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Utilization of Artificial Intelligence in Health Care: Nurses' Perspectives and Attitudes

Hanaa Esmail Sabra[1], Howida Khalaf Abd Elaal[2], Karima Mohamed Sobhy[3], Manal Mohamed Bakr[4]

[1]Assistant Professor of Nursing Administration Department, Faculty of Nursing, South Valley University, Qena, Egypt,

[2, 3] Assistant Consultant of Medical- Surgical Nursing and Assistant Consultant of Public Health and Community Medicine Assiut University Hospital, Egypt

[4]Assistant Professor of Nursing Administration Depart. Faculty of Nursing, Menoufia University, Egypt

Abstract: The adoption and acceptance of artificial intelligence by nurses, doctors, patients and decision makers is essential for its successful application. Healthcare professionals still have varied attitudes and perception concerning the use of artificial intelligence (AI) technology, despite the fact that there is growing interest in this area. **Aim:** The study aims to assess nurses' perspective and attitude toward utilization of artificial intelligence in health care. **Methods:** A descriptive research design with consecutive sample of 200 nurses from Qena University Hospitals (QUHs) was utilized. **Instruments:** Two instruments were used; nurses' perception of AI scale and nurses' attitudes towards artificial intelligence scale. **Results:** The results showed that 92.0% of participants had moderate perception toward using AI in health care and 64% of them had positive attitude toward usage of AI in health care. There were highly statistically significance difference between nurses' perception toward AI, gender and social status. Likewise there were statistically significance difference between nurses' attitude toward AI, and age, qualifications, social status and years of experience. **Conclusion:** The majority of nurses had moderate perception and positive attitude toward usage of AI in health care. **Recommendations:** Health policy makers must develop strategies to increase readiness of the institutions to apply AI and increase the capabilities of nurses for appropriate use of AI through well trained. Physicians, nurses, and patients should adopt the utilization of AI in the work field.

Key Words: *Artificial Intelligence, Attitude, Health care, Nurses, Perception*

Introduction:

The progress of AI as a mechanism for develop health care provides ways to raise the quality of health care services, provide unexpected chances to development patient outcomes, decrease prices, and influence human health and it will enable a sustainable healthcare system (Tran et al., 2019 & Matheny et al., 2019). AI is likely to promote robotics and it can provide relevant information synthesis and recommendations to patients, families, and the health care team (Israni & Verghese, 2020). AI can be defined as the capability of a computer to achieve tasks that usually linked with intelligent beings (Copeland, 2020 & Hanna et al., 2021).

The progress of technology and digital transformation has facilitated the growth of AI to support health care systems. AI technologies have been used in nursing profession for long years, but not recognized as AI. AI implements in nursing such as; scientific decision support, mobile health and sensor-based technologies, and voice helpers and robotics. However, the rising interest in AI in healthcare setting is associated with new discussions on the relationship between AI and nursing. Nurses' must be involved in directing the growth and use of AI technologies in the health care settings. So, there is a necessity for the nursing profession to participate

and well understand of AI (He et al., 2019 & European Commission, 2019).

The uses of AI-based technologies in nursing practice has elevated fears and public debate, with many fearing that this technology can substitute nurses, while, other major worries focused around the ethical use of these technologies, such as management data bias and the necessity to grow new perspectives on technology implementation and identifying obstacles in technology approval between nurses is equally as important today (Parthasarathy et al., 2018 & Robert, 2019). Some of these fears could be relieved by offering sufficient information about AI for users, comprehending the existing research on these technologies, and through providing information regarding the ethics of AI in nursing (Stokes & Palmer 2020).

Many issues resulted from the use of AI in healthcare settings, such as; problems with the use of health data, concerns about cyber security, the problem of responsibility, and the combination of AI tools into current practice, ethics considerations and the limited ability of nurses to fully comprehend how decisions made by AI systems are attained (Parikh et al., 2019 & Samad et al., 2022). The result of increasing application of AI in nursing both positive and negative. AI can cause damage to patients, nurses, and the career overall. Also, there are great possible benefits for AI to the profession, serve as influential tool for nurses, and advance quality of care and patients' outcomes (Peltonen et al., 2021). The attitudes about the usage of AI in healthcare are debatable. Contrasting the perception of healthcare providers, the attitudes of patients and their families have been of fewer interests so far (Fritsch et.al 2022).

