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Professional Self-Concept and Self-Confidence for Nurses Dealing with COVID-19 Patients

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Abstract:

Purpose: To identify the impact of dealing with COVID-19 patients in clinical areas on nurses' professional self-concept and self-confidence.

Background: Professional self-concept is considered a critical factor in the recruitment/retention process in nursing, nursing shortage, career satisfaction, and academic achievements. Professional self-confidence is also a crucial determinant in staff satisfaction, reducing turnover, and increasing work engagement.

Design: Descriptive, comparative study.

Methods: The study was conducted between February to May 2021 by utilizing a convenience sampling technique. A total of 170 nurses from two facilities were recruited from two COVID-19 and non-COVID-19 designated facilities. The level of professional self-concept and self-confidence was assessed by utilizing the Nurses' Self-Concept Instrument and Self-Confidence Scale.

Results: The professional self-concept level among the exposed group to COVID-19 patients was lower than the comparison group, while the professional self-confidence level among the exposed group to COVID-19 patients was similar to the comparison group. On the other hand, the satisfied staff and those who received professional training in dealing with COVID-19 patients reported a higher level of professional self-concept.

Conclusions: Dealing with COVID-19 patients has an impact on professional self-concept; the exposure group was lower than those who did not deal with COVID-19 patients, while the professional self-confidence level among the exposed group was similar to the comparison group. Getting professional training in dealing with COVID-19 patients and being satisfied at work were significant factors in improving the professional self-concept. Policymakers should create strategies that target the improvement of professional training in dealing with COVID-19 patients.

Keywords: COVID-19, nurses, self-concept, self-confidence, professional.

1. Introduction

Historically, nurses fought against different health crises like Cholera, H1N1, SARS, and Ebola. By considering healthcare providers' mental health alteration during diseases outbreak, several organizations released warning notifications about the need for professional and mental health interventions that target healthcare professionals dealing with disease outbreaks and pandemic situations [1].

Currently, the COVID-19 pandemic has a significant impact on all nurses worldwide and other health care professionals [2,3]. The prevalence of COVID-19 cases reached more than 181 million proven cases globally and more than five million deaths worldwide [4]. It was reported that the shortage of personal protective equipment that available for nurses and increasing the workload increased the chance of transmitting the disease and contracting it [5]. Nurses have significant roles in fighting against

COVID-19 pandemic. They play substantial roles in directing, running, and maintaining healthcare systems and conserving it from collapse [6]. During this pandemic, nurses are facing several clinical challenges like alterations in working hours, increasing workload, policy changing, alteration in psychological well-being, as well as the increased level of anxiety, stress, depression, and insomnia [1,7-12]. Accordingly, nurses dealing with COVID-19 patients are at high risk of facing physical, psychological, and professional consequences.

Self-concept is considered as one of the essential professional determinants. According to Lone and Lone (2016), self-concept is the whole set of attitudes, opinions, and cognitions that a person has of himself. According to Baumeister [13], self-concept defined as "the individual's belief about himself or herself, including the person's attributes and who and what the self is". The professional self-concept was defined as "an individual's perception of self as a professional person, which affects different aspects of professional performance" [14]. According to Randle and Arthur (2007), when nurses have a high professional self-concept, they will be more likely to influence patient healthcare positively; conversely, when nurses have a low professional self-concept, they will be more likely to impact patient healthcare negatively. Self-concept is considered a critical determinant of self-behavior, which could also be applied to the professional self-concept and how the nurses could feel themselves from their perspective as nurses [15]. Self-Concept is considered one of the crucial elements in the recruitment/retention process in nursing; despite that, few researchers have paid efforts to investigate this area of research. However, there is strong evidence that has been found by researchers indicated that self-concept has a significant influence on other important job-related factors like stress, burnout, and job satisfaction [16].

