ORIGINAL ARTICLE

Awareness of using chatbots and factors influencing usage intention among nursing students in South Korea: a descriptive study

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Purpose: Artificial intelligence (AI) has had a profound impact on humanity; in particular, chatbots have been designed for interactivity and applied to many aspects of daily life. Chatbots are also regarded as an innovative modality in nursing education. This study aimed to identify nursing students' awareness of using chatbots and factors influencing their usage intention. **Methods:** This study, which employed a descriptive design using a self-reported questionnaire, was conducted at three university nursing schools located in Seoul, South Korea. The participants were 289 junior and senior nursing students. Data were collected using self-reported questionnaires, both online via a Naver Form and offline. **Results:** The total mean score of awareness of using chatbots was 3.49±0.61 points out of 5. The mean scores of the four dimensions of awareness of using chatbots were 3.37±0.60 for perceived value, 3.66±0.73 for perceived usefulness, 3.83±0.73 for perceived ease of use, and 3.36±0.87 for intention to use. Significant differences were observed in awareness of using chatbots according to satisfaction with nursing ($p<.001$), effectiveness of using various methods for nursing education ($p<.001$), and interest in chatbots ($p<.001$). The correlations among the four dimensions ranged from .52 to .80. In a hierarchical regression analysis, perceived value (β=.45) accounted for 60.2% of variance in intention to use. **Conclusion:** The results suggest that chatbots have the potential to be used in nursing education. Further research is needed to clarify the effectiveness of using chatbots in nursing education.

Key words: Artificial intelligence; Education; Nursing; Students

INTRODUCTION

A world defined by technology has arrived. In line with these changes, artificial intelligence (AI) has emerged as a primary area of interest and discussion [1]. It has actively permeated every aspect of our lives, making the coexistence of humans and AI indispensable [2,3]. Among the various forms of AI, chatbots represent one of the most commonly encountered AI-based tools in our daily lives.

Chatbots are characterized by their ability to communicate with users and machines via text or voice. If a user has a question or is simply curious, chatbots can interact with them, providing appropriate answers or information as though they were human [4,5]. These characteristics allow chatbots to be seamlessly integrated into educational or learning environments, facilitating smooth interactions between teachers and students, or among students themselves [6]. Furthermore, the user-friendly interface of chatbots has been recognized for its potential [7]. Consequently, researchers have been motivated to develop a variety of chatbots for educational use among elementary and middle school students [3-7].

Before the COVID-19 outbreak, traditional classroom-based, face-to-face instruction was the mainstay of nursing education [8]. However, the global spread of COVID-19 necessitated changes in educational modalities, leading to a heightened interest in alternatives to traditional classes [3]. Concurrently, efforts have been made to adapt education to align with shifts in the educational paradigm. As such, there has been a grow-

ing demand for changes that facilitate knowledge delivery in a teacher-centered educational environment.

The current generation of nursing students, having been raised in an era of social networking, online videos, and emails, is highly familiar with internet technology. As such, it is anticipated that their learning preferences may differ from previous generations. The incorporation of these technologies into their educational curriculum appears to yield positive outcomes.