Nurses' perception is a powerful pointer of organizational willingness and requirements consideration in this novel age of technological progress. Discovered awareness as a pointer of applies and acceptance which was valuable for designers to develop technology features and purpose (Alami et al., 2020).

Significance of the study:

Nurses' awareness of AI has altered during the last ten years, with rising fears about its ethical consequences and predictable influences above all, more positive attitudes arise about AI expectations for healthcare. Artificial intelligence is expected to assist in proactive patient care and decrease future risk for patients, nurses, and the career overall. Therefore, researches about using AI technology in healthcare setting are increasing. Nurses have varied attitudes and feelings regarding the application of AI technologies (Fritsch et.al 2022). Accordingly, the researchers conducted this study in an attempt to assess nurses' perspectives and attitudes towards utilization of artificial intelligence in health.

Aim of the study:

The study aims to assess nurses' perspective and attitude toward utilization of artificial intelligence in health care.

Research questions:

1. What are the nurses' perspectives towards artificial intelligence?
2. What are the nurses' attitudes towards artificial intelligence?

Methods:

Design:

A descriptive correlational design was used.

Setting:

This study was conducted in medical, surgical, ICUs and operation units at QUHs.

Sampling:

A consecutive sample of 200 nurses who are on duty and had at least one year of experience in all selected study settings during data collection. It includes 46 nurses graduated from secondary nursing school, 82 nursing technical institute, 58 Bachelor of nursing, and 14 Master of nursing; 50 of them work in ICUs units, 110 in Medical units, 22 in surgical units, and 18 in operation unit.

Instruments:

Two instruments was used for data collection as follows:

Instrument one: Perception of AI scale. It's consists of two parts:-

- **Part I: personal data sheet**

It contains 6 questions such as age, gender, social status, qualifications, experience years in nursing, and work settings.

- **Part II: Perception of AI scale**

It's developed by Abdullah, (2020). It was used to assess the nurses' perception towards using AI in health care. This scale includes14 questions classified under three subscales; Subscale one: knowledge of nurses about AI. It contains 4 questions. Subscale two: Advantages of using AI. It contains 5 questions. Subscale three: Problems related to application of AI in health care. It includes 5 questions. Scoring of perception of AI scale was as follows; 1 = strongly disagree 5 = strongly agree". The sums of the scores according to the three subscale; were as follows 0 - ≤ 40 was considered as low perception, a score of 41 - ≤ 80 was considered as moderate perception level and a score of ≥ 81 was considered as high perception.

Instrument two: Attitude of AI scale.

It's developed by Sindermann et al., (2021). It was used to assess the nurses' attitude towards AI. It contained 14 questions. The responses were a five point likert scale (from strongly disagree to strongly agree), scoring accordingly from 1 to 5 respectively. The scores were summed to create total attitude. A score from 0 to 60% was measured as "negative attitude towards AI. A score > 60 % was positive attitude towards AI.

Validity

The instruments were appraised for face validity by five experts (2professors and 3assistant professors) in the field of nursing administration from Faculties of Nursing at Qena and Menoufia universities

Reliability of the instruments

Tools reliability were measured by using Cronbchs alpha which was α= 0. 830 for first instrument, and for second instrument was a=0.855.

Ethical Considerations

Approvals from Faculty of Nursing Qena University, Ethical Research Committee and the targeted hospitals were obtained before starting the data collection. The purpose and significance of the study were explained for the nurses. An official written consent regarding nurses acceptance to participate in the study was obtained after researchers explained that their contribution was voluntary, and they could withdraw from the study any time they wanted without any penalties. Anonymity and

confidentiality of participants were ensured. Nurses were informed that only the results will be used and shared for the study purpose and no one will access the data except the researchers.