According to Roy and Andrews 1999, Self-concept is defined as the composite of feelings and beliefs about oneself at a specific time and is formed from internal perceptions and perceptions of others' reactions. According to the Roy Adaptation Model, the human continuously faces environmental stimuli or crises; accordingly, the self-concept is considered as one of the effector subsystems that might lead to an adaptive or ineffective response. In other words, when a person faces an experience or a crisis, he will fight or flight, and that will be affected by many factors, such as self-concept [17].

Self-confidence is another essential professional determinant, which is defined as the belief of a human in his/her capabilities to accomplish a task [18]. According to Martins et al., (2014), self-confidence is considered an important factor in producing a rapid and appropriate response in critical situations. It was documented that a high level of professional self-confidence among nurses enhanced safe nursing practices and patient safety [19,20]. According to Lundberg (2008), a high level of professional self-confidence in nursing is essential for a safe and smooth transition from nursing college to the clinical side and real nursing life [21]. Sak-Dankosky and colleagues (2014), found in their study that self-confidence and higher-educated persons, and those with a higher income are more able to perform innovative work, hence being more successful in their career and actions [22]. This conclusion is supported by another study conducted by Henderson et al. (2016), especially in the relationship between self-confidence and education program. The findings of previous study suggested that the new nurses are not prepared to meet the requirements to handle patients in the palliative care [23]. Hence, further appropriate education program is required to support the new nurses' self-confidence growth better. According to Tivener and Gloe (2015), placing nursing students in a crisis situation like a high-fidelity simulation for cardiopulmonary resuscitation (CPR) and exposing them to such an experience increased the nurses' student self-confidence [24]. Moreover, nurses with higher professional self-confidence had more positive behaviors toward family members' presence during a CPR code [25].

1.1. Problem statement

COVID-19 disease is a new pandemic that strikes different world regions. Also, very few studies have investigated the impact of dealing with COVID-19 patients on nurses' professional self-concept and self-confidence. Dealing with COVID-19 patients might contribute to changing nurses' professional self-concept and professional self-confidence. However, the magnitude, nature, and direction of change are still vague and need exploration.

1.2. Significance

Findings of the current study will offer information about the impact of dealing with COVID-19 patients and specifically understand its impact on nurses' professional self-concept and self-confidence. This could help healthcare leaders to build policies and strategies to support nurses in their humanistic mission. Investigating the consequences of dealing with COVID 19 patients on nurses would help nurse managers and policy-makers in estimating the magnitude and direction of change in the level of professional self-concept and professional self-confidence, and this would help in enhancing the recruitment\ retention process. Early recognition of changing in the professional self-concept and professional self-confidence among nurses will offer early indicators to the future plans and consequently empower the staff effectively.

1.3. Study purpose

The purpose of this study is to identify the impact of dealing with COVID-19 patients in clinical areas on nurses' professional self-concept and professional self-confidence. Specifically, the current study has the following objectives:

- Investigating the level of professional self-concept among nurses dealing with COVID-19 patients.
- Investigating the level of professional self-confidence among nurses dealing with COVID-19 patients.
- Assessing the differences in professional self-concept and professional self-confidence between the nurses who are dealing with COVID-19 patients and those who did not deal with such patients.

1.3. Research questions

- What is the level of professional self-concept and professional self-confidence among nurses who provide direct care to COVID-19 patients?
- Is there a difference in professional self-concept level between the nurses who provide direct care to COVID-19 patients and those who do not?
- Is there a difference in professional self-confidence level between the nurses who provide direct care to COVID-19 patients and those who do not?
- Are there differences in professional self-concept and professional self-confidence levels among nurses who provide direct care to COVID-19 patients based on their socio-demographics?

1.4. Definitions of variables

1.4.1. Professional self-concept

Conceptual definition: "An individual's attitude about personal professional competence, performance, and worth along a positive-negative dimension" [26]. Operational definition: The professional self-concept was measured by the Nurses' Self-Concept Instrument (NSCI) [27].

