Covid-19 Pandemic Disease and its Effect on Quality of Life among Nurses Working at Primary Health Care Centers

Nadia Sami Mohamed [1], Amal Attia Hussein[2], Sabah Elsayed Nady[3], Hemat Mostafa Amer[4]

[1] *Clinical instructor of Family and Community Health Nursing,* [2, 3,4] *Assistant Professors of Family and Community Health Nursing, Faculty of Nursing, Menoufiya University, Egypt.*

Abstract: Background: Covid-19 has multiple physical, psychological, social and environmental health problems regarding quality of life of nurses including those who are working at primary health care centers. **The purpose** of the study was to assess the effect of covid-19 pandemic disease on quality of life among nurses working at primary health care centers. **Design:** A descriptive cross sectional research design was utilized. **Sample:** A simple random sample of 300 nurses working at primary health care centers; included 166 nurses from urban health centers and 134 nurses from rural health units. **Setting:** The study was carried out in primary health care centers, two districts from ten districts of Menoufia governorate were selected by multistage random selection included; Birket El-Saba and Shebin El-kom districts, Menoufia Governorates, Egypt. **Instruments:** An interview questionnaire contained; Socio-demographic characteristics, nurses' awareness about Corona virus infection and quality of life assessment scale by World Health Organization**. Results:** The current study revealed that, there were negative consequences of covid-19 on quality of life of nurses under the study in different physical, psychological, social and environment domains of quality of life. Finally, the majority of the studied nurses experienced low level of total quality of life (80%), while only 20% had high level of total quality of life. **Conclusions**: Covid-19 produces wide variety of problems and has negative consequences on quality of life of nurses working at primary health care centers. **Recommendations:** Ongoing professional development programs should be developed to enhance QoL of health care workers especially nurses working at primary health care centers in response to the pandemic and mitigating COVID-19-related stressors and psychological problems and facilitating social support.

Keywords: Covid-19 Pandemic Disease, Primary Health Care Nurses, Quality of Life

Introduction

Corona virus disease 2019 pandemic infection is an infection caused by severe acute respiratory syndrome-coronavirus-2(SARS-CoV-2), which is a beta coronavirus that was first detected in Wuhan, China. It rapidly spread globally, causing more than 34 million infections and over one million deaths by October 2020. The virus spreads primarily via droplets and close contact with infected individuals, with the most common symptoms including fever, dry cough, difficulty breathing, and myalgia (Pan et al., 2020 & Arcadi et al., 2021).

The world has faced a significant challenge since the outbreak of the novel corona virus in China in December 2019. Healthcare systems worldwide struggled to cope with many patients suffering from COVID-19, also, shortages in medical supplies and medical staff; healthcare workers (HCW) worldwide are at a higher risk of contracting the infection (Wiersinga et al., 2020 & Shah et al., 2022).

Quality of life (QoL) is a broad term reflecting an individual's overall life satisfaction and encompasses domains of physical health, psychological state, social relationships, and environment (WHO, 2020). Health care workers are at highest risk for physical and psychological distress during the COVID-19 outbreak. Nurses have always played an important role in infection prevention, infection control, isolation, containment and public health (Lai, 2020).

A nurse is also often faced with an effort to save one's life, as a demand for professional code of ethics. Besides that, nurses still have to face various kinds of problems, both from patients and colleagues. Excessive stress will adversely affect nurses in dealing with their environment normally so that,

performance becomes poor and indirectly affects the organization (Lam et al., 2020). Nurses are exposed to working environments with high job demands and low resources, higher job stress and greater physical and psychological stress symptoms may adversely affect health and well-being (Shahin et al., 2020).

Nurses experienced higher rates of depression compared to the general population, especially in the face of COVID-19. Work-family conflict, life-threatening nature of the disease, especially direct exposure to COVID-19 positive patient so that quality of life of nurses was affected (WHO, 2020). The effect of COVID-19 pandemic is expanded to social functioning, as well as the safety of the surrounding environment. Stigmatization and exposing their families to infection were prominent problems for nurses during the crisis affecting on nurses' quality of life (Gao et al., 2020; Huang & Zhao 2020).

Prevention or limiting transmission of infections in health care centers requires the application of procedures and protocols referred to as "control". Hierarchically this has been arranged according to the effectiveness of infection prevention and control, which includes: administrative control, environmental control and engineering, and personal protective equipment (Ministry of Health and Population, 2020).

Promote environmental and individual-based intervention programs to diminish stressors and to encourage social bounding, continuous development programs directed to improve QoL of healthcare workers (WHO, 2020; Gao et al., 2020; Huang & Zhao, 2020). The advanced

technology such as medical robots can play an important role in mitigating the spread of infectious diseases and delivering quality care to patients during the COVID-19 pandemic. The robotic community took charge of an important role in providing aid to manage the pandemic (Hager et al., 2020).

Using of new technologies aimed to improve quality of life and reduce strains among nurses during covid-19 such as telemedicine and tele health. Telemedicine and tele health are the technology of providing health consultation from a distant place. (Cloyd & Thompson 2020). Telemedicine can play a vital role in ensuring primary healthcare needs in the developing countries during this crisis. Electronic health including; tele-nursing can play an important role in this pandemic by minimizing virus spread, effectively utilizing the time of healthcare professionals, and alleviating mental health problems such as Worries and anxiety about COVID-19 (Rockwe & Gilroy, 2020).

Significance of the study

Healthcare workers' COVID-19 fatalities worldwide could be more than 20,000. In Egypt more than 600 members of health care providers died from COVID-19 pandemic. Globally, during the week of 24 to 30 January 2022, the number of new COVID-19 cases remained similar to that reported during the previous week, while the number of new deaths increased by 9%. Across the six WHO regions, over 22 million new cases and over 59 000 new deaths were reported. As of 30 January 2022, over 370 million confirmed cases andover5.6 million deaths have been reported globally (WHO, 2022).

