

Quality of Life among Nurses Working at Primary Health Care Centers during COVID-19 Pandemic Disease

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Abstract

Background: COVID-19 is the most recent pandemic, with a significant morbidity and mortality rate over the world. COVID-19 is considered a type of the crises that have an impact on the mental and physical health of nurses **Aim of study:** Was to assess quality of life among nurses working at Primary Health Care Centers during COVID- 19 pandemic disease. **Research design:** A descriptive design was used to carry out this study. **Setting:** Multi stage random sample was used to select the Primary Health Care Centers in Qaliobia Governorate then 25% of them were selected randomly including three administrations (Benha, Toukh and Kafr Shokr). **Sample:** Convenient purposive sample of nurses working in the selected settings were chosen including 192 nurses. **Tools:** Three tools were used, I): A structured interviewing questionnaire was used to assess A) Socio- demographic characteristics of nurses in Primary Health Care Centers. B) Nurses' knowledge toward COVID-19. C) Nurses working at Primary Health Care Centers practices regarding COVID-19. II): Quality of life scale for nurses during COVID-19. III): An observational checklist were used to assess the environment at Primary Health Care Centers. **Results:** 65.6% of the nurses had good total knowledge level, 91.1% had satisfactory total practices level and 44.3% of them had moderate total quality of life level during COVID-19. **Conclusion:** There were highly statistically relations between total knowledge level of nurses and age, gender, level of educational and years of experience, while there were statistically significant relations between total knowledge level of nurses and their marital status, their monthly income and receiving courses about infection control. **Recommendations:** Periodic workshops for nurses to improve their knowledge and practices regarding COVID- 19 pandemic disease.

Key words: COVID 19 Pandemic, Nurses, Quality of life, Primary Health Care Centers

Introduction:

Coronavirus disease (COVID-19) is an infectious disease that infects humans, typically leading to an Upper Respiratory Infection (URI). Seven different types of human coronavirus have been identified. Most people will be infected with at least one type of coronavirus in their lifetime (Gorbalenya et al., 2020). COVID -19 has been identified as the source of a coronavirus outbreak in Wuhan, China. The World Health

Organization (WHO) labeled this disease a pandemic on 11 March 2020 (Hui et al., 2020).

Most people infected with the virus experienced mild to moderate respiratory illness and recovered without requiring special treatment. However, some became seriously ill and required medical attention. Clinical symptoms of COVID-19 usually present with fever, cough, dyspnea, tiredness, loss of taste and smell, sore throat, headache,

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pains and diarrhea are common symptoms (WHO, 2020 a).

Egypt announced its first COVID-19 instance on 14 February, 2021 and then claimed preventive steps. Nasopharyngeal swabs from symptomatic patients and contacts of confirmed cases were obtained in the first two weeks of the limited lockdown, which began on 25 March 2020 at the airport. Body temperature and clinical evaluations were performed as part of the screening process (Lai et al., 2020).

Two groups of people are at a higher risk of getting severe COVID- 19 disease. These are elderly who are over 60 years old and those with underlying medical conditions. COVID-19 is mostly spread through infected micro-droplets inhaled, contact transmission and aerosol transmission. Respiratory droplets transmission which are produced when an infected individual talks, sneezes, or coughs and ingested or inhaled by individuals nearby in close proximity. The disease's incubation period varies from 2 to 14 days (WHO b, 2020; Lauer et al., 2020).

Coronavirus disease has reached unforeseen dimensions and will have far-reaching implications for Quality Of Life (QOL) of nurses. WHO defines QOL as an individual's perception of their position in life, in the context of the culture in which living and in relation to the goals, expectations, standards and concerns (Chen et al., 2020).

COVID-19 is a substantial threat QOL and have a significant impact on the physical, social and psychological health, due to its rapid spread, powerful transmission, death in severe cases, and lack of particular treatments, creating a variety of psychological and emotional reactions, including tension, worry, fear, stress disorder, post-traumatic stress disorder, despair, and suicide. Nurses are at a higher risk of contracting COVID-19,

especially if they come into contact with patients who have the virus (Algaissi et al., 2020).