1.4.2. Professional self-confidence

Conceptual definition: "The belief that one can successfully execute a specific activity" [28]. Operational definition: The professional self-confidence was measured by the Self-Confidence Scale-SCS [29].

2. Materials and Methods

This study was conducted in two different hospitals in Qatar. First, hospitals leaders' consent was obtained and informed about the study officially. Then the instrument was disseminated by utilizing Google forms. Each electronic form came with an opening page, which acted as implied consent.

2.1. Design

A descriptive comparative study design was used to answer the research questions during the period from February to May 2021.

2.2. Population and Sample

The target population was the registered nurses working in Qatar's government sector, as they almost have the same salaries, allowances, and working environment. The accessible population was from Hamad Medical Corporation- HMC/ Qatar. The sample was distributed into two groups. The first group was the registered nurses who directly dealt with COVID-19 patients, and the second group was the registered nurses who did not deal with COVID-19 patients. A convenience sampling technique was used in order to recruit a total of 170 nurses, whereas the required sample size based on Cohen's tables was 64 for each group based on a moderate effect size with a power of 80% and Alpha less than 0.05. Moreover, it was increased to 85 for each group to avoid incomplete questionnaires.

2.3. Data Collection and Settings

Initially, the researcher prepared a copy of the IRB and the questionnaire. Then, unit leaders were contacted," mainly the head nurses" to inform them and obtain permission to collect the data. Accordingly, the researcher asked the head nurses to provide him with a list of the registered nurses' E-mail addresses. The researcher visited the staff at the safety huddle "when the day and night shifts get together" to explain the goals of the study and teach them how to fill out the questionnaire electronically using Google forms after obtaining permission and E-mail addresses. Each electronic form came with an opening page, which acted as implied consent. Only the main investigator has access to the returned electronic forms, which he is responsible for safeguarding in Microsoft OneDrive - in his HMC account - and on a password-protected USB drive.

The first setting was the inpatient units in Hazem Mebarik General Hospital (HMGH), a member of Hamad Medical Corporation (HMC). HMGH is a COVID-19 facility where the exposure group was located. This hospital includes seven inpatient units, three of them are the original units before the pandemic, and the other four units are created in March 2020 to help fight against the COVID-19 pandemic. These seven units are now assigned for COVID-19 patients with mild to moderate clinical situations. Knowing that any patient needs oxygen therapy more than a non-rebreather mask was transferred immediately to the intensive care units. In the time being, these units have about 250 registered nurses working in 12 hours shift. Each staff must complete 40 working hours weekly; the remaining hours will be considered overtime.

The second setting was the inpatient units in Rumailah Hospital (RH), a member of HMC; this is a non-COVID-19 facility where the comparison group was located. This hospital included five inpatient units to deal with non-COVID-19 patients. These units

have about 170 registered nurses working in 8 hours shift. Each staff must complete 40 working hours weekly.

2.4. Instruments

The demographic data (age, gender, marital status, nationality, education, job position, experience, and the duration of dealing with COVID-19 patients) were collected utilizing a questionnaire which included the Nurses' Self-Concept Instrument (NSCI) and Self-Confidence Scale (SCS).

2.4.1. Self-Concept Instrument

The Nurses' Self-Concept Instrument (NSCI) was developed by Angel, Craven, Denson, 2012. This instrument was adapted from Cowin Nurses' Self-Concept Questionnaire (NSCQ) (2002). The NSCI measured nurses' professional self-concept with total of 14 items, each item provides eight points on the Likert scale started from 1 (definitely false) to 8 (definitely true). The scale is divided into four subscales knowledge, care, leadership, and staff relations. Item scores for each subscale were summed then divided into the number of the subscale's items, resulting in the average scores comparable across groups. The higher score introduces a stronger endorsement of each subscale item. There are no cut-off points on this scale. With higher scores reflecting a stronger endorsement of each item, the Nurses' Self-Concept Instrument was utilized to assess the level of self-concept in many research; for example, it was implemented in Australia by Angel et al. (2012) to evaluate Australian local and international students' nurses' psychometric properties. As reported by Angel et al. (2012), the construct validity was ensured in the adapted instrument by utilizing confirmatory factor analysis; Also, the internal consistency reliability was assessed by using Cronbach's Alpha (ranged between 0.60 to 0.78), [27].