Pilot Study:

Was conducted on a ten percent (20) of the studied participants to evaluate clearness, applicability, reliability of the instruments, and to estimate the time necessary to answer the questions. It also helped to evaluate the appropriateness of the study places. Data gained from the pilot study were investigated; no modifications were done.

Procedure

A letter was submitted from the Dean of the Faculty of Nursing, Qena University to the directors of selected settings indicating the purpose and methods of data collection. The researchers met with studied nurses to clarify study purpose for them, hen, the researchers distributed the questionnaire between them. One researcher stayed with them for any clarification. Data were collected in varied shifts according to their work schedule. The questionnaire took about 20 minutes for each participant to fulfill. Data collection stage took about two months started in January 2023 until the end of February 2023.

Statistical analysis:

After the data collected, entry and analysis were done. Statistical Package for Social Sciences (SPSS) V.26 was used to organize, categorize, code, tabulate, and analyze the attained data. Numbers, percentages, averages, and standard deviations were used to portray data in tables and charts. The chi square test used to assess correlation between variables. A P-value of 0.05 was declared statistically significant.

Results:

Table 1:- shows the personal characteristics of studied nurses. As shown in the table, the mean age of nurses was 35.30±8.40. As well, the table revealed that slightly more than two thirds of participants were females and married (64.0%, 74.0% and 65.0%) of them had >10 years of experience. Likewise, most of them had technical institute and worked in medical department (41.0%, 55.0%) respectively.

Table 2:- presents nurses' perceptions towards using AI in health care subscales., concerning to knowledge of AI subscale, two third of nurses (62%) disagreed that AI could substitute them in their job, while less than half of them (42.0% and 40.0%) agreed that they had high hopes about AI application in the health care settings, and they had good knowledge about AI. As regards to the advantages of using AI subscale, similarly the more than fifty of nurses agreed that AI can improve the practice in health care, help to decrease the number of medical mistakes, and offer clinically relevant, high-quality data (56.0%, 52.0% and 52.0%) respectively. However, the application of AI in health care less than half of them agreed that AI is not flexible to be useful for every patient (45.0% and 44.0% respectively).

Figure 1:- displays that the majority (92.0%) of nurses had moderate perception level toward using AI in health care, while only 6. 0 % had low perception level toward using AI in health care.

Table 3 clarifies nurses' attitude toward using AI in health care items. It was revealed that most of nurses, who agreed that AI would benefit people, destroy people, aid nurses to feel happier and feel creative were (49.0%, 47.0%, 45.0% and 44.0%) respectively. Similarly 40.0 % of them agreed the following items; AI will

cause many job losses, AI have optimistic effects on nurses welfare and AI provide new economic chances for their hospital.

Figure (2):- the figure demonstrates that, the more than two third of nurses (64%) had positive attitude toward AI, Only few (36 %) of them had a negative attitude.

Table 4:- displays that there were very highly statistically significant differences between nurses' perception toward AI, gender and social status (P<.01). Additionally, there were no statistically significant differences between nurses' perception according to their different qualifications, experiences and work settings.

Table 5:- shows that, there were statistically significance difference between nurses' attitude toward AI, age, qualifications and years of experience (P<0.047*, 0.005* and 0.010) while there was a very highly statistically significance difference between nurses' attitude toward AI and social status (P< .01).

Table (1): Percentage of Personal Characteristics of Studied Nurses at QUHs (n=200)

Items	No	%
• **Age/ years**		
- less than 25	18	9.0
- 25-<35	86	43.0
- 35 or more	96	48.0
Age mean± SD	**35.30±8.40**	
• **Gender :**		
- Male	72	36.0
- Female	128	64.0
• **Married and social status:**		
- Single	42	21.0
- Married	148	74.0
- Divorced	6	3.0
- Widow	4	2.0
• **Experiences/ years**		
1- 2 years	20	10.0
2-5 years	24	12.0
>5-10 years	26	13.0
> 10 years	130	65.0
Experiences mean± SD	**15.03±9.07**	
Qualifications		
- Nursing secondary school diploma	46	23.0
- Technical institute of nursing	82	41.0
- Nursing Bachelor	58	29.0
- Nursing Master	14	7.0
• **Hospital:**		
- Al Maaber	100	50.0
- Al Kilosix	100	50.0
• **Department/Unit**		
- Medical	110	55.0
- Surgical	22	11.0
- ICUs	50	25.0
- Operations	18	9.0

Table (2): Nurses' Perceptions toward utilization of AI in health care Subscales.