While the use of chatbots has traditionally been confined to service areas, there has been a growing trend towards their wider application in education [5,8,9]. However, the effectiveness of this technology in nursing education is still a subject of debate. Before we can determine the efficacy of chatbots in nursing, it is crucial to build awareness among potential users. Despite this, there is a dearth of studies exploring the awareness of chatbots among undergraduate nursing students in Korea. Chang et al. [2] have noted that research on the use of chatbots in nursing education is scarce. Therefore, this study investigated nursing students' awareness of the use of chatbots (AuC) prior to their implementation in nursing education.
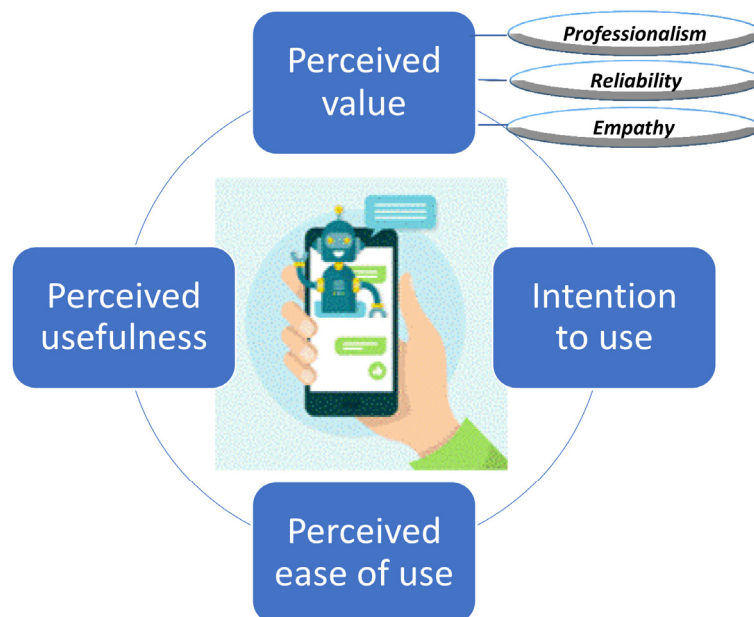
The extended technology acceptance model (ETAM) [10] was utilized as a conceptual framework for this study. This model is derived from Davis' [11] technology acceptance model (TAM), which investigates the motivations and attitudes of users when new technology is introduced. The ETAM incorporates external variables that influence the adoption or acceptance of novel technologies, and it is frequently employed in AI studies to ascertain consumer acceptance of new technology. In this study, following a previous study [12], perceived value was incorporated as a key external variable in the intention to use. Therefore, the conceptual framework of AuC in this study consisted of four dimensions: perceived value (comprising three components: professionalism, reliability, and empathy), perceived usefulness, perceived ease of use, and intention to use. These dimensions shape the acceptance of new technologies (Figure 1).

This study investigated nursing students' AuC related to nursing education. The specific purposes were to identify (a) the degree of AuC across its four dimensions (perceived value, perceived usefulness, perceived ease of use, and intention to use); (b) differences in AuC according to the participants' characteristics; (c) correlations among the four dimensions of AuC; and (d) factors influencing participants' intention to use chatbots.

METHODS

Ethics statement: This study was approved by the Institutional Review Board (IRB) of Hallym University (No. HIRB-2023-001). Informed consent was obtained from all participants.

Figure 1. Conceptual framework of this study based on the extended technology acceptance model (ETAM). Adapted: Venkatesh V, Davis FD. A theoretical extension of the technology acceptance model: four longitudinal field studies. Management Science. 2000;46(2):186–204 [10].

1. Study Design

This study employed a descriptive design, utilizing a self-reported questionnaire to identify AuC in undergraduate nursing education. The research adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guidelines (Figure 2) [13].

2. Setting and Participants

This study was carried out at three university nursing schools in Seoul, South Korea, and focused on junior and senior students. The study only included junior and senior nursing students who had not previously participated in an educational program that utilized chatbots. Freshmen and sophomores were not included in the study, as they only begin their nursing major coursework at the junior level.

The lead author, who is also a professor overseeing junior nursing students at one of the three schools, explained the purpose of the study to nursing students who met the eligi-bility criteria and expressed a willingness to participate. The survey was administered after the completion of grade evaluations, with students being assured that their participation would not impact their grades, as the author would not be teaching in the following semester. Utilizing the G*Power 3.19 program [14], the minimum sample size was calculated using a baseline power of .80, an alpha level of .05, and seven predictors. It was determined that 146 participants were required to achieve a medium effect size (f^2=.15), a sample size that was surpassed in this study.