On the other hand, the original tool by Cowin-Nurses' Self-Concept Questionnaire (NSCQ) (2002) was utilized in different populations like China and Turkey. The Turkish study was done by Zencir G., Zencir M., Khorshid L. (2018) showed that the Cronbach's alpha coefficient is located between 0.83 to 0.91 for the six subscales; also, the tool had good construct validity by utilizing the exploratory factor analysis-EFA and confirmatory factor analysis-CFA [30]. The same conclusion was obtained in the Chinese study by Cao X and colleagues in 2012 [31].

2.4.2. Self-Confidence Scale (SCS)

The Self-Confidence Scale-SCS was developed by Hicks (2006); the instrument used to measure nurses' professional self-confidence in providing care with acute clinical deterioration patients. The SCS measured nurses' professional self-confidence in four dimensions (1) accurately recognizing deteriorating patients, (2) performing basic physical assessments, (3) identifying basic nursing interventions, and (4) evaluating the effectiveness of the interventions. The Items were measured by five points Likert scale ranged from 1 (not at all confident) to 5 (very confident). The Item scores were summed for a total score. The lower score is 12, and the maximum score is 60. A low score is interpreting as low self-confidence, and a high score indicating high self-confidence, with no cut-off points for this scale. SCS instrument was utilized to assess the level of self-confidence for Medical-surgical nurses by Hart et al. (2014) [32]. The internal consistency reliability was reported by Hart et al. (2014) using Cronbach's Alpha (ranged between 0.93 to 0.96). The tool had good construct validity by utilizing factor analysis [29].

2.5. Pilot study

A pilot study was conducted, including 15 participants from both settings, to assess the feasibility of study applicability, clarity of the scales, and the ability to access the settings. Also, it was crucial to assess the cooperation of unit leaders, charge nurses, and registered nurses as well. Also, the required time to fill the instrument was estimated, and it was almost 15 minutes.

2.6. Inclusion and exclusion Criteria

The eligibility criteria included registered nurses "those who have a minimum of bachelor's degree in nursing" and working in HMC. For the first group, the registered nurses should have been exposed and dealt with COVID-19 patients for at least three months to make sure that the staff had worked with COVID-19 patients directly, not just for a training period or shadowing any other registered nurses. For the second group "control group" the registered nurses should not have exposed or dealt with COVID-19 patients for the entire period from starting of the COVID-19 pandemic till collecting the questionnaire. Moreover, they should have the same working environment as the exposure group.

The exclusion criteria included all registered nurses working in the research participants such as nursing students, those who are registered nurses but handling other positions in the research setting like quality reviewer or infection control reviewer, and those who are in acting places.

2.7. Ethical approval

The study was conducted in full conformance with principles of the "Declaration of Helsinki", Good Clinical Practice (GCP), and within the laws and regulations of MoPH in Qatar. Implied consent was obtained from the participants, and the researcher assured voluntary participation for the subjects. Also, the questionnaire was disseminated without names or corporation numbers to assure participant anonymity and data confidentiality. Original authors provided the researcher with permission to use the scales. The researcher got permission from Zarqa University ethical committee and IRB from HMC (MRC-01-21-076), Qatar as well.

2.8. Statistical Analysis

The Statistical Package for the Social Sciences (SPSS) IBM, version 25 was used to analyze the data. Descriptive statistics, including percentages, frequencies, means, and standard deviations, were used to describe the sample and answer the research questions about the level of self-concept and self-confidence. In addition, Mann-Whitney U and Kruskal-Wallis tests were used to answer the question "Are there significant differences in professional self-concept and professional self-confidence levels among nurses who provide direct care to COVID-19 patients based on their socio-demographics?". Also, the Mann-Whitney U test was used to assess the differences between the groups.