Primary Health Care (PHC) centers are rooted in a commitment to social justice, equity, solidarity and participation. PHC centers are based on the recognition that the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction (Aburaya et al., 2020).

Community Health Nurse (CHN) plays an important role in improving quality of life among primary health care centers nurses by providing support to the manpower, to minimize the burden among the nurses, allowing them to address their needs and demands during working conditions, minimizing work pressures, controlling work-related violence and abusing behaviors in the workplace, understanding pandemic burdens among nurses, and highly motivating them and recognizing the responsibilities were taken by the nurses while delivering care to the sick people. Also CHN should provide offering immediate health treatment to nurses' family members and financial assistance if an emergency need persists (Kandula &Wake 2021).

Significance of the Study:

Coronavirus disease has infected over 429, 783, 418 individuals worldwide, resulting in almost 5, 935, 601 deaths. While in Egypt COVID-19 has infected 391, 945 people, with 21, 938 deaths until the 24th of February 2022 (Mansour et al., 2021). COVID-19 pandemic also has infected over 616, 409 cases and 2, 533 death in Kuwait, while has infected 2, 296, 665 cases and 24, 917 death in Iraq, also has infected 378, 923 cases and 4, 238 death in Oman, also has infected 355, 397 cases and 664 death in Qatar and has

infected 741, 864 cases and 9, 880 death in Saudi Arabia (Hause et al., 2022).

The aim of the study

This study aimed to assess quality of life of nurses working at primary health care centers during COVID-19 pandemic disease.

Research question: -

- What is the nurse's knowledge regarding COVID-19?
- What are the nurse's practices at primary health care centers regarding COVID-19?
- Is there a relation between socio-demographic characteristics and nurses knowledge regarding COVID-19?
- What is the impact of COVID-19 on quality of life of Primary Health Care Centers nurses?

Subjects and Methods

Research design:

A descriptive research design was used in this study.

Setting:

Multi stage random sample was conducted in Primary Health Care Centers in Qalibia Governorate. The total number of Qalibia Governorate administrations were 11 administrations, 25% of total Qalibia Governorate administrations which included 11 administrations and were selected randomly 3 of Qalibia Governorate which namely: Benha , Toukh and Kafr Shokr adminstration. Then 25% of Primary Health Care Centers affiliated to these administrations were taken randomly

Sampling:

Convenient purposive sample of nurses working in pre mentioned settings were chosen in the study. The total number of nurses were 192 nurses.

Tools of data collection:

Tool I: A structured interviewing questionnaire: It was consisted of three parts to assess the following

First part: Socio-demographic characteristics of PHC centers nurses. It included seven closed ended questions about age, gender, marital status, level of education, years of experience, monthly income and receiving courses about infection control

Second part: It was concerned with assessment of nurses knowledge toward COVID -19 pandemic as follows:

A- Knowledge about COVID- 19 pandemic, it included eleven closed ended questions

B-It was concerned with nurses knowledge about preventive measures about COVID-19 pandemic disease, it included twelve closed ended questions

Scoring system:

The score except source of information distributed as (2) for complete and correct answer, while (1) for incomplete and correct answer, and (0) for do not know or wrong answer.

The total knowledge score =44 point. The total knowledge score was considered good if the score > 75% (>33point), while considered average if it equals 50-75% (22-33point), and considered poor if it equals < 50% (<22 point)

Third part: It was concerned with nurses reported practices regarding COVID-19 pandemic prevention. It included eleven procedure as hand washing, wearing mask, take off mask, wearing a sterile gloves, put off a sterile gloves, wearing a face shield, put off a face shield, wearing a gown, put off a gown, removal of personal protective equipment, proper disposal of medical wastes.

Scoring system:

The score distributed as: (1) for done and (0) for not done.

The total practices score = 74 steps. The total practices score was considered satisfactory if the score > 75% (>44 score) and unsatisfactory if it < 75% (<44 score).

Tool II: It was concerned with quality of life scale for nurses regarding COVID-19 adopted

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from (Suárez et al., 2018) which was modified by the investigator to assess physical, psychological and social domains of COVID -19 on quality of life of nurses during COVID- 19 pandemic.