3. Instruments

The tool employed in this study was formulated based on a prior study that utilized the ETAM[10], and it has been named "AuC." The tool comprises 21 items, divided into four dimensions: perceived value (11 items), perceived usefulness (four items), perceived ease of use (three items), and intention to use (four items). The perceived value of chatbot services is defined as the users' perceptions of their functional, psychological, and economic benefits. This dimension is further div-
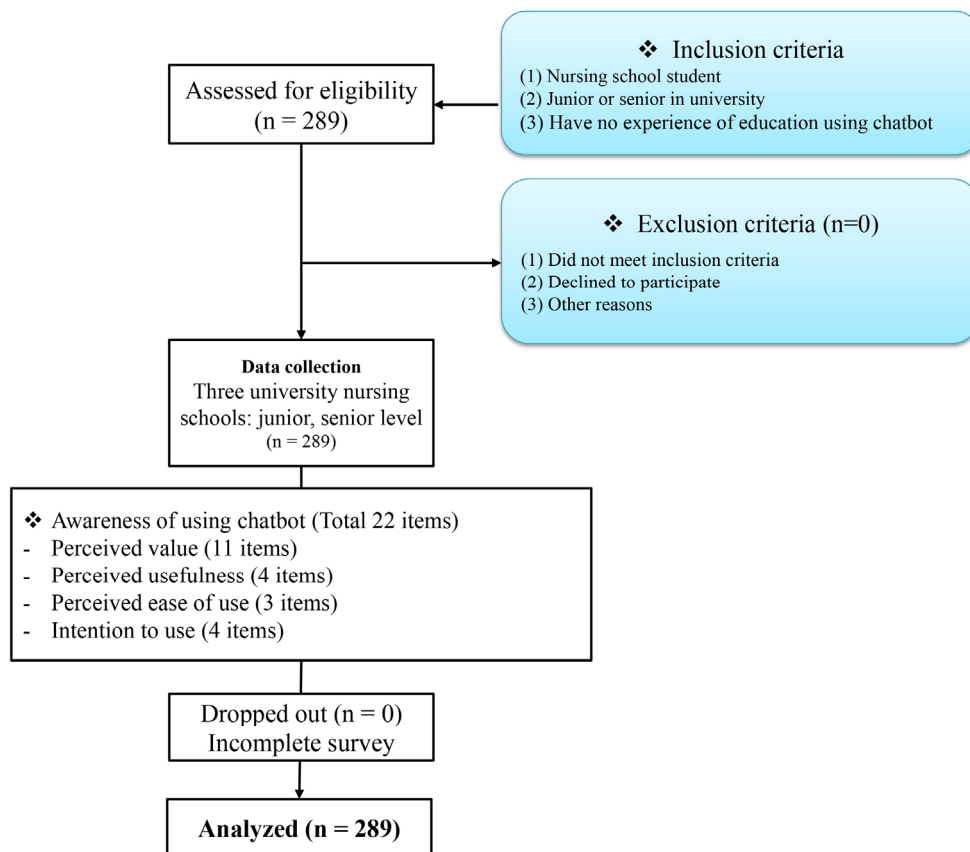
Figure 2. Flow diagram of this study on nursing students' awareness of using chatbots and factors influencing their intention to use chatbots.

ided into three components: professionalism (three items), reliability (four items), and empathy (four items). Perceived usefulness refers to the extent to which new information technology or services are evaluated as being beneficial to users and enhancing work efficiency. Perceived ease of use denotes the ability to use the technology or service without difficulty or the need for specific skills or significant effort. Lastly, intention to use is defined as a user's attitude and willingness to engage with new technology or services.

Items were rated on a 5-point Likert scale (1=not at all to 5=strongly agree), with a higher score indicating more positive AuC. The items' content validity index was checked by five nursing professors, and it was above 95%; the Cronbach's alpha for the total items was .93, and the four dimensions were also within the acceptable range (.85-.88).

4. Data Collection

Data collection took place from February 27 to March 31, 2023, utilizing structured self-reported questionnaires distributed as a Naver form (office.naver.com) and offline. The questionnaires were distributed to students who had voluntarily agreed to participate and had provided their consent in writing. Each questionnaire took approximately 10 minutes to complete. As a token of appreciation, participants received a small gift valued at around seven dollars.