AI Subscales	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%
knowledge of AI										
I have good knowledge of AI	8	4.0	22	11.0	70	35.0	80	40.0	20	10.0
AI capabilities are greater to human knowledge	18	9.0	66	33.0	46	23.0	56	28.0	14	7.0
AI could substitute me in my work	58	29.0	124	62.0	4	2.0	10	5.0	4	2.0
I have hopes about AI application in the health care settings	4	2.0	24	12.0	72	36.0	84	42.0	16	8.0
The advantages of using AI										
AI can improve the practice of health care	12	6.0	34	17.0	22	11.0	102	56.0	20	10.0
AI can decrease the number of medical mistakes	8	4.0	28	14.0	42	21.0	104	52.0	18	9.0
AI can offer clinically relevant, high-quality data	6	3.0	24	12.0	32	16.0	104	52.0	34	17.0
AI has no space-time limitation	12	6.0	38	19.0	74	37.0	58	29.0	18	9.0
AI has no emotive exhaustion or physical constraint	22	11.0	20	10.0	22	11.0	94	47.0	42	21.0
The application of AI in health care										
AI cannot be used to offer ideas in unexpected conditions	28	14.0	24	12.0	60	30.0	66	33.0	22	11.0
AI is not flexible to be useful for every patient	30	15.0	32	16.0	24	12.0	90	45.0	24	12.0
AI is difficult to apply to arguable subjects	24	12.0	18	9.0	46	23.0	88	44.0	24	12.0
AI has low capability to empathize and reflect the emotional well-being of the patient	16	8.0	48	24.0	28	14.0	60	30.0	48	24.0
AI was established by a specialist with slight clinical experience in medical practice	20	10.0	38	19.0	66	33.0	68	34.0	8	4.0

Figure (1): Total Nurses' Perceptions levels toward utilization of AI in health care.

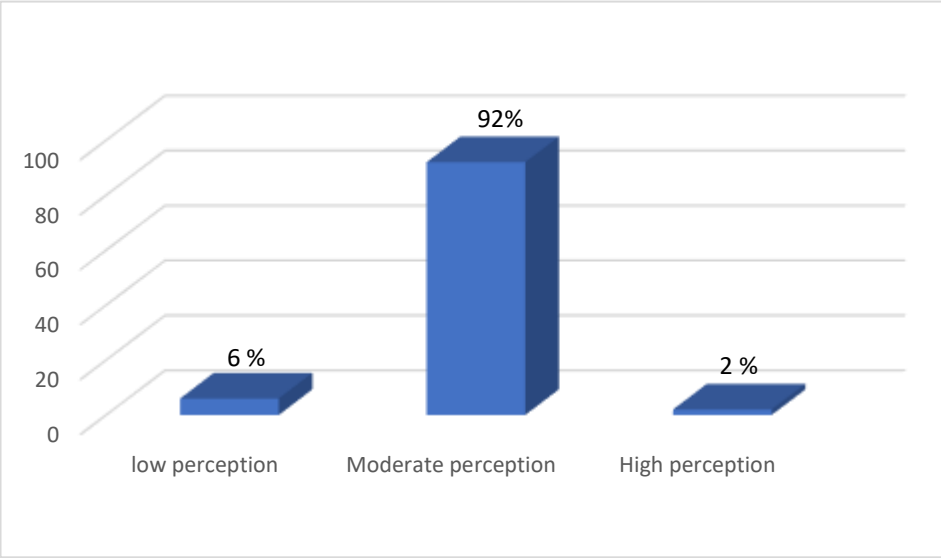

Table (3): Nurses' Attitude toward utilization of AI in Health Care Items.

