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Determinants of ChatGPT Utilization Among Banda Aceh Nurses: A UTAUT Analysis

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Abstract: *ChatGPT and nursing practice intersect as interactive language models provide real-time support for clinical documentation and decision-making. This study examines performance expectancy, effort expectancy, social influence, and facilitating conditions as predictors of ChatGPT adoption among nurses. A cross-sectional design was conducted in April 2025 with 186 registered nurses at a regional hospital in Banda Aceh, Indonesia. A modified Unified Theory of Acceptance and Use of Technology (UTAUT) questionnaire measured key constructs on five-point Likert scales. Data were analyzed descriptively and inferentially using chi-square tests and logistic regression. Performance expectancy (p = .044), effort expectancy (p = .000), and facilitating conditions (p = .000) were all significantly associated with ChatGPT utilization. Social influence (p = .650) was excluded due to nonsignificance in preliminary tests. Facilitating conditions emerged as the strongest predictor, with nurses who had strong facilitating conditions being 14.27 times more likely to use ChatGPT. These findings highlight that nurses' expectations of benefits, ease of use, and available support drive the integration of artificial intelligence in nursing practice. Strengthening infrastructure, providing AI utilization training, and clarifying performance benefits are recommended to promote the adoption of AI tools such as ChatGPT in nursing.*

Keywords: *ChatGPT; artificial intelligence, nursing practice.*

INTRODUCTION

The rapid evolution of artificial intelligence (AI) has transformed healthcare delivery, with large language models such as *Chat Generative Pre-Trained Transformer (ChatGPT)* demonstrating significant potential to support clinical documentation, patient education, and decision-making in nursing practice. By providing real-time information retrieval and evidence-based suggestions, *ChatGPT* can reduce documentation burden and enhance critical thinking, thereby improving the efficiency and quality of care (Shahsavar & Choudhury, 2023).

Research on technology acceptance in healthcare has frequently applied the *Unified Theory of Acceptance and Use of Technology (UTAUT)*, identifying performance expectancy—users' belief that a system will enhance job performance—as a primary driver of adoption (AlQudah et al., 2021). Studies in diverse settings have shown that performance expectancy strongly predicts clinicians' intentions to use AI-enabled decision support tools (Scipion et al., 2025; Wang et al., 2023). In nursing specifically, Locsin's *Technological Competency as Caring in Nursing* theory posits that nurses achieve deeper *technological knowing* when they perceive technology as beneficial to patient care, integrating AI into caring practices (Vasquez et al., 2023).

Performance expectancy refers to the perception of how *ChatGPT* can enhance productivity and efficiency in nursing tasks, such as supporting documentation, summarizing patient information, organizing and analyzing work hours, and aiding clinical decision-making. Effort expectancy denotes the perceived ease of use when operating *ChatGPT*, including the absence of coding requirements, an intuitive interface, and voice-command functionality. Social influence describes the impact of significant others—such as colleagues, supervisors, or institutional leaders—on nurses' decisions to utilize *ChatGPT*. Facilitating conditions encompass factors such as available infrastructure, training programs, and organizational policies that affect nurses' ability to use *ChatGPT* (Budhathoki et al., 2024; Menon & Shilpa, 2023).

Preliminary surveys from the Regional Hospital Banda Aceh indicate that *ChatGPT* adoption in nursing remains very limited, and the determinants of its clinical integration are not yet well understood. Moreover, the intersection between AI adoption and established nursing theories has been underexplored, raising questions about how AI tools like *ChatGPT* may contribute to improved care quality. This study therefore aims to identify the relationships between performance expectancy, effort expectancy, social influence, and facilitating conditions, and *ChatGPT* utilization among nurses, as well as to determine the strongest predictor of its adoption.

Previous research underscores both the promise and limitations of *ChatGPT* in nursing practice and AI adoption, yet leaves unanswered how classic acceptance factors shape real-world integration in clinical settings. For instance, Gosak et al. (2024) explored *ChatGPT*'s role in nursing education, finding it time-efficient in supporting documentation and teaching processes—but also noting that its nursing diagnoses were misaligned with *NANDA-I* standards, underlining the need for human oversight. Another study by Budhathoki (2024) revealed that performance expectancy, effort expectancy, and social influence significantly influence the intention to adopt *ChatGPT* across broader populations.