Scoring system:

The score was calculated as follows: 2= Always 1= Sometimes 0= Never

These were respectively scored for positive items, and reversed for negative items. Total quality of life score =62 points

The total quality of life score was considered high if the score > 75% (>46.5 score), while considered moderate if it equals 50-75% (31-46.5 score) and considered low if it equals < 50% (<31 score)

Tool III: An observational checklist which was adopted from (Mohammed et al., 2021) and used by the investigator to assess the environment at primary health care centers

Scoring system

The scoring system for environmental conditions of PHC centers during COVID-19 was calculated as follows (1) for present and (0) for not present.

The total practices score = 18 steps

The total environmental conditions score was considered sanitary if the score $\geq 80\%$ (≥ 14 score) and unsanitary if it < 80% (<14 score).

Validity and reliability:

The tools validity were assessed by 5 members of Faculties staff Nursing experts from the Community Health Nursing Specialists who reviewed the tool for clarity, relevance, and easiness for implementation and according to their opinion minor modification were carried out.

The reliability of the developed tools was estimated using Chronbach's α test to measure the internal consistency of the tools. It was found that the reliability of knowledge was 0.962, reliability of practices was 0.874 and the reliability of quality of life was 0.887

Ethical consideration:

All ethical issues were assured; an oral consent has been obtained from PHC nurses before conducting the interview and given them a brief orientation to the purpose of the study. They were also reassured that all information gathered would be treated confidentially and used only for the purpose of the study. The PHC nurses had the right to withdraw from the study at any time without giving any reasons. The study had not any physical, social or psychological risks.

Pilot study:

The pilot study was carried out on 20 PHC nurses who represent 10% of the total of the study subjects. The pilot study was made to assess the tools clarity, applicability and time needed to fill each sheet as well as to identify any possible obstacles that may hinder the data collection. The pilot study was not excluded as no modifications were done.

Field work:

The actual field work was carried out over a period of 5 months from the beginning of May 2021 up to the end of September 2021. The investigator visited the pre-mentioned settings from 9 am to 12.30 am, two days per week (Sunday and Thursday) to collect the data from the nurses. The average time needed for the sheet was around 30- 45 minutes, the average number interviewed nurses was 4-5 nurses each time depending on understanding and response of the interviewers. The investigator met the nurse manager of each unit for determining the suitable time to collect the data. The investigator introduced herself to nurses in the workplace, explained the aim and component of the questionnaires and distributed the questionnaires to nurses in their work settings at different times and attended during the filling of the questionnaires to clarify any ambiguity and answer any questions.

Statistical analysis:

All data collected were organized, tabulated and analyzed using appropriate statistical test. The data were analyzed by using the Statistical Package for Social Science (SPSS) Version 21, which was applied to calculate number and percentages for qualitative data and mean \pm S.D for quantitative data as well as test statistical significance and associations by using chi-square test and correlation test to detect the associations between the variables for (p value). The observation differences and associations were considered as the following: Highly significant (HS) $P < 0.001$ Significant (S) $p \leq 0.05$ Not significant (NS) $P > 0.01$

Results;

Table (1): Reveals that 33.1% of the nurses aged from 20 to less than 30 with mean age of 29.74 ± 6.15 years old. While 68.8 % of nurses were females and 59.4% of them were married. Also 47.9 % had bachelors in nursing and 67.7 % of them had from 5 to less than 15 year Results of experience. While 45.8 % of them did not have enough monthly income and 62 % of them received courses about infection control.

Figure (1): Illustrates that 65.6% of the nurses had good total knowledge level, while

28.1% of them had average total knowledge level and only 6.3% of them had poor total knowledge level regarding COVID -19 pandemic disease.

Table (2): Shows that all nurses had satisfactory to hand washing and put on a gown and 99.5% of them had satisfactory to take off mask, while Results 9.9% of them had unsatisfactory to put on a face shield and 8.9% of them had unsatisfactory to removal personal protective equipment

Figure (2): Shows that 15.6% of nurses had high total quality of life level during COVID-19, while 44.3% of them had moderate total quality of life level during COVID-19, and 40.1% of them had low total quality of life level during COVID-19.

Figure (3): Shows that 63.6 % of PHC centers environments were sanitary, while 36.4% of them were unsanitary during COVID-19 pandemic.