Attitude Items	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree	
	N	%	N	%	N	%	N	%	N	%
I fear AI	28	14.0	36	18.0	84	42.0	46	23.0	6	3.0
I trust AI	28	14.0	54	27.0	62	31.0	46	23.0	10	5.0
AI will destroy people	16	8.0	22	11.0	58	29.0	84	47.0	10	5.0
AI will benefit people.	22	11.0	22	11.0	52	26.0	98	49.0	6	3.0
AI will cause many job losses	14	7.0	36	18.0	32	16.0	80	40.0	38	19.0
I admire what AI can do	32	16.0	46	23.0	60	30.0	46	23.0	16	8.0
AI makes me feel with human creativity	16	8.0	26	13.0	50	25.0	88	44.0	20	10.0
AI systems can aid nurses feel happier	18	9.0	28	14.0	62	31.0	90	45.0	2	1.0
AI can have optimistic effects on nurses welfare	8	4.0	38	19.0	60	30.0	80	40.0	14	7.0
AI can provide new economic chances for my hospital	14	7.0	22	11.0	70	35.0	80	40.0	14	7.0
AI systems can perform better than individuals	42	21.0	40	20.0	68	34.0	40	20.0	10	5.0
I would like to use AI in my own job	14	7.0	42	21.0	74	37.0	56	28.0	14	7.0
AI is better than an employee in many routine jobs	6	3.0	16	8.0	96	48.0	80	40.0	2	1.0
AI is exciting	4	2.0	18	9.0	70	35.0	90	45.0	18	9.0

Figure (2): Total Nurses' Attitude toward AI in Health Care. (n=200)

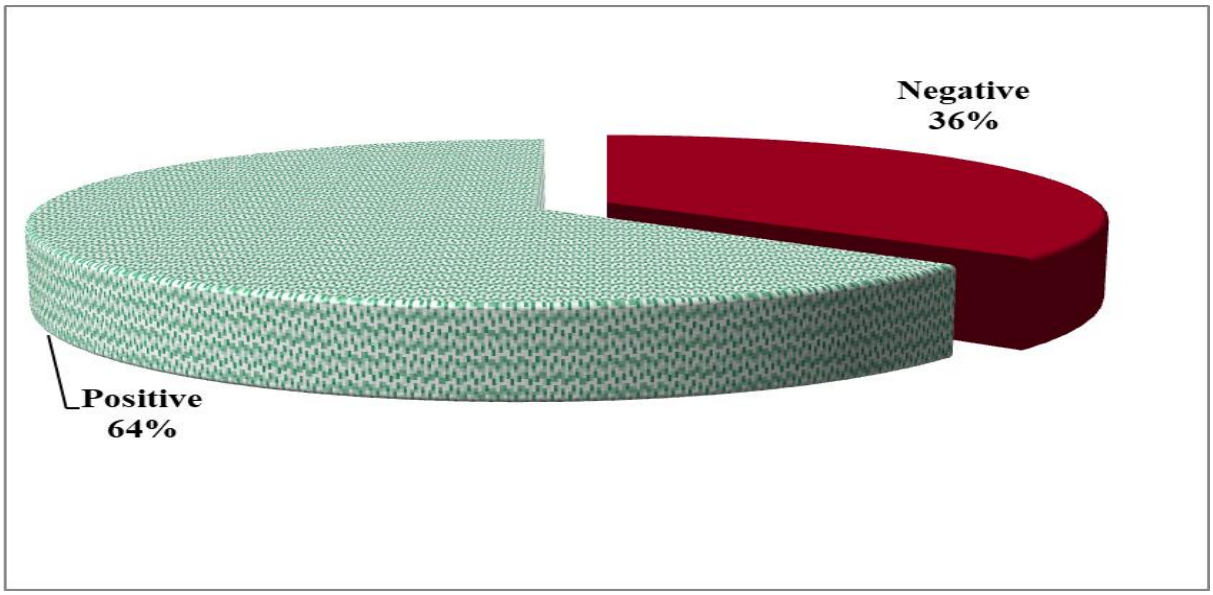

Table (4): Relation between nurses' perception levels toward utilization of AI and personal characteristics (n=200)