The incidence of new COVID-19 cases decreased by 17% during the week of 31 January to 6 February 2022, compared to the number reported during the previous week, while the number of new deaths increased by 7%. Across the six WHO regions, over 19 million new cases and just under 68 000 new deaths were reported. As of 6 February 2022, over 392 million confirmed cases and over 5.7 million deaths have been reported globally (WHO, 2022).

Nurses all over the world have played a significant role during disaster and emergency situations, including disease outbreaks. Nursing organization such as the International Council of Nurses (ICN) emphasized the critical role that nurses play during emergency and disaster situations. While nurses remain committed to this role, the unprecedented pressure exerted by the pandemic on every country's healthcare system has presented various challenges to nurses. The quality of life changes in the nursing profession can lead to significant problems in physical, psychological, social and environmental dimensions which influencing daily personal functions such as eating, sleeping and health. Thus, the current study conducted to assess the effect of COVID-19 on quality of life among nurses working at primary health care centers.

Purpose of the Study

To assess the effect of COVID-19 pandemic disease on quality of life among nurses working at primary health care centers.

Research question

What is the effect of COVID- 19 pandemic disease on quality of life among nurses working at primary health care centers?

Methods

Research Design:

A descriptive cross sectional research design was utilized to achieve the purpose of the study.

Research Setting:

The study was carried out in primary health care centers to cover the needed sample size, two districts from ten districts of Menoufia governorate were selected randomly included; Birket El-Saba and Shebin El-Kom districts, Menoufia Governorate, Egypt.
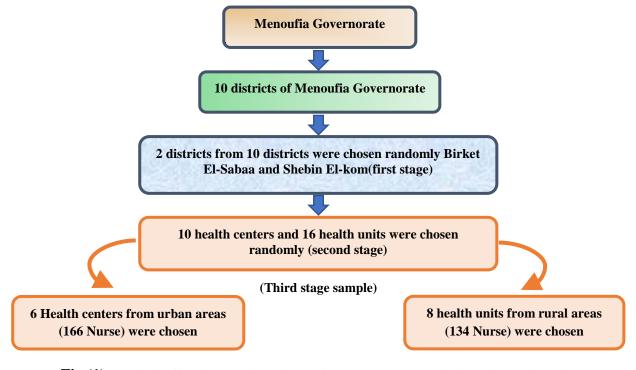
Study Sample:

A simple random sample of 300 out of 1500 nurses which included 166 nurses from urban areas and 134 nurses from rural areas, selected from previous mentioned areas.

Assignment of study setting

Multistage random sample was used to select two districts out of 10 districts of Menoufia Governorate (First stage sample), then out of each district, health centers of its capital town was selected as urban areas, and rural health units were selected from number of villages as rural areas and it all were selected by simple random sample (Second stage sample). Then took a random sample of nurses (300 nurses) working at selected setting (Third stage sample). This assignment was represented at the following figure:

Fig (1): Method of implementation the multistage random sample in order to select the required sample size (300) studied nurses

Sample size:

In order to calculate the sample size required to assess the effect of COVID- 19 pandemic disease on quality of life among nurses working at primary health care centers, **(Open-Source Statistics for Public Health),**

with the following Sample size equation was used:
Sample size **n = [DEFF*Np(1-p)] / [(d2/Z21-α/2*(N-1)+p*(1-p)**
The assumptions were:
Population size (in both settings) (for finite population correction factor or fpc)(*N*)=1500

Hypothesized % frequency of outcome factor in the population (*p*)=40%/+/-5

Confidence limits as % of 100(absolute +/- %)(*d*) =5%

Design effect (for cluster surveys-*DEFF*) =1

Z =1.96

α = alpha error 0.05

Population size (in both settings) (for finite population correction factor or fpc)(*N*)=1500

We used 95% confidence intervals, with a sample size of 297 nurses which approximated to 300 nurses and were chosen randomly.

The study sample was selected according to the following criteria:

The inclusion criteria:

- Nurses at all nursing educational level.
- Years of experience more than 6 months.

Exclusion criteria:

- Have medically diagnosed with chronic diseases which can affect on quality of life.

Study instruments: two main instruments were utilized: -

Instrument I:Astructured interviewing questionnaire, developed by the researcher after reviewing the related national and international literature, discussion with experts to collect data about the subjects and wrote in simple Arabic language to suit level of understanding of the participants included two parts: -

- **Part1:Socio-demographic characteristics:** -it included nurses' names, age, gender, marital status, place of work, years of experience and family income.
- **Part 2: Awareness about Covid 19; contained two main sections: -**
  - ❖ **Section a:** Awareness related to knowledge about covid-19 infection; included; definition of

Covid19 disease, modes of transmission, People at high risk for infection, clinical manifestation, effective treatment, methods of prevention, isolation procedures and awareness about protective measures against Covid 19 at work setting (e.g sterilization and sorting of cases).

Scoring system

Knowledge of nurses about covid-19 included 8 questions with 3-point Likert scale, the responses of questions in the form of (1) for wrong answer or don't know, (2) for incomplete answer for those who answer less than half options of each question. (3) for complete answer for those who answer more than half options of each question. The total score ranged from 8-24 degree in which (8-12) degrees (50% of the total score was considered poor knowledge), (13-16) degrees (75% of the total score was considered fair knowledge) and (17-24) degrees (> 75% of the total score was considered good knowledge).