5. Data Analysis

Data analyses were performed using SPSS for Windows (version 25.0; IBM Corp.). The participants' general characteristics were analyzed using percentages, means, and standard deviations. The differences in AuC according to general characteristics were analyzed using the independent t-test and one-way analysis of variance with the Scheffe post-hoc test. Pearson correlation coefficients were used to evaluate the relationships among the four dimensions of AuC. Hierarchical multiple regression was applied to identify factors influencing the intention to use chatbots. Statistical significance was defined as a p-value of <.05.

RESULTS

1. Participants' General Characteristics and Degree of Awareness Using Chatbots

Participants' general characteristics were as follows; junior students accounted for 51.2% (n=148), and female students accounted for 87.2% (n=252). Furthermore, 60.6% (n=175) were satisfied with the nursing major, and 63.0% (n=182) had no

experience using chatbots. Additionally, 57.4% (n=166) of participants responded that the use of various methods in nursing education was effective, and 71.6% (n=207) showed moderate or higher interest in chatbots.

The total mean AuC score was 3.49±0.61 on a 5-point Likert scale. The mean scores of the four dimensions were 3.37±0.60 for perceived value, 3.66±0.73 for perceived usefulness, 3.83±0.73 for perceived ease of use, and 3.36±0.87 for intention to use (Table 1).

2. Differences in Participants' Awareness of Using Chatbots According to Their Characteristics

Table 1 shows significant differences in AuC according to the participants' characteristics. There were significant differences in AuC in relation to satisfaction with nursing (F=8.05, p <.001), the efficacy of employing diverse methods in nursing education (F=15.09, p <.001), and interest in chatbots (F=45.10, p <.001). Significant differences were also observed in the perceived value based on satisfaction with nursing (F=8.56, p <.001), the efficacy of diverse methods employed in nursing education (F=12.40, p <.001), and interest in chatbots (F=35.68, p <.001). Significant differences were noted in the perceived usefulness based on satisfaction with nursing (F= 4.12, p =.007), the efficacy of employing diverse methods in nursing education (F=9.65, p <.001), and interest in chatbots (F=25.20, p <.001). Furthermore, significant differences were observed in the perceived ease of use based on satisfaction with nursing (F=6.33, p <.001), experience with chatbot usage (F=2.66, p =.008), the effectiveness of various methods in nursing education (F=10.09, p <.001), and interest in chatbots (F=15.13, p <.001). Additionally, significant differences were noted in the intention to use based on the effectiveness of employing diverse methods in nursing education (F=12.14, p <.001), as well as the level of interest in chatbots (F=45.75, p <.001).

3. Correlations among Four Dimensions of Awareness of Using Chatbots

Table 2 shows that the correlation coefficients among the four dimensions range from .52 to .80, indicating significant positive relationships.

4. Factors Influencing Participants' Intention to Use Chatbots

In order to identify the factors that affected participants' intention to use chatbots, a hierarchical multiple regression analysis was conducted by inputting the participants' general characteristics, perceived value, perceived usefulness, and

Table 1. The Degree of AuC, Characteristics, and Differences in AuC according to Nursing Students' Characteristics (N=289)