Table (3): Indicates that there were a highly statistically significant relations between total knowledge level of nurses and age, gender, level of educational and years of experience ($p\text{-value} < 0.05$).

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Table (1): Frequency distribution of nurses regarding their socio-demographic characteristics (n=192).

Socio-demographic characteristics	No	%
Age in years		
20 < 30	65	33.1
30 < 40	54	28.1
40 < 50	24	21.9
≥50	31	16.1
Min –Max	20-44	
Mean ±SD	29.74±6.15	
Gender		
Male	60	31.3
Female	132	68.8
Marital status		
Single	69	35.9
Married	114	59.4
Widow	9	4.7
Level of education		
Diploma in nursing	33	17.2
Nursing technical institute	50	26.0
Bachelors in nursing	92	47.9
Postgraduate	17	8.9
Year of experience		
5 < 15	130	67.7
15 < 20	53	27.6
≥20	9	4.7
Monthly income		
Enough and save	17	8.9
Enough	87	45.3
Not enough	88	45.8
Receiving courses about infection control		
Yes	119	62.0
No	73	38.0

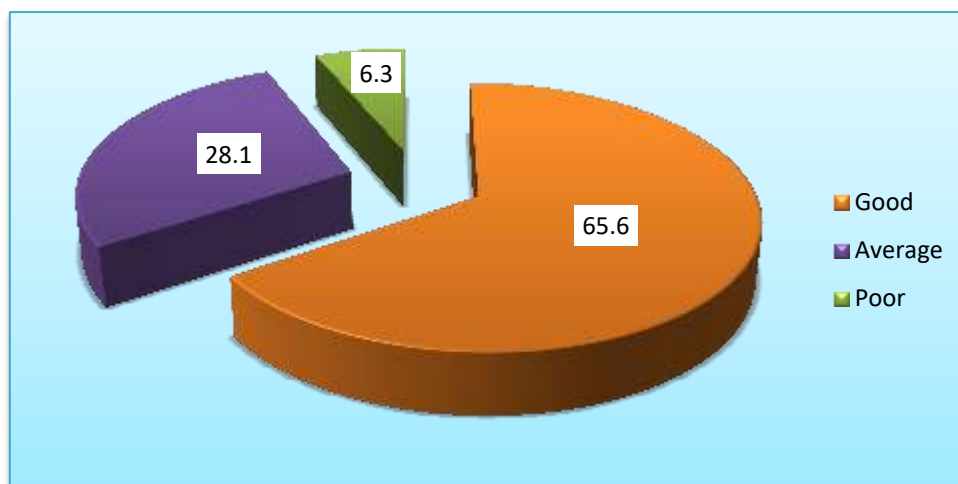


Figure (1): Percentage distribution of nurses regarding their total knowledge level about COVID-19 (n=192).

Table (2): Frequency distribution of nurse regarding their total practices items during COVID-19 (n=192).

Total practices	Satisfactory		Unsatisfactory	
	No	%	No	%
Hand washing	192	100.0	0	0.0
Wearing mask	183	95.3	9	4.7
Take off mask	191	99.5	1	.5
Wearing a sterile gloves	182	94.8	10	5.2
Put off a sterile gloves	182	94.8	10	5.2
Wearing a face shield	173	90.1	19	9.9
Put off a face shield	176	91.7	16	8.3
Wearing a gown	192	100.0	0	0.0
Put off a gown	190	99.0	2	1.0
Removal personal protective equipment	175	91.1	17	8.9
Disposal of medical wastes	178	92.7	14	7.3