- ❖ **Section b:** -Awareness related practices about COVID 19 infection included; wash hands frequently and properly, maintain social distance, keen to wear face mask continuously, avoid crowded or closed places, Compliance with protective guidance when suffering or exposed to infected cases (e.g home isolation), and participate in a training course to limit the spread of Corona virus.

Scoring system

Awareness related practices regarding COVID 19 prevention, included 8 questions with two points. The response of question in the form of (1) for not done, (2) for

done practices. The total score ranged from of 8- 16 scores in which 8- 12 points (≤ 50% of the total score was considered poor practice) and from 13 – 16 points (> 50% of the total score was considered good practice).

Instrument II: Quality of life assessment questionnaire: adopted from World Health Organization, (1996) and used to assess functioning and well-being of nurses. This questionnaire assessed four main domains: physical health included 10 questions, psychological health included 7 questions, social relationships included 4 questions and environmental health of nurses (home and work condition) included 5 questions.

Scoring system of total quality of life: - a list of 26 items with five points Likert scale (1- 5), where (1) very dissatisfied, (2) Dissatisfied, (3) neither satisfied nor dissatisfied, (4) Satisfied and (5) very satisfied. The nurse 'total quality of life was evaluated giving a score ranged from 26- 130 in which 26 - 78 points (≤ 50% of the total score was considered low QoL), 79 – 130 points (> 50% of the total score was considered high QoL).

Validity of the instrument:

The data collection instrument that was translated and modified by researcher was reviewed after translation by Arabic/English speaker specialist and the suggested modifications were carried out. After revision for translation, the data collection instrument was revised for content validity by a jury of three experts in family and community health nursing and their recommended modifications were carried out.

Reliability of instrument:

The reliability of the instrument was done to determine the extent to which items in the questionnaire were related to each other by using test-retest reliability method to measure the internal consistency, the reliability test and result showed that reliability was equal r= 0,80 for awareness about Covid -19 questionnaire and r= 89; for quality of life assessment questionnaire. Based on these results, the study instruments were considered reliable to be used for data collection.

Pilot study: -

A pilot study was conducted on 10% of the total sample (30 nurses) to test the feasibility, applicability and understandability of the instruments. This pilot sample was not included in the actual study sample.

Ethical Considerations:

An official letter to conduct the study obtained from the dean of the faculty of nursing and approval of the study was obtained from the Ethics committee of scientific research in the faculty of Nursing, Menoufia University before starting of the study. An approval letter was performed to the administrator of each setting to permit collecting of research data.

Written informed consent was taken. Apply the rights of privacy and safety of subjects were secured and they were allowed to withdraw from the study whenever they wanted.

Procedure

- An extensive review of the study area was made which included electronic dissertations, available books, articles and periodicals to formulate a knowledge base relevant to the study area.
- Submitting official letters from the dean of the Faculty of Nursing Menoufia University; explaining the purpose of the study and method of data collection.

- The study conducted firstly by an official permission that was obtained from the directors of both study settings.
- At the beginning of the study, the researcher introduced herself to studied nurses; the purpose and nature of the study were explained to gain their cooperation with promise of close confidentiality of data.
- Written consent was obtained from participants after explanation of the purpose and nature of the study.
- The researcher prepared the counseling room in both rural health units and urban health centers for the interview in order to; collect needed data. A researcher maintains a safe and quiet environment to confirm freely reporting information.
- The protective measures were taken to prevent cross of infection including: face masks, hand washing after each contact with data collection questionnaire, proper social distance and good ventilation room.
- The interview was carried out on two days per week from the 10:00AM to 1:00 PM. It was extended from end of February to end of April, 2021. About 18-19 nurses per day. Approximately 37-38 nurses per week.
- A structured interviewing questionnaire was distributed to the participated nurses who were present at the time of interview while, self -administered questionnaire were given for those who not present and the researcher follow them by the telephone. Questionnaire took about 20-30 minutes to be answered.

Statistical Analysis: -

Data was entered and analyzed by using SPSS (Statistical Package for Social Science) statistical package version 22. Graphics were done using Excel program.

Quantitative data were presented by mean (X) and standard deviation (SD). It was analyzed using student t- test for comparison between two means, and ANOVA (F) test for comparison between more than two means.

Qualitative data were presented in the form of frequency distribution tables, number and percentage. It was analyzed by chi-square ($\chi2$) test. However, if an expected value of any cell in the table was less than 5, Fisher Exact test was used (if the table was 4 cells), or Likelihood Ratio (LR) test (if the table was more than 4 cells). Level of significance was set as P value <0.05 for all significant tests.

Limitation of the study: -

A time of data collection was very awkward and sensitive for both researcher (presence of some stress related corona pandemic infection also, measures taken to prevent transmission of infection) and studied nurses (limited time allowed for nurses throughout the day work to express their feelings and openly discuss their concerns and fears during corona pandemic).

Results:

<u>Table (1):</u> shows that, 43.3% of the studied nurses are between 40 - <50 years with mean age 42.9 ± 8.5. Regarding to sex, the majority of the studied nurses (98, 7%) are females. Also, 70.3% of them had diploma in nursing, while only 6.7% had postgraduate nursing degree. Regarding to marital status, the majority of the studied nurses (91.3%) are married but only 1.7% are single. Regarding to years of experience, the majority of the studied nurses (87%) have ≥10 years, while only 4.3% have 6 months to < 5 years of experience

with mean 21.9 ± 9.2. Also, 55.3% of the studied nurses are working in urban centers while, 44.7% of them are working in rural units and 85% have enough family income.

Figure (2): Illustrates that, the majority of studied nurses (71%) had good awareness related to knowledge, while, only 10 % had fair awareness related knowledge and 19% of studied nurses had poor awareness related to knowledge about Covid -19.