Assumptions were checked and insured before using the Inferential statistics. The researcher checked the outliers and the missing values and dealt with them appropriately. Then, the researcher ran the analysis. The data were considered significant when P-value < 0.05.

3. Results

From 420 invitations sent to HMGH and RH staff nurses (the exposure and comparison group respectively), 254 responses were sent back to the researcher with a 60.5% response rate. Among those who responded, 170 responses were included in this study, as 18 participants submitted missing data files, and 66 participants from the comparison group were excluded as they dealt with COVID-19 patients for a short period. The remaining 170 subjects constitute the two groups, the exposure group including 85 participants and the comparison group including 85 participants.

3.1. Sample characteristics

The average age for participants from the two groups was 36 years old ($SD \pm 6.29$) range between 25 and 58 years old. The average clinical experience for participants from both groups was 12.5 years ($SD \pm 5.75$), with a minimum of 2 years and a maximum of 33 years.

Most of the participants in the two groups were females (53.5%), Asian ethnicity (67%), working by permanent contract (95.3%), bachelor degree holders (94.1%), staff nurses (81.2%), working Day-Night 12 hours shift duty format (51.2%), satisfied about their role as nurses (69.4%), did not get COVID-19 infection (80%), and (53.5%) did not receive professional training about dealing with COVID-19 patients (Table 1).

Table 1. Participants' socio-demographics and work-related factors (n=170)

| Variables | | Exposure Group % (n) | Comparison Group % (n) | Total Sample % (n) |
|-----------------------|-----------------------|-------------------------|---------------------------|-----------------------|
| Age | 20-29 years old | 9.4 (8) | 3.5 (3) | 6.5 (11) |
| | 30-39 years old | 82.4 (70) | 60 (51) | 71.2 (121) |
| | 40-49 years old | 5.9 (5) | 24.7 (21) | 15.3 (26) |
| | 50-59 years old | 2.4 (2) | 11.8 (10) | 7.1 (12) |
| Gender | Male | 80 (68) | 12.9 (11) | 46.5 (79) |
| | Female | 20 (17) | 87.1 (74) | 53.5 (91) |
| Ethnicity | Asian | 77.6 (66) | 88.2 (75) | 67.1 (114) |
| | African | 2.4 (2) | 2.4 (2) | 2.4 (4) |
| | Arabic | 17.6 (15) | 9.4 (8) | 13.5 (23) |
| | Western | 2.4 (2) | 0 (0) | 1.2 (2) |
| Contract type | Permanent contract | 94.1 (80) | 96.5 (82) | 95.3 (162) |
| | Temporary contract | 5.9 (5) | 3.5 (3) | 4.7 (8) |
| Educational level | Bachelor | 92.9 (79) | 95.3 (81) | 94.1 (160) |
| | Master | 7.1 (6) | 4.7 (4) | 5.9 (10) |
| Professional role | Registered Nurse - RN | 76.5 (65) | 85.9 (73) | 81.2 (138) |
| | Charge Nurse - CN | 20 (17) | 7.1 (6) | 13.5 (23) |
| | Head Nurse - HN | 3.5 (3) | 7.1 (6) | 5.3 (9) |
| Experience in nursing | ≤ 10 years | 58.8 (50) | 30.6 (26) | 44.7 (76) |
| | >10 -20 years | 38.8 (33) | 51.8 (44) | 45.3 (77) |
| | >20 years | 2.4 (2) | 17.6 (15) | 10 (17) |