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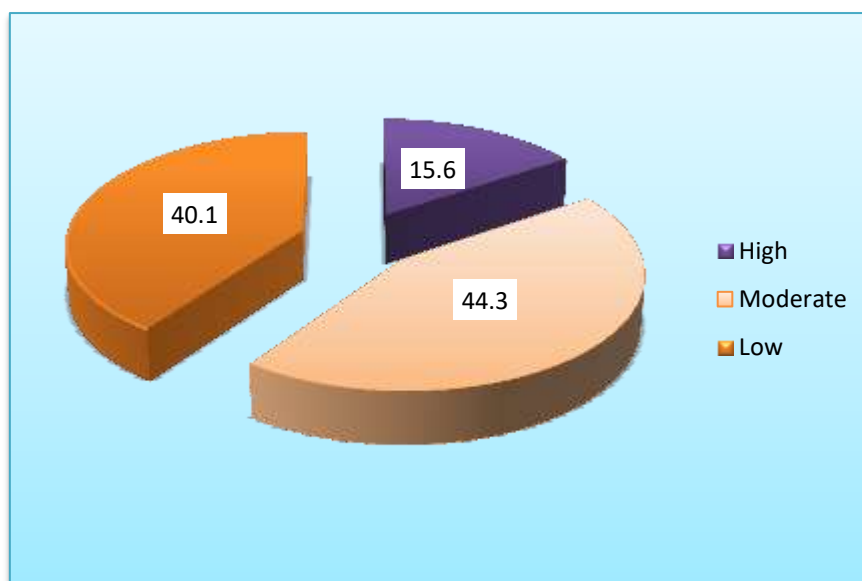


Figure (2): Percentage distribution of nurses regarding their total quality of life level during COVID-19 (n=192).

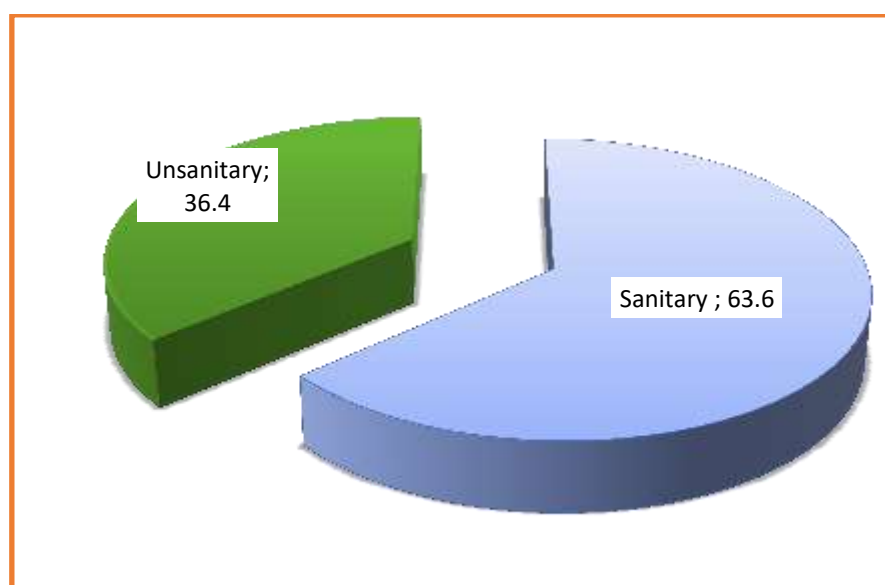


Figure (3): Percentage distribution of the environmental condition of PHC during COVID-19 pandemic (n=11).

Table (3): Statistically Relation between nurses' socio-demographic characteristics and their total knowledge level during COVID 19 (N=192)

Socio demographic characteristics	Total knowledge							
	Poor (N=12)		Average (N=54)		Good (N=126)		X ²	p-value
	No	%	No	%	No	%		
Age								
20 < 30	0	0.0	0	0.0	42	33.3	39.133	.000**
30 < 40	4	33.3	25	46.3	25	19.8		
40 < 50	8	66.7	21	38.9	36	28.6		
>50	0	0.0	8	14.8	23	18.3		
Gender								
Male	12	100.0	25	46.3	23	18.3	41.996	.000**
Female	0	0.0	29	53.7	103	81.7		
Marital status								
Single	0	0.0	17	31.5	52	41.3	15.705	.003*
Married	12	100.0	37	68.5	65	51.6		
Widow	0	0.0	0	0.0	9	7.1		
Level of education								
Diploma in nursing	0	0.0	8	14.8	25	19.8	28.42	.000**
Nursing technical institute	8	66.7	13	24.1	71	56.3		
Bachelors in nursing	4	33.3	24	44.4	22	17.5		
Postgraduate	0	0.0	9	16.7	8	6.3		
Years of experience								
5 < 15	12	100.0	29	53.7	89	70.6	19.756	.001**
5 < 20	0	0.0	25	46.3	28	22.2		
>20	0	0.0	0	0.0	9	7.1		
Monthly income								
Enough and save	0	0.0	0	0.0	17	13.5	16.697	.0002*
Enough	8	66.7	33	61.1	46	36.5		
Not enough	4	33.3	21	38.9	63	50.0		
Receiving courses about infection control								
Yes	12	100.0	38	70.4	69	54.8	11.76	.003*
No	0	0.0	16	29.6	57	45.2		

