to designing programs that align with their professional responsibilities while addressing barriers that may hinder participation (Schindel et al., 2019).

Globally, there is a growing expectation for pharmacists to participate in CE initiatives, with many frameworks mandating credit-based systems to ensure compliance. While these systems often focus on credit accumulation, they may neglect critical aspects such as reflective learning and practical application (Driesen et al., 2007). To address such gaps, modern CE programs emphasize flexibility, allowing pharmacists to engage in self-directed learning that caters to their unique needs and preferences (Bruke et al., 2008).

Research suggests that pharmacists' attitudes and actions toward CE, as well as their preferences for program delivery, vary based on factors such as professional roles and individual circumstances (Sacre et al., 2019). Understanding these dynamics can provide valuable insights for designing targeted CE interventions, ultimately supporting pharmacists in achieving both career growth and improved healthcare outcomes (Hatem et al., 2021). This study evaluates the attitudes, actions, and preferences of pharmacists toward ongoing education, aiming to inform the development of CE programs that meet their needs and expectations.

Methodology

This study evaluate the attitudes, actions, and preferences of pharmacists regarding continuing education (CE). Data were collected using a structured questionnaire distributed to pharmacists in various practice settings, including community pharmacies, hospitals, and academia.The study targeted licensed pharmacists actively engaged in practice. Participants included a diverse sample of pharmacists from various professional roles, such as community pharmacists, hospital pharmacists, medical representatives, and academic researchers.A total of 500 participants completed the study,A stratified random sampling technique was used to ensure representation across various pharmacy subfields. Stratification was based on the professional role (e.g., community, hospital, or academic), providing a comprehensive analysis of attitudes and preferences.

Data Collection Tool

A self-administered questionnaire was used, developed based on previous validated studies (Sacre et al., 2019; Schindel et al., 2019). The questionnaire included the following sections:

- **Demographics**: Age, gender, years of experience, professional role, and highest educational qualification.
- **Attitudes**: Likert-scale questions assessing perceptions of CE importance, motivations for participation, and barriers to engagement.
- **Actions**: Frequency of CE participation, preferred learning methods (e.g., online courses, workshops, conferences), and topics of interest.
- **Preferences**: Preferences for CE format, duration, and mode of delivery, as well as feedback mechanisms for program improvement.

The questionnaire was reviewed by a panel of pharmacy education experts to ensure face and content validity. It was piloted with 30 pharmacists, resulting in minor adjustments to improve clarity and relevance.

Data Collection Process

The questionnaire was distributed electronically through email and professional pharmacy associations' networks. A paper-based option was provided for participants with limited digital access. Participation was

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voluntary, and anonymity was maintained through the use of unique codes for each completed questionnaire.

Inclusion And Exclusion Criteria

Inclusion Criteria

- Licensed pharmacists actively practicing in any professional capacity.
- Pharmacists who consented to participate in the study.

Exclusion Criteria

- Pharmacists not currently engaged in practice.
- Incomplete or invalid responses to the questionnaire.

Data Analysis

Collected data were analyzed using descriptive and inferential statistics. Frequencies and percentages were calculated for categorical variables, while means and standard deviations described continuous variables. Chi-square tests were conducted to assess associations between demographic variables and attitudes, actions, or preferences. Multivariate logistic regression was used to identify factors predicting positive attitudes or high participation in CE activities. A p-value of <0.05 was considered statistically significant.

Results

Demographics of Participants

The study included 500 participants, with a response rate of 100%. Of the participants, 58% were female (n=282) and 42% male (n=

218). The mean age of respondents was 36.4 years (SD = 7.8), with most participants (65%) holding a Bachelor of Pharmacy (BPharm) degree. Professional roles were distributed as follows: community pharmacists (42%), hospital pharmacists (32%), medical representatives (15%), and academic researchers (11%).