| | | | | |
|---|--------------------------------|-----------|-----------|------------|
| Duty format | Fixed morning | 3.5 (3) | 10.6 (9) | 7.1 (12) |
| | Day / Night – 12 hours | 87.1 (74) | 15.3 (13) | 51.2 (87) |
| | Day / Evening / Night- 8 hours | 9.4 (8) | 74.1 (63) | 41.8 (71) |
| Satisfaction level about their role as nurses | Satisfied | 62.4 (53) | 76.5 (65) | 69.4 (118) |
| | Moderately satisfied | 28.2 (24) | 22.4 (19) | 25.3 (43) |
| | Dissatisfied | 9.4 (8) | 1.2 (1) | 5.3 (9) |
| History of getting COVID-19 infection | yes | 27.1 (23) | 12.9 (11) | 20 (34) |
| | No | 72.9 (62) | 87.1 (74) | 80 (136) |
| Receive professional training in dealing with COVID-19 | Yes | 56.5 (48) | 36.5 (31) | 46.5 (79) |
| | No | 43.5(37) | 63.5 (54) | 53.5 (91) |

3.2. Professional self-concept and self-confidence scores

The first research question was: What are the scores of professional self-concept and professional self-confidence among the staff nurses? The result showed that the exposure group has an average score of professional self-concept 7.2 out of 8 ($SD \pm 0.71$), compared with 7.5 out of 8 ($SD \pm 0.43$) for the comparison group. The result showed that the average total score of the professional self-confidence for the exposure group was 54.5 ($SD \pm 6.34$), and for the comparison group was 54.6 ($SD \pm 5.43$). The results of NSCI and SCS are presented in tables (2) and (3) respectively.

Table 2. Nurses' professional self-concept and its sub-dimensions' scores

| | Dimensions | Min | Max | Mean | $SD \pm$ |
|------------------|-------------------------------------|-----|-----|------|----------|
| Exposure group | Professional self-concept (Average) | 3.7 | 8 | 7.2 | 0.71 |
| | Care | 5 | 8 | 7.2 | 0.79 |
| | Knowledge | 3 | 8 | 7.2 | 0.75 |
| | Staff relations | 5.7 | 8 | 7.5 | 0.59 |
| | Leadership | 2 | 8 | 7 | 1.18 |
| Comparison group | Professional self-concept (Average) | 6.3 | 8 | 7.5 | 0.43 |
| | Care | 6.7 | 8 | 7.6 | 0.42 |
| | Knowledge | 5.8 | 8 | 7.5 | 0.46 |
| | Staff relations | 6.3 | 8 | 7.7 | 0.44 |
| | Leadership | 5.3 | 8 | 7.3 | 0.63 |

Table 3. Nurses' self-confidence and its sub-dimensions scores

| | Dimensions | Min | Max | Mean | SD± |
|------------------|-------------------------|-----|-----|------|------|
| Exposure group | self-Confidence (Total) | 31 | 60 | 54.5 | 6.34 |
| | Recognition | 6 | 15 | 13.5 | 1.80 |
| | Physical assessments | 9 | 15 | 14 | 1.46 |
| | Interventions | 7 | 15 | 13.6 | 1.83 |
| | Evaluation | 7 | 15 | 13.5 | 1.81 |
| Comparison group | self-Confidence (Total) | 33 | 60 | 54.6 | 5.43 |
| | Recognition | 9 | 15 | 13.7 | 1.39 |
| | Physical assessments | 9 | 15 | 13.9 | 1.27 |
| | Interventions | 8 | 15 | 13.6 | 1.56 |
| | Evaluation | 7 | 15 | 13.4 | 1.66 |

3.3. Differences in professional self-concept based on exposure to COVID-19 patients

The second research question was: Are there significant differences in professional self-concept scores between the nurses who provide direct care to COVID-19 patients and those who do not?" The assumption of normality was violated according to Pearson's skewness coefficient; therefore, the non-parametric Mann-Whitney U test was used to compare the professional self-concept scores.