Discussion:

COVID-19 rapid spread poses a serious threat to human health and have a significant influence on public health, global communications and economic systems around the world. Nurses play an important role in healthcare teams that are tasked with

controlling and preventing the spread of infectious diseases. Nurses also work on the front lines, providing direct care to COVID-19 affected people (Shu-Ching et al., 2020). So, the current study aimed to assess quality of life during COVID-19 among nurses working at primary health care centers.

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Regarding socio-demographic characteristics of nurses, the current study revealed that, nearly one third of them were between age 20 to 30 years old with mean age 29.74 ± 6.15 . This finding agreed with **Saber et al. (2021)**, who conducted a study about "Perception, coping behavior and quality of life during COVID-19 among nursing intern students in Egypt"(N=560) and found that more than three quarters (78.6%) of them were between age 20 to 30 years old.

Regarding gender of the nurses, the current study revealed that, more than three fifths of them were females and slightly less than three fifths of them were married. These findings agreed with **Inocian et al. (2021)**, who conducted a study about "Professional quality of life and caring behaviors among clinical nurses during the COVID-19 pandemic in Saudi Arabia" (N=375) and found that more than half (84.8%) of them were females and (54%) were married.

Regarding level of education of nurses, the current study revealed that less than half of them had bachelor's degree in nursing. This finding agreed with **Iskandarsyah et al. (2021)**, who conducted a study about "Mental health, work satisfaction and, quality of life among healthcare professionals during the COVID-19 pandemic in Indonesia " (N=200) and found that more than half (56.5%) of nurses had bachelor's degree in nursing.

Regarding years of experience of nurses, the current study revealed that more than two thirds of them had from 5 to 15 years of experience. This finding agreed with **Inocian et al. (2021)**, who reported that more than half (55%) of nurses the mean years of experience in the nursing profession were 12 (SD = 7.98) years.

Regarding monthly income, the current study revealed that less than half of them had not enough monthly income. In the same line

with **Aharon et al. (2021)**, who conducted a study about "Knowledge and information credibility evaluation strategies regarding COVID-19: A cross-sectional study in Israeli" (N=163) who reported that more than one third of nurses (33%) had less than average monthly income

Regarding receiving courses about infection control, the current study revealed that more than three fifths of nurses received courses about infection control. This finding agreed with **Beisland et al. (2021)**, who conducted a study about "Quality of life and fear of COVID-19 in 2600 baccalaureate nursing students at five universities – a cross-sectional study in Norwegian" (N=2600) and found that more than half (61%) of nurses were engaged in clinical practice during the pandemic.

The current study revealed that more than three fifths of nurses had good total knowledge level. This finding agreed with **Ikiisik et al. (2021)**, who conducted a study about "Knowledge and attitude evaluation of physicians and nurses on COVID-19. Northern Clinics of Istanbul" (N=565) and found that three fifths (60%) of nurses correctly answered the information questions about COVID-19. This finding might be due nurses fear from the disease make them increase the knowledge about COVID-19 pandemic.

Concerning nurses practices regarding COVID- 19 pandemic, the current study described that, all nurses had satisfactory practices to hand washing. This finding disagreed with **Jemal, (2018)**, who studied " Knowledge and practices of hand washing among health professionals in Dubti Referral Hospital, Dubti, Afar, Northeast Ethiopia " (N=91) and found that more than two fifths (43 %) of nurses had good practice of hand washing. This might be due to hand hygiene

is mandatory to prevent the transmission of health care associated infections especially the infectious diseases as COVID- 19.