Figure (3): Demonstrates that, more than three quarters of studied nurses (76.1%) show good awareness related to practices, while about one quarter (23.9%) show poor awareness related to practices about Covid19

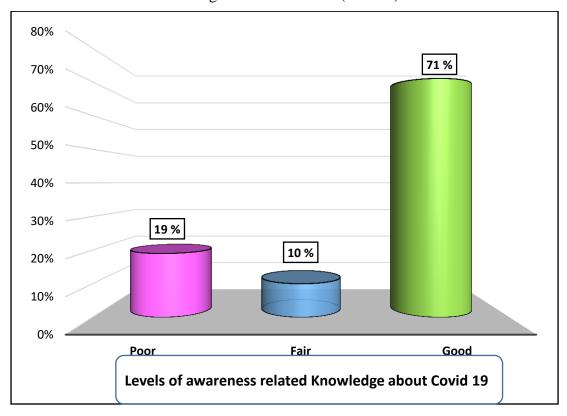**Table (2):** Illustrates that, there are statistically significant differences among quality of life physical, psychological, social and environmental health domains about COVID- 19 (p<0.0001) as evidenced by 93.3% of the studied nurses report low quality of physical health. Also 78.9% of the studied nurses have low quality of psychological health. In addition to 82.5% of the studied nurses have low quality of social health. Finally, 81.3% of the studied nurses have low quality of environmental health.

Figure (4): Represents that, most of the studied nurses (80%) show low level of QoL, compared to 20% of them had high level of QoL among studied nurses.
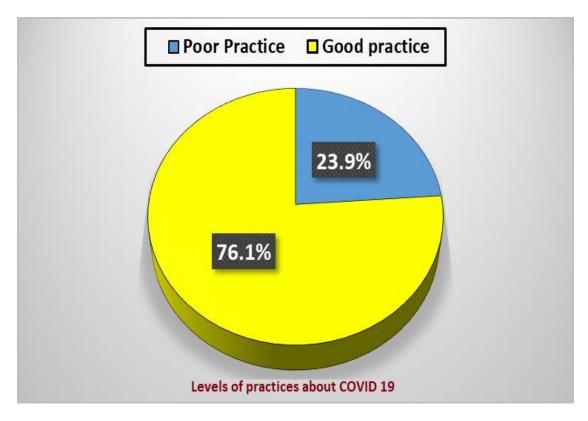
Table (1): Distribution of socio-demographic characteristics among the studied nurses (n= 300)

Socio demographic characteristics	No.	%
Age groups (Years):		
< 30 years	36	12 .0
30 - years	77	25.7
40 – years	130	43.3
50 – 60 years	57	19.0
Mean ± SD	**42.9 ± 8.5 years**	
Sex:		
Male	4	1.3
Female	296	98.7
Educational Level:		
Diploma in nursing	211	70.3
Technical Institute	24	8.0
Bachelor in nursing	45	15.0
Post graduate in nursing	20	6.7
Marital status:		
Single	5	1.7
Married	274	91.3
Divorced/ widow	21	7.0
Experience (years):		
6months - < 5 years	13	4.3
5 - < 10 years	26	8.7
≥ 10 years	261	87.0
Mean ± SD	**21.9 ± 9.2 years**	
Place of work		
Rural	134	44.7
Urban	166	55.3
Family income:		
Enough	255	85.0
Not Enough	42	14.0
Enough and saving	3	1.0
Total	**300**	**100.0**

Figure (2): Distribution of awareness related to knowledge items about COVID 19 among the studied nurses (n = 300).
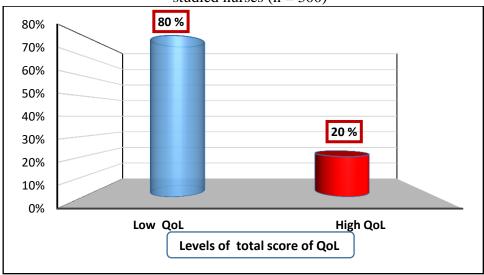

Figure (3): Distribution of awareness related to practices about COVID 19 among the studied nurses (n = 300).

Table (2): Distribution of levels of total quality of life domains about COVID 19 infection among studied nurses (n = 300)

Grand total QoL &its domains (Total score 130)	Low Quality		High Quality		χ^2	P
	No.	%	No.	%		
Physical health	280	93.3	20	6.7		
Psychological health	236	78.9	64	21.1		
Social health	247	82.5	53	17.5	**11.4**	**<0.0001**
Environmental health	244	81.3	56	18.7		

Figure (4): Distribution of grand total QoL levels about COVID 19 infection among studied nurses (n = 300)

Discussion

COVID-19 is an infectious disease caused by the novel coronavirus. COVID-19 infection is spreading worldwide and has become the single most important global concern. Health care workers who are in close contact with the infected patients play a major role in infection control (Zhou et al., 2020).

Nurses are the backbone of the healthcare system, and globally formed the first line of defense, critical for treating and managing patients in the first wave of the pandemic. These frontline workers in patient-facing roles are regularly exposed to infected cases and have high potential of exposure to infection (International Council of Nurses, 2020).

Quality of life is the degree to which an individual is healthy, comfortable, and able to participate in or enjoy life events. The effect of COVID-19 pandemic is not limited to physical health but also expanded to psychological and social functioning, as well as the safety of the surrounding environment, so that COVID-19 create several problems and affect on quality of life for health care workers (Li et al., 2021). Thus, the aim of the current study is to assess the effect of covid-19 pandemic disease on quality of life among nurses working at primary health care centers.