Table 1. Participant Demographics

Characteristic	Percentage (%)
Gender	
Male	42
Female	58
Age Group (years)	
20–30	31
31–40	45
41–50	17
>50	7
Education Level	
Bachelor of Pharmacy (BPharm)	65
Master's Degree	28
Doctorate (PhD)	7
Professional Role	
Community Pharmacist	42

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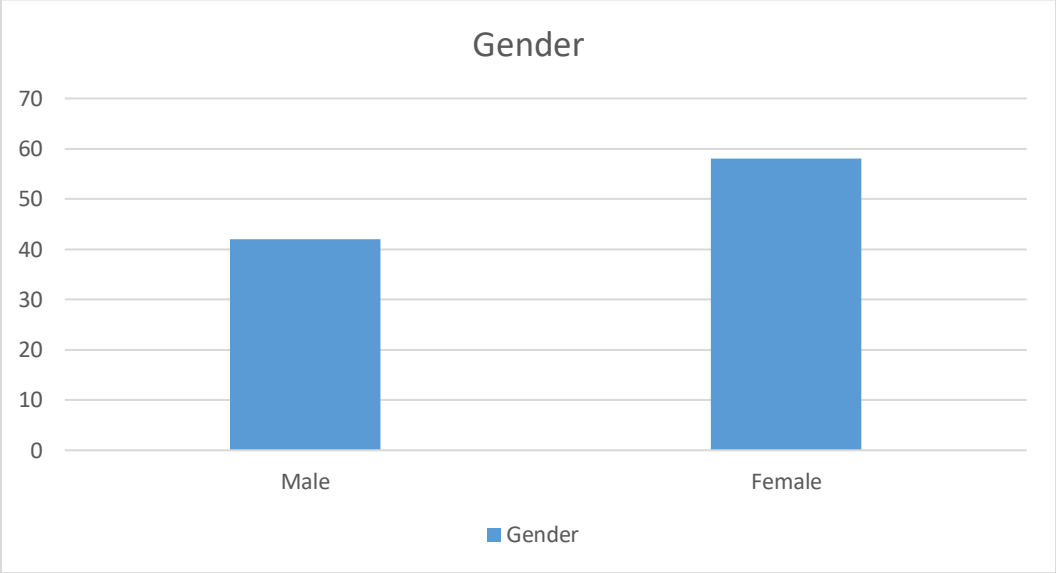
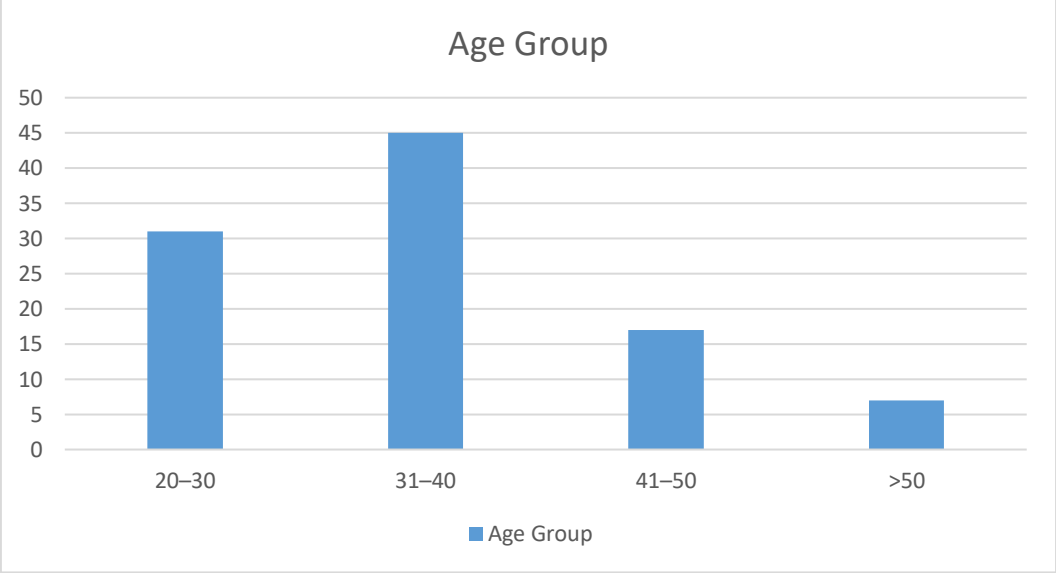
Hospital Pharmacist	32
Medical Representative	15
Academic Researcher	11