Personal characteristics	Nurses' perception levels toward artificial intelligence						p-value
	Low perception		Moderate perception		High perception		
	N	%	N	%	N	%	
• **Age/ year**							0.218
- less than 25	0	0.0	18	9.8	0	0.0	
- 25-<35	6	50.0	80	43.5	0	0.0	
- 35 or more	6	50.0	86	46.7	4	100.0	
• **Gender:**							
- Male	10	83.3	58	31.5	4	100.0	0.000**
- Female	2	16.7	126	68.5	0	0.0	
• **Social status:**							0.000**
- Single	2	16.7	40	21.7	0	0.0	
- Married	6	50.0	138	75.0	4	100.0	
- Divorced	4	33.3	2	1.1	0	0.0	
- Widow	0	0.0	4	2.2	0	0.0	
Qualifications:							0.480
- Diploma nursing	6	50.0	44	23.9	4	100.0	
- Technical institute of nursing	2	16.7	64	34.8	0	00	
- Bachelor degree in nursing	4	33.3	54	29.3	0	0.0	
- Master degree in nursing	0	0.0	12	6.5	0	0.0	
- Doctor degree in nursing	0	0.0	10	5.5	0	0.0	
Experiences/ years							0.054
- < 2 years	4	33.3	16	8.7	0	0.0	
- 2-5 years	0	0.0	24	13.0	0	0.0	
- >5-10 years	0	0.0	26	14.1	0	0.0	
- > 10 years	8	66.7	118	64.2	4	100.0	
Hospital:							0.0.534
- Al Maaber	4	33.3	92	50.0	222	50.0	
- Al Kilo six	8	66.7	92	50.0	2	50.0	
• **Department**/Unit							0.135
- Medical	2	16.7	106	57.6	2	50.0	
- Surgical	2	16.6	20	10.9	0	0.0	
- ICUs	6	50.0	42	2.8	2	50.0	
- Operations	2	16.7	16	8.7	0	0.0	

(*) statistically significant at p<0.05 (**) highly statistical significant

Table (5) the relation between Nurses' Attitude toward Using AI and personal characteristics (n=200)

Personal characteristics	Total attitude towards AI				
	Positive		Negative		p-value
	N	%	N	%	
• **Age**					
- less than 25	2	2.8	16	12.5	0.047*
- 25-<35	36	50.0	50	39.1	
- 35 or more	34	47.2	62	48.4	
• **Gender :**					
- Male	32	44.4	40	31.2	0.067
- Female	40	55.6	88	68.8	
• **Social status:**					
- Single	14	19.4	28	21.9	0.000**
- Married	48	66.7	100	78.1	
- Divorced	6	8.3	0	0.0	
- Widow	4	5.6	0	0.0	
• **Qualifications**:					
- Nursing secondary school diploma	10	13.9	44	34.4	0.005*
- Technical institute of nursing	26	36.1	40	31.3	
- Bachelor degree in nursing	22	30.6	36	28.1	
- Master degree in nursing	8	11.1	4	3.1	
- Doctor degree in nursing	6	8.3	4	3.1	
• **Years of experience**					
- < 2 years	12	16.7	8	6.2	0.010*
- 2-5 years	6	8.3	18	14.1	
- >5-10 years	14	19.4	12	9.4	
- > 10 years	40	55.6	90	70.3	
• **Hospital:**					
- Al Maaber	36	50.0	62	48.5	0.883
- Al Kilo six	36	50.0	66	41.6	
• **Department/Unit**					
- Medical	32	44.4	78	60.9	0.091
- Surgical	10	13.9	12	9.4	
- ICUs	20	27.8	30	23.4	
- Operations	10	13.9	8	6.3	

(*) statistically significant at (P ≤0.05) (**) highly statistical significant

Discussion

AI technologies were advanced to provide practical assistances in diverse regions including health care settings. In the active and economical world, technology has improved the speed of the healthcare productiveness. AI is a technology which assists the health care system to produce at quicker speed and professionally achieving their goals. Many investigators think that "workers' attitude has a main factor in the implementation of

innovative technology and may powerfully influence technology approval judgments (Wu et al., 2019 & Lichtenthaler, 2020). The present study aimed to assess nurses' perspective and attitude toward utilization of artificial intelligence in health care. The partakers of study were 200 staff nurses from medical, surgical, ICUs and operation units at QUHs.