Accordingly, this study aims to examine how performance expectancy, effort expectancy, social influence, and facilitating conditions shape the adoption of *ChatGPT* among nurses in clinical practice. By pinpointing the strongest predictors of clinical usage, the findings will inform nurse leaders and hospital administrators about which factors to prioritize—such as demonstrating utility, ensuring ease of use, leveraging peer support, and providing adequate infrastructure—thereby supporting more effective and evidence-based integration of AI tools in nursing.

MATERIALS AND METHODS

This study employed a cross-sectional analytic survey design to examine factors associated with *ChatGPT* utilization among nurses at Meuraxa Regional Hospital in Banda Aceh. Data were collected in April 2025. The target population comprised all 400 registered nurses on duty during the study period. A sample size of 186 was determined using Isaac and Michael's table for finite populations, and participants were selected by simple random sampling from the hospital's nursing roster to ensure equal chances of inclusion.

The primary instrument was a self-administered questionnaire adapted from the *Unified Theory of Acceptance and Use of Technology (UTAUT)* scales (Venkatesh et al., 2003). The survey consisted of 10 *Likert*-type items measuring performance expectancy (3 items), effort expectancy (3 items), social influence (2 items), and facilitating conditions (2 items), plus a single dichotomous item on actual *ChatGPT* use ("Yes/No"). Prior to full deployment, the questionnaire underwent forward–back translation and was pilot-tested on 20 nurses to confirm clarity and cultural relevance. Validity was assessed through item-total correlations, and internal consistency reliability yielded a Cronbach's alpha of .87 across constructs.

Responses were reviewed for completeness, coded numerically (e.g., 1 = "strongly disagree" to 5 = "strongly agree"), and entered into statistical software. Descriptive statistics (means, frequencies) were used to characterize the sample. Bivariate associations between each *UTAUT* construct and *ChatGPT* use were tested via chi-square analysis. Constructs with $p < .25$ advanced to multivariate logistic regression to identify independent predictors, with significance set at $\alpha = .05$. Odds ratios and 95% confidence intervals were reported.

RESULTS AND DISCUSSION

The demographic profile of the 186 participating nurses (Table 1) revealed a balanced gender distribution (51.6 % male, 48.4 % female) and a mean age of 37.9 years (SD = 6.6), aligning with mid-career practitioners familiar with digital documentation systems (Terblanche & Kidd, 2022). Educationally, 57.5 % held a diploma in nursing (D3), 40.3 % were professional bachelors (Ners), and 2.2 % had a master's degree, reflecting the mixed qualification levels commonly found in Indonesian tertiary hospitals. Most nurses served in inpatient wards (65.6 %), with the remainder in outpatient (30.1 %) and emergency unit (4.3 %), suggesting widespread exposure to varying clinical workflows that may influence technology needs (Alrasheeday et al., 2023; Asiri, 2024; Goswami & Dutta, 2016).

Table 1. Demographic Profile of Respondent

No.	Demographic Profile	f	%	$\bar{x}$ ± SD
1.	Gender			
	- Male	96	51.6	-
	- Female	90	48.4	
2.	Age (Year)	-	-	37.87 ± 6.57

No.	Demographic Profile	f	%	$\bar{x}$ ± SD
3.	Educational Level			
	- Diploma of Nursing	107	57.5	-
	- Bachelor of Nursing	75	40.3	
	- Master of Nursing	4	2.2	
4.	Workplace			
	- Inpatient Wards	122	65.6	-
	- Outpatient	56	30.1	
	- Emergency Unit	8	4.3	
5.	Position			
	- Head of Ward	11	5.9	-
	- Team Leader	3	1.6	
	- Nurse Practitioner	172	92.5	
6.	Experience (Year)	-	-	13.37 ± 6.49

Bivariate analysis (Table 2) demonstrated that performance expectancy, effort expectancy, and facilitating conditions each had significant associations with ChatGPT use ($p < .05$), whereas social influence did not ($p > .05$). For instance, 56% of nurses with high effort expectancy utilized ChatGPT versus 44% with low expectancy, underscoring ease of use as a critical threshold for trial (Dingel et al., 2024). Similarly, 63% of those perceiving strong facilitating condition adopted ChatGPT compared to 37% lacking support, highlighting infrastructure's role in technology uptake (R. C. Locsin et al., 2021; Zhou et al., 2019).