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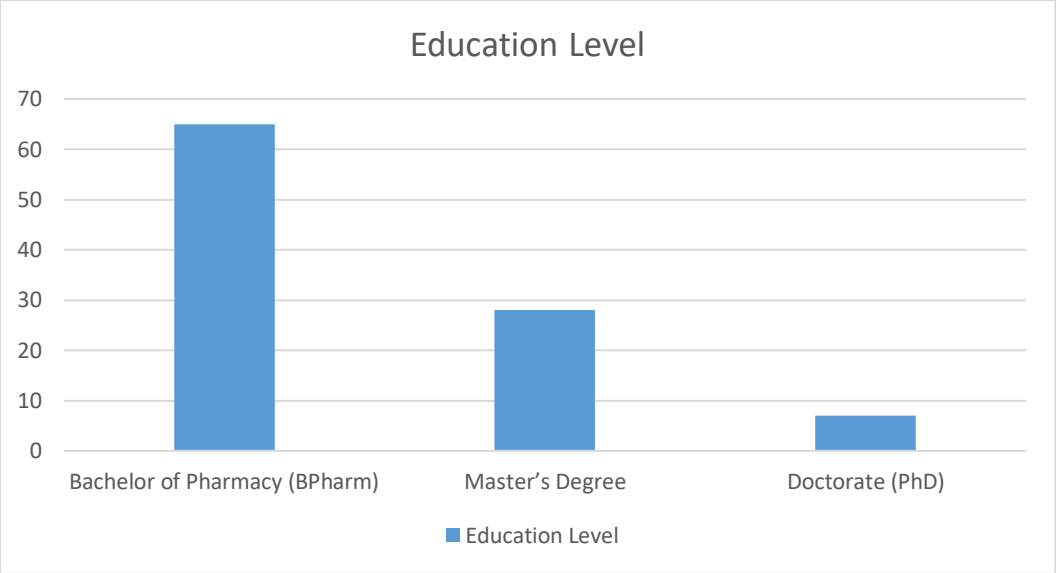

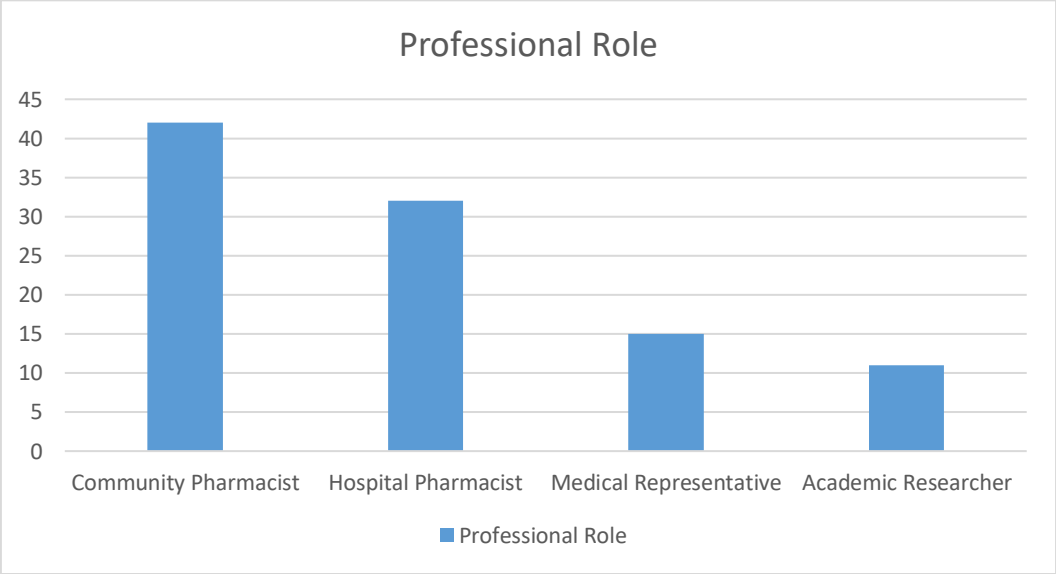

The majority (78%) of participants strongly agreed or agreed that continuing education is essential for professional development. Commonly reported barriers included time constraints (62%), lack of access to quality CE programs (45%), and financial limitations (30%).