Nurses' perceptions toward utilization of AI in health care subscales (Table2)

Subscale one : nurse's knowledge about AI. The result showed two third of nurses disagreed that AI could substitute them in their job, while less than half of them agreed that they had high hopes about AI application in the health care settings, and they had good knowledge about AI This may reveal a positive support to change that is relatively typical in healthcare settings. This result disagreement with Castagno & Khalifa, (2020) who found that, more than two third of subjects without any fear reported AI will substitute them at their work.

In the same line, Frey and Osborne, (2017) reported that slightly less than of professions will be substituted by AI over some number of years, Also, Smith and Anderson, (2017) stated that 66% of Americans anticipate that within 50 years robots and processers will do much of the skills that done by persons now. Also, Lai, et al, (2020) confirmed a general deficiency of knowledge on the participants of AI.

However, Elsayed and Sleem, (2021) found that, more than half of participants had positive attitude toward using AI in health care settings. In addition, Fast & Horvitz, (2017) found more positive attitudes about AI hopes for healthcare and focuses on its enclosure in education.

Subscale two : perception of advantages of using AI, the results indicated that, more than fifty of nurses agreed that AI can improve the practice in health care, help to decrease the number of medical mistakes, and offer clinically relevant, high-quality data. This may attributed to that Qena university hospital (QUH) applied advanced technology in patient care. These findings were consistent with Jiang et al., (2017) who mentioned that AI transports a change to health care, powered by aggregate availability of health care data and fast progress of analytics practices.

Also,, Shameer et al., (2018) found that AI can development a huge amount of data in an correct, quick, and effective technique by using multifaceted statistical and computing algorithms. Additionally, Trivedi et al., (2018) asserted that, AI can help in the establishing of precise diagnoses and suitable treatment plans and offers assistance on the best treatments for cancer and conducts genome analyses. In addition, Vaananen et al., (2021) mentioned that the use of AI may prevent medication errors such as drug overdoses.

Subscale three: The application of AI in health care, the result showed that less than half of them agreed that AI is not flexible to be useful for every patient and difficult to apply to arguable issues. This result supported by Oh et al., (2019) who reported that, nurses perceived that AI cannot implement to debatable subjects and that it would not be applied to each patient.

Total nurses' perceptions toward using AI in health care:

The results presented that majority of nurses had moderate perception level toward using AI in health care, while only (6. 0 %) had low perception level toward using AI in health care (Figure 1). This may explained by the fact that Covid 19 providing opportunity for nurses to recognize the benefit of applying AI in nursing settings. This result is congruent with Nicholaset al.,

(2021) who reported that, the majority of subjects consider AI to be beneficial in the medical field. also, Krittanawong, (2018) mentioned that physicians predictable that AI useful in diagnoses and in preparation treatment by providing the latest clinically appropriate data and the growth of AI in healthcare will be pleasing for everyone in health care team.

In addition, (Funk et al., 2020) stated that in Singapore, about 72% believed that the growth of AI has mostly been a worthy mechanism for society and in Japan considers that AI has optimistic effect on society. In the same line Ahmed et al, (2022) found that, nearly two thirds of participants agreed that AI help health care provider in making daily to do list.

Nurses attitude toward utilization of AI in health care items. The study findings indicated that most of nurses agreed the following items of attitude toward AI: AI will benefit people, destroy people, AI systems can aid nurses to feel happier and feel human creativity. Similarly they agreed that; AI will cause many job losses, AI has optimistic effects on nurses' welfare and AI provides new economic chances for their hospital (Table 3).