Characteristics	Categories	n (%)	AuC (total)		Perceived value		Perceived usefulness		Perceived ease of use		Intention to use	
			M±SD	t or F (p)	M±SD	t or F (p)	M±SD	t or F (p)	M±SD	t or F (p)	M±SD	t or F (p)
Degree			3.49±0.61		3.37±0.60		3.66±0.73		3.83±0.73		3.36±0.87	
Grade	3	148 (51.2)	3.43±0.65	-0.49 (.627)	3.35±0.63	-0.75 (.456)	3.64±0.79	-0.47 (.638)	3.80±0.75	-0.88 (.382)	3.34±0.88	-0.39 (.696)
	4	141 (48.8)	3.46±0.59		3.40±0.57		3.68±0.67		3.87±0.70		3.38±0.86	
Sex	Male	37 (12.8)	3.28±0.74	-1.75 (.081)	3.27±0.75	-1.13 (.258)	3.49±0.84	-1.56 (.120)	3.58±0.87	-1.95 (.058)	3.13±1.07	-1.74 (.083)
	Female	252 (87.2)	3.47±0.60		3.39±0.58		3.69±0.72		3.87±0.70		3.39±0.83	
Satisfaction with nursing	Very satisfied[a]	38 (13.1)	3.80±0.68	8.05 (<.001) a, b, c > d	3.69±0.70	8.56 (<.001) a, b, c > d	3.98±0.75	4.12 (.007) a > d	4.22±0.76	6.33 (<.001) a > d	3.61±0.88	2.53 (.057)
	Satisfied[b]	175 (60.6)	3.48±0.57		3.37±0.53		3.66±0.72		3.82±0.70		3.36±0.86	
	Unsure[c]	69 (23.9)	3.40±0.53		3.30±0.56		3.54±0.63		3.70±0.65		3.28±0.81	
	Not satisfied[d]	7 (2.4)	2.81±1.08		2.58±1.01		3.18±1.30		3.24±1.18		2.71±1.27	
Experience of chatbot usage	Yes	107 (37.0)	3.47±0.63	0.47 (.640)	3.37±0.60	0.01 (.999)	3.68±0.77	0.24 (.811)	3.98±0.67	2.66 (.008)	3.41±0.88	0.79 (.433)
	No	182 (63.0)	3.43±0.61		3.37±0.60		3.65±0.72		3.75±0.75		3.33±0.86	
Effectiveness of using various methods for nursing education	Very effective[a]	27 (9.3)	4.00±0.66	15.09 (<.001) a, b > d, e; c > e	3.86±0.66	12.40 (<.001) a > b, c, d, e; b, c > e	4.06±0.79	9.65 (<.001) a, b > d, e	4.30±0.70	10.09 (<.001) a > d, e; b, c > e	4.06±0.73	12.14 (<.001) a > d, e; b, c > e
	Effective[b]	166 (57.4)	3.54±0.50		3.42±0.49		3.74±0.64		3.90±0.61		3.41±0.78	
	Unsure[c]	78 (27.0)	3.37±0.58		3.26±0.59		3.55±0.66		3.71±0.73		3.22±0.86	
	Not effective[d]	14 (4.8)	2.82±0.58		2.84±0.63		2.82±1.05		3.11±0.90		2.52±0.75	
	Very ineffective[e]	4 (1.4)	2.49±1.29		2.40±1.29		2.88±1.30		2.83±1.45		2.06±1.42	
Interest in chatbots	Very high[a]	35 (12.1)	4.18±0.49	45.10 (<.001) a > b, c, d > e	4.03±0.55	35.68 (<.001) a > b, c, d > e	4.37±0.46	25.20 (<.001) a > c, d, e; a > b	4.44±0.57	15.13 (<.001) a > b, c, d > e	4.21±0.74	45.75 (<.001) a > b, c, d > e
	High[b]	103 (35.6)	3.63±0.49		3.50±0.51		3.80±0.61		3.94±0.63		3.57±0.70	
	Moderate[c]	104 (36.0)	3.37±0.40		3.25±0.51		3.55±0.55		3.72±0.60		3.28±0.54	
	Low[d]	35 (12.1)	3.13±0.56		3.12±0.51		3.27±0.91		3.51±0.84		2.74±0.86	
	Very low[e]	12 (4.2)	2.30±0.70		2.29±0.74		2.57±0.96		3.03±1.08		1.52±0.85	

AuC, awareness of using chatbots; M, mean; SD, standard deviation.

perceived ease of use. In tests of whether the assumptions of the regression analysis were met, there was no problem of multicollinearity, as the variance inflation factor (VIF) ranged from 1.06 to 8.27, which was less than 10. The margin of tolerance ranged from 0.12 to 0.96 (i.e., all above 0.1). The Durbin-Watson value was 2.09 (i.e., close to 2). The results of the analysis on the factors influencing intention to use are presented in Table 3.