Regarding CE formats, 65% of participants preferred online courses, while 50% favored workshops. Most respondents (82%) indicated interest in topics related to clinical practice, followed by drug safety (58%) and pharmacy management (40%).

A strong positive attitude toward CE was observed, with most participants recognizing its importance. Time constraints were the most common barrier to CE participation. Online courses emerged as the preferred CE format, aligning with the convenience of remote learning. Clinical practice was the most favored CE topic, reflecting pharmacists' focus on improving patient outcomes.

These findings highlight the need to develop accessible, topic-relevant CE programs to address pharmacists' preferences and overcome identified barriers.

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Discussion

The findings of this study provide significant insights into the preferences, barriers, and satisfaction levels related to continuing education (CE) among pharmacists. Overall, respondents expressed a strong preference for day-to-day workplace experiences and group work as methods of learning, while identifying a good work-life balance as the primary barrier to CE. Moreover, sex and professional roles appeared to significantly influence preferences and perceived barriers. Satisfaction with CE programs was moderate, which highlights opportunities for improvement in addressing the specific needs of pharmacists.

Day-to-day workplace experiences emerged as the most preferred method of learning, a result consistent with findings among other health professionals (Mlambo et al., 2021). These experiences facilitate practical learning and align closely with real-world challenges, enhancing skill retention and application. Incorporating methods such as problem-solving, role plays, and case-based learning into CE programs could improve procedural skills and align CE offerings with workplace needs (Steenhof, 2020). Interestingly, male pharmacists demonstrated a higher preference for group work and lectures compared to females, potentially due to differing time constraints, as women often face additional caregiving responsibilities that limit their availability for in-person CE programs (Croda & Grossbard, 2021).

Furthermore, sex was significantly associated with a preference for day-to-day workplace experiences, with women favoring these methods over traditional ones, a finding consistent with Eksteen et al. (2018). Entry-level pharmacists exhibited a strong preference for workplace learning, likely due to their limited prior exposure to practical experiences. This underscores the importance of curricula that integrate critical thinking, authentic problem-solving, and context-based content to prepare pharmacy graduates for practice (Wright et al., 2018). Conversely, managers in community pharmacies preferred group work, which may reflect their reliance on formal learning to facilitate engagement and improve practice outcomes (Davis et al., 1999).

The study identified work-life balance, program costs, and difficulty obtaining time off work as major barriers to CE participation. These findings align with studies conducted in Lebanon and other regions, which similarly reported time constraints and financial limitations as significant barriers (Saade et al., 2018; Chuang, 2015). Female pharmacists were more likely than males to cite cost as a primary barrier, reflecting broader gender disparities in financial resources and opportunities (Chuang, 2015). Additionally, community pharmacy managers reported time away from work as a significant barrier, consistent with findings from the United Kingdom (Ikenwilo & Skåtun, 2014).

The high cost of programs also limited access for pharmacists in managerial roles, paralleling findings from a baseline survey in Ethiopia (Gelayee et al., 2018). Addressing these barriers is critical, as access to CE is strongly associated with improved job satisfaction and professional performance (Gustafsson et al., 2018). Program providers could mitigate these challenges by offering flexible, affordable learning options, such as online courses and hybrid models.

Moderate satisfaction with CE programs was reported by 44% of pharmacists. This finding may reflect the diversity of preferences, interests, and barriers among participants (Hasan, 2009). Tailoring CE programs to address specific needs and preferences, while offering diverse learning modalities, could enhance satisfaction levels. Incorporating undergraduate pharmacy students into select CE programs could also introduce them to lifelong learning early in their careers, fostering a culture of continuous professional development.

Conclusion

Pharmacists expressed a strong preference for workplace-based CE methods, emphasizing the need for accessible, context-relevant, and flexible learning opportunities. Barriers such as work-life balance, financial constraints, and time away from work must be addressed to enhance participation and satisfaction. Future CE programs should consider routine needs assessments and integrate diverse, cost-effective learning

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options. As CE programs continue to evolve, fostering self-motivation and reducing financial barriers will be key to promoting lifelong learning and improving the quality of pharmaceutical practice.

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