This may clarified by the fact that AI rapidly pervaded society, and nurses became aware of its use and importance. This finding were consistent with Royal Society Working Group, (2017) who reported that the public perceived chances, but also expressed fears concerning harm, impersonal experiences, choice restriction, and replacement. Also, Anderson, et al., (2018) mentioned that respondents' collective views were mixed; identifying both benefits e.g. improved effectiveness and threats e.g. data abuse and job losses. In addition, Tiwari et al., (2021) asserted that organizations which are using AI have perceived rise in their performance of the activity, innovation and profitability. In the same line Ismail. (2021) conclude that the most of the participants agreed that AI could enhance developments in healthcare and it can deliver amounts of clinically pertinent high-quality information. Additionally , the finding of the current study revealed from current table most of nurses' agreed that, AI will cause many job losses, AI can have constructive effects on nurses' welfare and AI can offer new financial chances for their hospitals (Table 3). These results supported by Powles et al., (2017) mentioned that AI support a sustainable healthcare system and enable healthcare team to contribute to the improvement of patient care.

In addition WHO, (2018), stressed that the progress of AI will be useful, particularly in the low and middle income countries. Also; the results were consistent with the Future Health Index, (2019) by the Dutch firm Royal Philips, China has, at 60%, topped the share of the world's investment and financing in AI in healthcare from 2013 to 2018, followed by the United States and India at 29% and 5%, respectively. This development has allowed China to experience more of the profits of AI over the years.

In the same line, Glauser (2017) found that AI will improve human competences by 2030 and fears about AI were includes; human organization, data misuse, job loss, dependence lock-in and mayhem. In contrast Oh et al., (2019) concluded that he majority of contributors supposed that AI will not substitute their roles in the upcoming.

Total nurses' attitude toward using AI. The results illustrated more than two third of nurses had positive attitude toward AI while, only few of them had a negative attitude (Figure 2). This result In agreement with Vasiljeva et al., (2021) who found that nearly half of respondents' have had positive

attitudes towards AI. In contrast, Lichtenthaler, (2020) stated that employee had negative attitude towards information and communication technology trends.

As regard to nurses' perception toward using AI according to their personal characteristics. There were statistically significant differences between nurses' perception toward AI and gender (Table 4). These result in the same line with (Funk et al., 2020) who found that older adults are more likely to disagree with the idea that the progress of AI for a society was a good thing. Also, there were highly positive statistically significant differences between participants' perception toward AI and social status.

In the same table the results don't revealed any significant different between nurses' perception toward AI and their qualifications, experiences and work setting. This result may due to that senior and junior nurses exposed to the same information and environmental incentives that influence way they think and their impression about AI. These findings were in contrast with Elsayed and Sleem, (2021) asserted that there is a significant positive relation between job, education and workplace of nurse managers' demographic characteristics and their perception toward using AI.

Concerning to nurses' attitude toward AI according to their personal characteristics .The current study result declared that there were statistically significant different between nurses' attitude toward AI and their age, qualifications, and experiences (Table 5). These findings in line with Araujo et al., (2020) and Zhang and Dafoe, (2020) who found that attitudes toward AI influenced by variables, such as, nation, age, income and qualification. Also, Cubric, (2020) stated that the attitude towards digitalization depended on previous experience with automatized systems and asserted that employees who have previous experience with automated solutions were more expected to accept AI application in their routine jobs. Assitionally, Shinners et al., (2020) found that the application of computers in healthcare setting was affected by experience, knowledge and skill set of the users.

Conclusion:

The study revealed that the majority of the nurses had moderate perception level and positive attitude toward utilization of AI in health care, however most of them agreed that AI is not flexible to be useful for every patient and it's difficult to apply to arguable issues implementation of AI in health care will be useful for the people, correspondingly there were highly statistically significance difference between nurses' perception toward AI, gender and social status. Likewise there were statistically significance difference between nurses' attitude toward AI, and age, qualifications, social status and years of experience.

Recommendations

Health policy makers must develop strategies that increase readiness of the institutions to apply AI, increase the abilities of nurses for appropriate use of AI through well trained. Physicians, nurses, and patients should adopt the utilization of AI in the work field.

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