The hierarchical regression analysis of intention to use revealed that model 1, which examined the influence of the participants' general characteristics, was statistically significant (F=18.94, $p <.001$). The most significant variable was a high interest in chatbots (β=1.17), which accounted for 38.4% of variance in the model. Model 2, which incorporated perceived value, perceived usefulness, and perceived ease of use, while adjusting for the impact of general characteristics, was also statistically significant (F=34.58, $p <.001$). This model accounted for 60.2% of variance in the intention to use. The most influential variable in model 2 was perceived value (β=.45).

DISCUSSION

AI technology has become part of the reality of today's teaching and learning and has noticeably improved higher

Table 2. Correlations among Four Dimensions of Awareness of Using Chatbots (*N*=289)

Variables	Perceived value	Perceived usefulness	Perceived ease of use	Intention to use
	r (*p*)	r (*p*)	r (*p*)	r (*p*)
Perceived value	1			
Perceived usefulness	.80 (< .001)	1		
Perceived ease of use	.60 (< .001)	.67 (< .001)	1	
Intention to use	.72 (< .001)	.65 (< .001)	.52 (< .001)	1

Table 3. Factors Influencing Nursing Students' Intention to Use Chatbots (*N*=289)

Variables	Intention to use										
	Model 1					Model 2					
	B	SE	β	t	*p*	B	SE	β	t	*p*	VIF
Year in university (senior)[a]	0.06	0.08	0.03	0.69	.493	0.01	0.07	0.01	0.01	.989	1.06
Gender (female)[b]	0.09	0.12	0.03	0.71	.479	0.03	0.10	0.01	0.28	.777	1.06
Satisfaction with nursing (very satisfied)[c]	–0.01	0.12	–0.01	–0.11	.915	–0.16	0.10	–0.06	–1.54	.124	1.13
Satisfaction with nursing (satisfied)[c]	–0.08	0.10	–0.04	–0.79	.433	–0.02	0.08	–0.01	–0.25	.805	1.09
Satisfaction with nursing (unsure)[c]	0.24	0.28	0.04	0.86	.393	0.45	0.22	0.08	1.99	.048	1.15
Experience of chatbot usage (yes)[d]	0.15	0.09	0.08	1.72	.087	0.08	0.07	0.05	1.21	.228	1.09
Interest in chatbots (low)[e]	1.27	0.24	0.48	5.33	< .001	0.66	0.20	0.25	3.36	.001	4.01
Interest in chatbots (moderate)[e]	1.80	0.22	1.00	8.23	< .001	1.07	0.19	0.59	5.75	< .001	7.67
Interest in chatbots (high)[e]	2.11	0.22	1.17	9.57	< .001	1.17	0.19	0.65	6.07	< .001	8.27
Interest in chatbots (very high)[e]	2.76	0.24	1.04	11.37	< .001	1.38	0.22	0.52	6.15	< .001	5.16
Perceived value						0.65	0.10	0.45	6.79	< .001	3.22
Perceived usefulness						0.11	0.08	0.09	1.39	.167	3.37
Perceived ease of use						0.10	0.06	0.08	1.53	.126	2.00
	R^2=.405; Adjusted R^2=.384; F (*p*)=18.94 (< .001)					R^2=.620; Adjusted R^2=.602; F (*p*)=34.58 (< .001)					

[a]Dummy variable: year in university (junior=0); [b]Dummy variable: gender (male=0); [c]Dummy variable: satisfaction with nursing (not satisfied=0); [d]Dummy variable: experience of chatbot usage (none=0); [e]Dummy variable: interest in chatbots (very low=0); B, unstandardized coefficient; β, standardized coefficient; SE, standard error; VIF, variance inflation factor.

education, including nursing education [15]. In this section, we discuss the results of this study and the four dimensions with regard to the conceptual framework used in the ETAM.