Regarding to the socio-demographic characteristics of the studied nurses, the results of present study revealed

that the majority of the studied nurses aged between 40 to <60 years with mean age 42.9 ± 8.5. This finding was consistent with Albahri et al., (2021) who studied knowledge, attitude, and practice regarding COVID-19 among healthcare workers in primary healthcare centers in Dubai, who found that the majority of nurses were age 40 years and above. This consistency interpreted that; this mean age might be the main age category of nurses who worked in non in patients' units.

Regarding to sex, the result of present study revealed that, the majority of the studied nurses were females, while the minority were males. This finding was consistent with Shahin et al., (2020) who studied burnout among nurses working in the primary health care centers in Saudi Arabia, a multicenter study. Who found that, more than three quarters of nurses were female. This consistency interpreted that the culture of both countries assigned the nursing work related to female more than male.

Concerning to educational level, the results of present study revealed that more than two thirds of the studied nurses had diploma in nursing. This finding was consistent with Shahin et al., (2020) who found that three quarters of nurses had diploma in nursing. Furthermore, these findings were consistent with Abd El Raof et al., (2020) who studied assessment of the knowledge towards cancer cervix among nurse staff in health care facilities in Beni-Suef City, Egypt, who reported that about three quarters of nurses had diploma in nursing. This might be interpreted that in developing societies the families usually prefer to get married than to the finish education.

Concerning to marital status of studied nurses, the present study revealed that the majority of the studied nurses were married. This finding was consistent

with Woon et al., (2021) who studied quality of life and its predictive factors among healthcare workers after the end of a movement Lockdown in Malaysia, who reported that the majority of nurses were married. Also, this finding was consistent with Shahin et al., (2020) who studied burnout among nurses working in the primary health care centers in Saudi Arabia, a multicenter study, who found that the majority of nurses were married. This consistency may reflect the extra stress from family care suffered by studied nurses plus their nursing work.

Regarding to years of experience, the present study revealed that the majority of the studied nurses had 10 years or more of experience, with mean years 21.9 ± 9.2. This finding was consistent with Albahri et al., (2021) who reported that the majority of nurses had 15 years or more of experience. This consistency may be interpreted that, years of experience may be predictive factor could affect on Qol.

Finally, regarding to family income the present study revealed that, the majority of studied nurses had enough family income. This finding was consistent with Mohamadzadeh Tabrizi et al., (2022) who studied COVID-19 anxiety and quality of life among Iranian nurses, who found that near three quarters of nurses, had enough family income. This consistency interpreted that in developing countries the women sometimes forced to work to satisfy their family requirements.

Regarding to awareness related knowledge about COVID-19, the present study showed that, more than two thirds of studied nurses had good awareness related to knowledge, while only nineteen percent of them had poor awareness related to knowledge about Covid -19. This evidenced by that; the majority of the studied nurses had complete correct answer for; the

definition of COVID-19, modes of transmission, people at high risk for infection and clinical manifestation, effective treatment, methods of prevention, isolation procedures and awareness about protective measures against COVID-19 at work setting.

These findings were consistent with Chereka et al., (2022) who studied COVID-19 related knowledge sharing practice and associated factors among healthcare providers worked in COVID-19 treatment centers at teaching hospitals in Northwest Ethiopia, who found that more than half of healthcare providers had good level of knowledge about COVID-19. Furthermore, this finding was consistent with Huynh et al., (2020) who studied" Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City in Vietnam "who found that more than two thirds of participants had good knowledge about COVID-19. This could be due to that; nurses are more interested in gathering knowledge on an emerging infectious disease like COVID-19 to become aware with updated knowledge of virus at the present time and role of ministry of health in providing correct information and guidelines for COVID-19 prevention for them.

Regarding to awareness related to practices about COVID-19, the present study showed that, more than three quarters of studied nurses showed good practices, while less than one quarter showed poor practices about COVID-19. These practices were included: wash hands frequently and properly, maintaining of social distance, keen to wear face mask continuously, avoid the crowded or closed places, compliance with applying protective guidance and participate in training programs aimed to limit the spread of Corona virus.

These findings were consistent with Shah et al., (2022) who studied factors determining preventive practices of the healthcare workers regarding COVID-19 in Bangladesh, who found that near two thirds of health care workers were performed practices regarding COVID-19 and was reported that the majority of health care workers (HCWs) practiced hand hygiene after handling a patient, using facemask, practicing universal precautions for infection control, and the majority of HCWs completed 14 days of quarantine when feeling symptoms of corona.

Additionally, these results were consistent with Ahmed et al., (2020) who studied knowledge, awareness and practice of health care professionals amid SARS-CoV-2, corona virus disease outbreak " and reported that, the majority of participants wear mask during patient contact, more than two thirds follow universal precautions of infection control, more than half use sodium hypochlorite as surface disinfectant and the majority wash hands before and after contact with your patients. This could be attributed to rapidly spreading COVID-19 has become a challenge for health care professionals who are in close contact with patients in decreasing the spread by means of efficient use of preventive measures regarding COVID-19.

Regarding to quality of physical health about COVID-19 infection among studied nurses, the present study revealed that, ninety-three-point three percent of the studied nurses were significantly had poor quality of physical health, while the less than ten percent showed good quality of physical health . In the present study the majority of studied nurses dissatisfied and very dissatisfied with; their ability to work in the light of the Corona virus, feeling of physical pain that prevent from doing things that

done before, sleeping during Corona virus, feeling tired and exhausted, normal eating habits and using of the medical treatments during this period, such as antibiotics.