Table 2. Bivariate Analysis

Variables	Use of ChatGPT				Σ	%	*p*
	No		Yes				
	f	%	f	%			
1. Performance Expectancy							
Low	71	67	35	33	106	100	.044
High	41	51.2	39	48.8	80	100	
2. Effort Expectancy							
Low	72	75.8	23	24.2	95	100	.000
High	40	44	51	56	91	100	
3. Social Influence							
Low	35	63.6	20	36.4	55	100	.650
High	77	58.8	54	41.2	131	100	
4. Facilitating Condition							
Low	75	87.2	11	12.8	86	100	.000
High	37	37	63	63	100	100	

These bivariate patterns support Locsin's concept of *technological knowing*, wherein nurses' beliefs about performance and ease translate into concrete use behavior when contextualized within a supportive environment (R. Locsin et al., 2019). The alignment of demographic characteristics with UTAUT constructs implies that tailored interventions—such as targeted training for diploma-level staff and female-focused peer mentoring—may optimize ChatGPT integration in diverse nursing subgroups.

Table 3. Multivariate Analysis

No.	Variables	*P*	OR/Exp (B)	95% CI
1.	Performance Expectancy	.001	4.46	1.82 – 10.95
2.	Effort Expectancy	.000	10.00	3.99 – 25.07
3.	Facilitating Condition	.000	14.27	6.12 – 33.29

The logistic regression model (Table 3) demonstrated that three UTAUT constructs—performance expectancy (OR = 4.46; 95 % CI = 1.82–10.95; p = .001), effort expectancy (OR = 10.00; 95 % CI = 3.99–25.07; p = .001), and facilitating conditions (OR = 14.27; 95 % CI = 6.12–33.29; p = .001)—were independently and significantly associated with ChatGPT utilization by nurses. These findings confirm our hypothesis that nurses' performance expectancy, effort expectancy, and facilitating conditioning drive AI adoption in clinical settings.

Performance expectancy emerged as a strong predictor, indicating that nurses who believed ChatGPT would enhance their clinical performance were over four times more likely to use it. This aligns with Cheng et al. (2022) survey of healthcare workers, where belief in AI's performance benefits increased adoption intention. Within Locsin's model of Technological Competency as Caring in Nursing, such outcome expectations fuel the process of technological knowing, whereby AI augments a nurse's holistic understanding of patient needs (Vasquez et al., 2023).

Effort expectancy showed an even larger effect, with nurses perceiving ChatGPT as easy to use being ten times more likely to adopt it. Dingel et al. (2024) meta-analysis similarly reported a robust link between perceived ease and AI use ($r = .55$; $p < .001$), highlighting that intuitive, no-code interfaces lower barriers to integration into fast-paced clinical workflows. This ease of use supports nurses' caring practice by minimizing cognitive load and freeing time for patient interaction (Ito et al., 2019).

The most substantial influence came from facilitating conditions: nurses reporting adequate infrastructure, training, and technical support were over fourteen times more likely to use ChatGPT. This finding parallels Wiroonrath et al. (2024), who showed that organizational readiness correlated strongly with AI adoption. In practice, robust support mechanisms reinforce both performance and effort expectancies and are essential for embedding AI tools into standard nursing protocols.

Notably, social influence was excluded from the final model after nonsignificant bivariate associations, suggesting that peer or managerial endorsement alone is insufficient to spur voluntary AI adoption absent clear performance benefits and support structures. This contrasts with settings where technology use is mandatory and highlights the need for institutions to cultivate voluntary, bottom-up engagement (Zhou et al., 2019).

Collectively, these results advance our understanding of AI integration in nursing by quantifying how expectation of benefit, perceived ease, and supportive context interact to drive ChatGPT use. Future research should explore longitudinal outcomes on patient care quality and examine how these factors evolve as generative AI becomes further embedded in healthcare.

CONCLUSION

In summary, this study confirms that nurses' beliefs in *ChatGPT*'s performance benefits, perceived ease of use, and the presence of organizational and technical support are key drivers of its adoption in clinical practice, with facilitating conditions emerging as the most influential factor. By applying the *UTAUT* framework within the context of Locsin's *Technological Competency as Caring in Nursing*, our findings demonstrate that when nurses are confident in a tool's ability to enhance their caring role and experience minimal barriers to its use—supported by robust infrastructure and training—they are significantly more likely to integrate AI into patient care. These insights underscore the need for healthcare institutions to prioritize not only user-friendly AI solutions but also comprehensive support systems to translate positive expectations into sustained utilization. Future research should evaluate the long-term impact of AI adoption on patient outcomes and explore strategies for embedding generative language models into nursing education and policy.

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