The mean AuC score was 3.49±0.61, indicating a generally positive perception of using chatbots in nursing education. However, this result was lower than anticipated, potentially due to a significant number of participants lacking prior experience with chatbot usage. In a survey of college students [16], most (79%) students exhibited positive attitudes toward the use of educational chatbots that make them more effective as learners. A study focusing on elementary school students reported an AuC score of 3.43±0.83 [17]. In a separate study by Mo [18], which explored undergraduate and graduate students' awareness of digital storytelling chatbots, the average awareness score, based on a 5-point Likert scale, was 4.22. Despite the different target groups, it seems that undergraduate students view the use of chatbots favorably.

Among the three components of perceived value (professionalism, reliability, and empathy), professionalism scored above the midpoint. This aligns with the findings of Chu et al. [12], who reported a direct correlation between professionalism and user satisfaction. This suggests that implementing chatbots in education could enhance participant satisfaction. This notion is further supported by Tatnall [19], who posits that chatbots hold significant educational potential due to their ability to provide timely and relevant information through direct interactions. The reliability score, which was above the median level, suggests that students perceive chatbot technology as a dependable educational tool. This is consistent with the findings of Yin et al. [20], who reported that chatbots are a promising learning technology. Studies related to the TAM have also shown that user reliability is a crucial factor in sustaining long-term relationships between users and providers [9,12]. Empathy was the component of perceived value with the lowest score. A chatbot is a communication application that simulates human conversation through text [20], and its use can potentially enhance learners' communication skills [8]. Furthermore, chatbots, much like humans, can make learners feel as though they are interacting with another person [2,4,9], thereby boosting their motivation to learn and their immersion in the learning process.

The perceived usefulness score among participants in this study was notably above midpoint, aligning with the findings of other research [17]. Studies conducted on elementary school students in Taiwan and Korea have demonstrated that chatbots can effectively stimulate students' interest and confidence [4,21,22]. Chang et al. [8] suggested that chatbot technology can enhance the efficiency of nursing education by addressing issues through the chatbot system. They also evaluated academic performance metrics such as learning efficiency and ef-

fectiveness, revealing that students who utilized the chatbot system outperformed those who depended on traditional teaching methods. This can be attributed to chatbots serving as assistants or learning facilitators, providing immediate feedback tailored to students' needs. This enables prompt corrections and imparts accurate knowledge based on the feedback received [23]. Education facilitated by chatbots reinforces perceived value and the usefulness of active, self-directed learning [20].

In this study, the perceived ease of use demonstrated a score that was above midpoint, mirroring the findings of a previous study [17]. The use of chatbots facilitates easy access to learning content via the internet and mobile devices [23,24]. This suggests that for the current generation, chatbots are akin to other social chat tools with which they are already familiar [20]. As a result, nursing students can readily access these chatbots.

Intention to use refers to an individual's willingness to utilize a particular technology or service [25]. In this context, it pertains to students' attitudes towards and readiness to incorporate chatbot technology into their education. Davis [11] emphasized that intention to use is a significant factor in determining an individual's motivation to routinely use a technology or endorse it to others. When users develop a sense of trust, their intention to use a chatbot tends to increase. In this study, the average score for intention to use was 3.36±0.87.

Significant differences were observed in the participants' AuC scores in relation to their satisfaction with nursing, the effectiveness of various nursing education methods, and interest in chatbots. These results could suggest a heightened academic interest and motivation, particularly in educational methods, and an increased awareness of new educational approaches, including chatbots. Han et al. [23] have suggested that an increased interest in using chatbot programs could indicate their potential as a valuable educational tool for nursing students. Similarly, Buchanan et al. [24] have highlighted the importance of educational programs that utilize AI, as they can provide safe and efficient learning opportunities for nursing students.

The correlations among the four dimensions were both significant and positive, a finding that aligns with a previous study targeting elementary school students [17]. A separate study, utilizing the ETAM, explored consumers' intentions to use the metaverse. It reported that participants' perceived usefulness and ease of use were significantly and positively related [26]. This finding was echoed in another study that employed the TAM to analyze factors influencing consumers' intention to use, confirming a significant positive relationship between perceived usefulness, ease of use, and intention to use [9]. These results underscore the importance of enhancing

the perceived value, usefulness, and ease of use of chatbots to increase their intended use. These factors should be taken into account during the design and development of chatbots to ensure their efficient application in nursing education.