These findings were consistent with Nashwan et al., (2021) who studied quality of life, sleep quality, depression, anxiety, stress, eating habits, and social bounds in nurses during the Corona virus Disease 2019 Pandemic in Qatar (The PROTECTOR Study): A cross-sectional study which reported that the majority of nurses had poor quality of physical and psychological health resulting from exposure to COVID-19 pandemic. Furthermore, these findings were consistent with Asante et al., (2019) who studied the relationship between psychosocial risk factors, burnout and quality of life among primary healthcare workers in rural Guangdong province and reported more than three quarters of primary healthcare workers had low level of physical quality of life. This consistency might be attributed to working long hours without leave or insufficient breaks led to induce burnout among healthcare workers and may contribute to diminishing quality of physical health.

Regarding to quality of psychological health during COVID-19 infection among studied nurses, the present study revealed that more than three quarters of the studied nurses had poor quality of psychological health, on the other hand about one fifth of them had good quality of psychological health .

This finding was consistent with Woon et al., (2021) who reported that majority of HCWS had poor psychological health. Also, this finding was consistent with Parthasarathy et al., (2021) who studied mental health issues among health care workers during the COVID-19 pandemic – a study from india, who reported that

majority of health care workers experience high levels of anxiety, depression, stress and COVID-19 related occupational worries are common among HCWs working in health care settings in India. This could be attributed to shortage of staff, especially nurses; HCWs often had to work additional shifts during the COVID-19 pandemic.

In addition to, these results go on the same line with Que et al., (2020) who studied psychological impact of the COVID-19 pandemic on HCWS: a cross-sectional study in China who reported that majority of HCWS had psychological problems such as anxiety, depression, insomnia during the COVID-19 pandemic. This was attributed to studied nurses felt frustrated with the loss of daily routine (e.g., engaging in leisure and sporting activities, vacation with family). HCWS who work in health care center encounter persistent increases in patients' load while facing other issues, such as insufficient numbers of working medical professionals, shortages of personal protective equipment and resources for critical care, as well as an increasing number of clinicians being infected greatly increasing their risk of unmanageable stress and depression. Depression and these factors contribute to a lower psychological health among HCWS during the COVID-19 pandemic.

Regarding to quality of social health about COVID-19 infection among studied nurses, the present study revealed that majority of the studied nurses reported significantly poor quality of social health; while about near to one fifth of them reported high quality of social health. Personal relationships, social support that get from friends, relatives and family during this period, financial support and sexual activity all were disturbed

and the majority of studied nurses in present study were not or dissatisfied about their quality of social health. This finding was consistent with Güzel et al., (2021) who studied Changes in sexual functions and habits of healthcare workers during the ongoing COVID-19 outbreak: a cross-sectional survey study, they reported that COVID-19 negatively affect sexual habits and social relations and functions of nurses.

Furthermore, these findings were consistent with Asante et al., (2019) who reported that the majority of primary HCWS had low level of quality of social health. This was attributed to decrease leisure activities and friends, lack of time for interaction with family and social circle of health care workers because of longer working hours during the pandemic. In addition to, this finding was inconsistent with Alnazly et al., (2021) who studied anxiety, depression, stress, fear and social support during COVID-19 pandemic among Jordanian healthcare workers. They reported that the majority of HCWS perceived high levels of social support from family members, and friends. This inconsistency might be due to un similarities between sociodemographic characteristics of both study sample.

In addition, the social distancing implemented to curb the spread of the infection. This consistency interpreted that social relations and social support decreases psychological stress and anxiety. Also, this was attributed to the negative effects of COVID-19 on sexual life with spouse or partners because of fearing of transmission of infection.

Concerning to quality of environmental health; the present study revealed that, majority of the studied nurses had poor quality of environmental health, while near to one fifth of them demonstrated low level of high quality of environmental health. In the present study, quality of environmental health among studied nurses; which included feeling of freedom, physical safety and security, accessibility and quality, home environments, and physical environment (pollution/noise/traffic/climate and transport) were disturbed and majority of studied nurses were dissatisfied with quality of their environment.

These findings were congruent with study conducted by Maqsood et al., (2021). Who studied Assessment of quality of work life (QWL) among healthcare staff of intensive care unit (ICU) and emergency unit during COVID-19 outbreak and concluded that the QWL among healthcare staff during COVID-19 pandemic was low and there was a significant difference in mean score for the variable of work experience in physical, psychological and social domains as well as general health.

At the end, regarding to quality of life and its four domains about COVID-19 infection among studied nurses, the results of the present study revealed that, eighty percent of studied nurses had low level of QoL compared to only one fifth of them had high level of QoL. This finding was consistent with Woon et al., (2021). They studied quality of life and its predictive factors among HCWS after the end of a movement lockdown: The salient roles of COVID-19 stressors, psychological experience, and social Support in Malaysia, QoL, who reported that the majority of HCWS experienced low levels of all domain of quality of life.

Also, these findings were consistent with Asante et al., (2019) who studied the relationship between psychosocial risk factors, burnout and quality of life among primary HCWS in rural

Guangdong province, who reported that about three quarters of healthcare workers had poor quality of life. Finally, these findings were consistent with Mohamadzadeh Tabrizi et al., (2022) who studied COVID-19 anxiety and quality of life among Iranian nurses and was reported that the majority of nurses had poor quality of life.