The current study described that most of nurses had satisfactory practices to wearing a sterile gloves. This finding is supported by **Al Youha et al. (2021)**, who studied "Factors associated with SARS-CoV-2 infection amongst healthcare workers in a COVID-19 designated hospital, Kuwait" (N=847) and found that most (95%) of nurses had satisfactory practices to wearing a sterile gloves. This might be due to increase awareness of nurses about the importance of wearing gloves to prevent infection.

The current study revealed that less than one fifth of them had high total quality of life level during COVID-19. These findings disagreed with **Saber et al. (2021)**, who found that more than half (53%) of nurses had a high quality of life. This could be due to the fear from taking infection, great changes in work nature and work hours in addition facing great loads and exposure to death every time during COVID- 19 pandemic.

Regarding environmental condition of PHC during COVID-19, the current study revealed that, more than three fifths of them were sanitary. This finding disagreed with **Garg et al 2020**, The current study showed that there were a highly statistically significant relations between total knowledge level of nurses and level of education and years of experience (p-value<0.001). These findings disagreed who conducted a study about "Primary health care facility preparedness for outpatient service provision during the COVID-19 pandemic in India" (N=51) and reported that half (50%) of PHC centers the infrastructures were limited. This might be due to the good environmental of PHC centers in Egypt during COVID-19 pandemic.

with **Nemati et al. (2020)**, who conducted a study about "Assessment of Iranian nurses' knowledge and anxiety toward COVID-19 during the current outbreak in Iran" (N=85) and found that there was no significant relation between knowledge and work experience and education level. This might be due to the knowledge level of nurses increased with educational level and years of experience.

Conclusion:

Approximately more than three fifths of nurses had good total knowledge level and more than one quarter of them had average total knowledge level, while minority of them had poor total knowledge level regarding COVID-19 pandemic. Most of nurses had satisfactory total practices level and minority of them had unsatisfactory total practices level regarding COVID-19 pandemic. Also less than one fifth of nurses had high total quality of life level and more than two fifths of them had moderate total quality of life level, and two fifths of them had low total quality of life level during COVID-19 pandemic. There were highly statistically significant relations between total knowledge level of nurses and their age, gender, level of education and years of experience. While there were statistically significant relations between total knowledge level of nurses and their marital status, monthly income and receiving courses about infection control.

Recommendations:

- 1-Training programs should be provided for PHC nurses about COVID- 19 pandemic disease
- 2- Periodic workshops to improve nurses knowledge and practices regarding COVID-19 pandemic disease

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3-Booklets should be available at PHC centers and distributed to all nurses about COVID- 19 pandemic disease

4-Further studies: Factors that hinder nurse's quality of life at PHC centers.

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جودة حياة الممرضين العاملين في الوحدات الصحية الأولية أثناء انتشار جائحة كورونا

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يعد مرض كورونا من الأمراض المعدية الذي يسببه ميكروب فيروس كورونا المسبب للمتلازمة التنفسية الحادة الوخيمة وتم اكتشاف المرض لأول مره في ووهان عاصمه هوبي بالصين في ديسمبر ٢٠١٩م وانتشر إلى جميع أنحاء العالم ليسبب جائحة كرونا ٢٠٢٠م ويعد وباء كورونا اكبر تهديد للعالم لأنه السبب في إصابة ووفاة الآلاف في جميع أنحاء العالم. لذلك هدفت هذه الدراسة الى تقييم جودة حياة الممرضين العاملين في الوحدات الصحية الأولية أثناء انتشار جائحة كورونا. وقد اجريت هذه الدراسة ٢٥% من الوحدات الصحية الاولى بمحافظة القليوبية التابعه لادارات بنها وطوخ وكفر شكر. وقد تم اخذ عينه غرضيه حيث تم اختيار ٩٢ من الممرضين. حيث اسفرت نتائج الدراسة أن حوالي اكثر من ثلثه اخماس الممرضين كان لديهم معلومات جيده عن مرض كورونا ومعظم الممرضين كان لديهم ممارسات مرضيه للوقايه من فيروس كورونا بينما اقل من خمسين الممرضين كان لديهم جوده حياه سيئه اثناء انتشار جائحه كورونا. كما أوصت انه يجب تقديم برامج تدريبيه للممرضين في الوحدات الصحية الاولى عن مرض كورونا.