In the final regression analysis, interest in chatbots and perceived value were identified as factors influencing nursing students' intention to use chatbots. The same result regarding interest in chatbots was reported by Min et al. [9] and Chu et al. [12]. An explanation for this may be that using chatbots is a pleasant experience and creates a sense of immersion rather than boredom. In addition, those studies reported that perceived usefulness and perceived ease to use influenced students' intention to use. If a chatbot is thought to have a learning effect and is convenient to use, the intention to use is likely to increase. The components of perceived value, which include professionalism, reliability, and empathy, can be defined as the subjective evaluations that individuals make when selecting services [27]. The findings of this study align with those of previous studies, which suggest that perceived value can influence the intention to use AI technologies such as chatbots [12,26,28]. Therefore, it could be suggested that perceived value should be strategically considered when developing chatbots for nursing students to enhance their intention to use such technology.

The application of AI technology, including tools like chatbots, can enhance learning effectiveness and engagement across various disciplines, including nursing. It is anticipated that AI will revolutionize education, and the influence of technological progress on nursing education is undeniable. Numerous studies underscore the advantages of incorporating technology into nursing education [15]. In the wake of the COVID-19 pandemic and the ensuing social distancing measures, technology has become the cornerstone of teaching and learning. There is widespread speculation that future threats akin to COVID-19 will necessitate a shift in educational modalities [29]. There is increasing evidence to suggest that chatbots can revolutionize the learning process for students by providing interactive educational support [30]. The incorporation of technology into nursing education promotes self-guided and continuous learning, thereby enabling educators to enhance the quality of their instruction [8]. Furthermore, it supports personalized learning by offering accessibility, scalability, and affordability [15,24,30].

As nursing education shifts away from traditional teaching methods [24,29], it is crucial for nursing educators in institutions to prepare for the future integration of AI. Undergraduate nursing curricula may need to be updated to include AI competencies, thereby promoting the use of AI technology. To keep pace with current trends and guide a new generation of nursing students, nursing educators must actively engage with this rapidly evolving advancement. Furthermore, nursing educators can serve as designers, creating a learning environment that fosters technologically proficient professionals and enhances its effectiveness [24].

Although this rapidly expanding teaching and learning method does present some challenges, this study carries significant implications for nursing education. It reveals a positive perception of chatbots among students, indicating a need to modify educational approaches and incorporate AI chatbots as an effective learning tool. The primary value of this study lies in its provision of supportive data regarding the potential application of chatbots in nursing education. Future research should focus on assessing the educational impact on learning outcomes and student satisfaction in nursing when interacting with chatbots.

It should be noted that this study has some limitations. First, the participants were selected from a single city using convenience sampling, which may not provide a representative sample of all nursing school students. Future research should aim to include larger sample sizes from a variety of regions. Second, our methodology relied on a self-reported questionnaire. To gain a more comprehensive understanding of nursing students' awareness, a more in-depth investigation is recommended. Third, our study focused solely on junior and senior nursing students. To corroborate these findings, it would be beneficial to include teachers in future studies. This would help address any potential discrepancies between the two groups, which would need to be interpreted from a unique perspective. Finally, despite testing for reliability and validity, the tool we used was modified to suit this study. Consequently, additional research is required to confirm the validity of this scale.

CONCLUSION

Chatbots are increasingly being utilized in the field of education. Despite a few challenges and disadvantages linked to this technology, its usage continues to expand. This study investigated AuC among nursing students, demonstrating that technologies like chatbots can be employed to enhance learning. This implies the potential of using chatbots as an educational tool for nursing students. In addition, factors influencing the intention to use chatbots were identified. Hence, there is a need to develop learning strategies that can provide educational benefits by using chatbots in nursing education.

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Authors' contribution

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Conflict of interest

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Data availability

Please contact the corresponding author for data availability.

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