Concerning to relation between socio-demographic characteristics of the studied nurses and their quality of life , the current study showed that there were no statistical significant differences between nurses' socio-demographic characteristics and their grand total QoL groups (p >0.05 for each) except for years of experience which showed a higher significant percentage of high QoL among nurses with lower years of experience (6m - <5 Y) than either nurses had 5-<10Y or ≥ 10 Y (61.5% vr 50% & 9.2% respectively, P<0.0001).This finding was consistent with Inocian et al., (2021) who studied professional quality of life and caring behaviours among clinical nurses during the COVID-19 pandemic and found that there were no statistically significant differences between nurses' socio-demographic characteristics and their grand total QoL. The socio-demographic characteristics of the studied nurses might be quite similar. But years of experience may be a significant factor lead to change of nurses' ability to deal and adapt with daily life challenges.

Conclusion

Based on the results of the present study, it was concluded that:

There was eighty percent of studied nurses that working at primary health care centers had low quality of life. Moreover, COVID-19 introduce a wide variety of problems and has negative impact on physical, psychological, social and environmental quality of life of nurses. Also, the majority of nurses had good awareness related knowledge and practices about COVID-19.

Recommendations

Based on the findings of the present study, the following recommendations were suggested:

- Conducting an ongoing professional development program should be developed to enhance QoL of health care workers especially nurses working at primary health care centers in response to the pandemic and mitigating COVID-19 related stressors and psychological problems and facilitating social support.
- Conducting extensive educational programs which aim to raise awareness of nursing staff about COVID-19 and manipulate all domains of health aspect to facilitate adaptation during pandemic.
- Re applicability of the study research at different health setting.

References

Abdelraof, Asmaa M., Manal M. Anwar, and Rasha S. El Bahrawe. "Assessment of the knowledge towards Cancer Cervix among Nurse Staff in Health Care Facilities in Beni-Suef City, Egypt." Egyptian Journal of Medical Research 1.1 (2020): 7-15.

Ahmed, N., Shakoor, M., Vohra, F., Abduljabbar, T., Mariam, Q., & Rehman, M. A. (2020). Knowledge, awareness and practice of health care professionals amid SARS-CoV-2, corona virus disease outbreak.

Pakistan Journal of Medical Sciences,36(COVID19-S4),S49.doihttps://doi.org/10.12669/pjms.36.COVID19-S4.2704

Albahri, A. H., Alnaqbi, S. A., Alnaqbi, S. A., Alshaali, A. O., & Shahdoor, S. M. (2021). Knowledge, attitude, and practice regarding COVID-19 among healthcare workers in primary healthcare centers in Dubai: a cross-sectional survey, 2020. Frontiers in Public Health, 9. doi: https://doi.org/10.3389/fpubh.2021.617679.

Alnazly, E., Khraisat, O. M., Al-Bashaireh, A. M., & Bryant, C. L. (2021). Anxiety, depression, stress, fear and social support during COVID-19 pandemic among Jordanian healthcare workers. Plos one, 16(3), e0247679. https://doi.org/10.1371/journal.pone.0247679.

Arcadi, P., Simonetti, V., Ambrosca, R., Cicolini, G., Simeone, S., Pucciarelli, G., & Durante, A. (2021). Nursing during the COVID-19 outbreak: A phenomenological study. Journal of nursing management, 29(5), 1111-1119.

Asante, J. O., Li, M. J., Liao, J., Huang, Y. X., & Hao, Y. T. (2019). The relationship between psychosocial risk factors, burnout and quality of life among primary healthcare workers in rural Guangdong province: a cross-sectional study. BMC health services research, 19(1), 1-10.

Chereka, A. A., Gashu, K. D., Fentahun, A., Tilahun, B., Fikadie, B., & Ngusie, H. S. (2022). COVID-19 related knowledge sharing practice and associated factors among healthcare providers worked in COVID-19 treatment centers at teaching hospitals in Northwest Ethiopia: A cross-sectional study. Informatics in medicine unlocked, 100856.

Gao, J., Zheng, P., Jia, Y., Chen, H., Mao, Y., Chen, S., ... & Dai, J. (2020). Mental health problems and social media exposure during COVID-19 outbreak. Plos one, 15(4), e0231924. doi:10.1371/journal.pone.0231924.

Güzel, A., & Döndü, A. (2021). Changes in sexual functions and habits of healthcare workers during the ongoing COVID-19 outbreak: A cross-sectional survey study. Irish Journal of Medical Science (1971-), 1-9. doi.org/10.1007/s11845-021-02691-3.

Hager, G., Kumar, V., Murphy, R., Rus, D., & Taylor, R. (2020). The role of robotics in infectious disease crises. arXiv preprint arXiv:2010.09909.

Huang, Y., and Zhao, N. (2020). Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 outbreak in China: A web-based cross-sectional survey. Psychiatry Res. 288:112954. doi: 10.1016/j.psychres.2020.112954

Huynh, G., Nguyen, T. N. H., Vo, K. N., & Pham, L. A. (2020). Knowledge and attitude toward COVID-19 among healthcare workers at District 2 Hospital, Ho Chi Minh City. Asian Pacific Journal of Tropical Medicine, 13(6), 260. doi: 10.4103/1995-7645.280396.

Inocian, E. P., Cruz, J. P., Saeed Alshehry, A., Alshamlani, Y., Ignacio, E. H., & Tumala, R. B. (2021). Professional quality of life and caring behaviours among clinical nurses during the

COVID-19 pandemic. Journal of clinical nursing

International Council of Nurses (2020). More than 600 nurses die from COVID-19worldwide.Available at: https://www.icn.ch/news/more-600-nurses-die-covid-19-worldwide.Accessed July 19, 202

Lai, C. C., Shih, T. P., Ko, W. C., Tang, H. J., & Hsueh, P. R. (2020). Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): The epidemic and the challenges. International journal of antimicrobial agents, 55(3), 105924.

Lam, T. T. Y., Shum, M. H. H., Zhu, H. C., Tong, Y. G., Ni, X. B., Liao, Y. S., ... & Guan, Y. (2020). Identification of 2019-nCoV related coronaviruses in Malayan pangolins in southern China. bioRxiv 2020. Google Scholar. doi:10.1038/s41586-020-2169-0.

Li, X., Zhou, Y., & Xu, X. (2021). Factors associated with the psychological well-being among frontline nurses exposed to COVID-2019 in China: A predictive study. Journal of nursing management, 29(2), 240-249. doi: 10.1111/JONM.13146.

Maqsood, M. B., Islam, M. A., Naqvi, A. A., Al Qarni, A., Al-Karasneh, A. F., Iffat, W., ... & Haseeb, A. (2021). Assessment of quality of work life (QWL) among healthcare staff of intensive care unit (ICU) and emergency unit during COVID-19 outbreak using WHOQoL-BREF. Saudi Pharmaceutical Journal, 29(11), 1348-1354

Ministry of health and population (2020) Suspected COVID-19 cases management in General Hospitals and Triage Hospitals.

Coronavirus disease 2019 (COVID-19) update weekly report (17–23 April 2020). Infectious Diseases Unit - Endemic Medicine Department - Cairo University

Mohamadzadeh Tabrizi, Z., Mohammadzadeh, F., Davarinia Motlagh Quchan, A., & Bahri, N. (2022). COVID-19 anxiety and quality of life among Iranian nurses. BMC nursing, 21(1), 1-10.

Nashwan, A. J., Villar, R. C., Al-Qudimat, A. R., Kader, N., Alabdulla, M., Abujaber, A. A., ... & Singh, K. (2021). Quality of life, sleep quality, depression, anxiety, stress, eating habits, and social bounds in nurses during the coronavirus disease 2019 pandemic in Qatar (The PROTECTOR Study): a Cross-Sectional, Comparative Study. Journal of Personalized Medicine, 11(9), 918. doi.org/10.3390/jpm11090918.

Pan, Y., Guan, H., Zhou, S., Wang, Y., Li, Q., Zhu, T., ... & Xia, L. (2020). Initial CT findings and temporal changes in patients with the novel coronavirus pneumonia (2019-nCoV): a study of 63 patients in Wuhan, China. European radiology, 30(6), 3306-3309. doi.org/10.1007s00330-020-06731-x.

Que, J., Le Shi, J. D., Liu, J., Zhang, L., Wu, S., Gong, Y., ... & Lu, L. (2020). Psychological impact of the COVID-19 pandemic on healthcare workers: a cross-sectional study in China. General psychiatry, 33(3). doi: 10.1136/gpsych-2020-100259.

Rockwell, K. L., & Gilroy, A. S. (2020). Incorporating telemedicine as part of COVID-19 outbreak response systems.

Am J Manag Care, 26(4), 147-148.

Shah, S. T., Akter, K., Hasan, M. S., Chakrovarty, T., Sakib, N., & Islam, M. T. (2022). Factors determining preventive practices of the healthcare workers regarding COVID-19 in Bangladesh. Health science reports, 5(1), e484.

Shahin, M. A., Al-Dubai, S. A. R., Abdoh, D. S., Alahmadi, A. S., Ali, A. K., & Hifnawy, T. (2020). Burnout among nurses working in the primary health care centers in Saudi Arabia, a multicenter study. AIMS Public Health, 7(4), 844.

WHO (2020). WHO director-general's opening remarks at the media briefing on COVID-19. World Health Organization.WHo(2020). Retrieved from https://www.who.int/emergencies/diseases/novel-corona-virus-2019/advice-for-public.WHO, 2020b. Coronavirus disease 2019 (COVID-19) situation report– 46.

Wiersinga, W. J., Rhodes, A., Cheng, A. C., Peacock, S. J., & Prescott, H. C. (2020). Pathophysiology, transmission, diagnosis, and treatment of coronavirus disease 2019 (COVID-19): a review. Jama, 324(8), 782-793

Woon, I. Mansor, N . Mohamad, M. , Teoh, S. Iman, M. Abdullah, L. (2021). Quality of Life and Its Predictive Factors Among Healthcare Workers After the End of a Movement Lockdown: The Salient Roles of COVID-19 Stressors, Psychological Experience, and Social Support. doi: 10.3389/fpsyg.2021.652326

World Health Organization (WHO, 1996). World Health Organization Quality Of Life (WHOQOL-BREF) Assessment. Available at: https://www.who.int/mental_health/ media/en/76.pdf PP. 1-18.

World Health Organization. (2020). Coronavirus disease (COVID-19) outbreak: rights, roles and responsibilities of health workers, including key considerations for occupational safety and health: interim guidance, 19 March 2020 (No. WHO/2019-nCov/HCW_advice/2020.2). World Health Organization.

World Health Organization. (2020). Home care for patients with COVID-19 presenting with mild symptoms and management of their contacts: interim guidance, 17 March 2020 (No. WHO/2019-nCov/IPC/HomeCare/2020.3).

World health organization. (2022) https://www.who.int/publications/m/item/weekly-epidemiological-update-on-covid-19---11-january-2022

Zhao, D., Yao, F., Wang, L., Zheng, L., Gao, Y., Ye, J., ... & Gao, R. (2020). A comparative study on the clinical features of coronavirus 2019 (COVID-19) pneumonia with other pneumonias. Clinical Infectious Diseases, 71(15), 756-761.

Zhou, P., Yang, X. L., Wang, X. G., Hu, B., Zhang, L., Zhang, W., ... & Shi, Z. L. (2020). A pneumonia outbreak associated with a new coronavirus of probable bat origin. nature, 579(7798), 270-273. doi: 10.1038/s41586-020-2012-7.