A Mann-Whitney U test revealed a statistically significant difference between the two groups, the exposure group mean rank=76.06, and the mean rank for the comparison group=94.93 (U=2811, Z=-2.505, P<0.05). Table 4 showed the details regarding the differences in the professional self-concept scores and its sub-dimensions.

Table 4. Differences in professional self-concept and its sub-dimensions based on exposure to COVID-19 patients

| | Professional self-concept (Total) | Care | Knowledge | Staff relations | Leadership |
|----------------|-----------------------------------|--------|-----------|-----------------|------------|
| Mann-Whitney U | 2811 | 2597 | 2962.5 | 3203 | 3222.5 |
| Z | -2.505 | -3.26 | -2.068 | -1.372 | -1.236 |
| P value | 0.01* | 0.001* | 0.03* | 0.17 | 0.21 |

*Statistically significant difference.

3.4. Differences in professional self-confidence based on exposure to COVID-19 patients

The third research question was: Are there significant differences in professional self-confidence level between the nurses who provide direct care to COVID-19 patients and those who do not?"

The assumption of normality was violated according to Pearson's skewness coefficient; therefore, the non-parametric Mann-Whitney U test was used to compare the professional self-confidence scores. A Mann-Whitney U test revealed no significant difference between the two groups, the exposure group mean rank = 87.47, and the mean rank for the comparison group = 83.53 (U=3445, Z=-0.52, P= 0.59). Table 5 showed the details regarding the differences in the professional self-confidence scores and its subdimensions.

Table 5. Differences in professional self-confidence and its sub-dimensions based on exposure to COVID-19 patients

| | Confidence total score | Recognition Sub-scale | Physical assessments Subscale | Interventions Subscale | Evaluation Subscale |
|----------------|------------------------|-----------------------|-------------------------------|------------------------|---------------------|
| Mann-Whitney U | 3445 | 3567 | 3292 | 3484.5 | 3444.5 |
| Z | -0.52 | -0.15 | -1.07 | -0.42 | -0.55 |
| P value | 0.59 | 0.88 | 0.28 | 0.67 | 0.57 |

3.5. Differences in professional self-concept and professional self-confidence based on nurses' socio-demographics

The fourth research question was: Are there significant differences in professional self-concept and professional self-confidence levels among nurses who provide direct care to COVID-19 patients based on their socio-demographics? The assumption of normality was violated according to Pearson's skewness coefficient; therefore, the non-parametric Kruskal-Wallis test was used to compare the professional self-concept and self-confidence scores.

The researcher reports only professional self-concept scores as professional self-confidence scores revealed no significant difference between the groups as illustrated in the previous section.

Kruskal-Wallis test revealed a statistically significant difference in professional self-concept score based on staff satisfaction about their role as nurses and if they received professional training in dealing with COVID-19 patients as $P < 0.05$ for both dimensions. Whereas, Kruskal-Wallis test revealed no statistically significant difference based on age $P=0.89$, gender $P=0.8$, marital status $P=0.13$, ethnicity $P=0.56$, employment status $P=0.69$, experience in nursing $P=0.49$, educational level $P=0.07$, professional role $P=0.36$, and duty format $P=0.076$. For further details about the mean rank differences for professional self-concept, the Mann-Whitney U test is illustrated in Table (6).

Table 6. Pairwise comparisons for the professional self-concept scores

| variables | Category | n | Mean Rank | P-value |
|---|----------------------|----|-----------|--------------|
| Satisfaction about their role as nurses | Dissatisfied | 8 | 15.69 | $P=0.77$ |
| | Moderately satisfied | 24 | 16.77 | |
| | Total | 32 | | |
| Satisfaction about their role as nurses | Dissatisfied | 8 | 16 | $P < 0.05^*$ |
| | Satisfied | 53 | 33.26 | |
| | Total | 61 | | |
| Satisfaction about their role as nurses | Satisfied | 53 | 44.66 | $P < 0.05^*$ |
| | Moderately satisfied | 24 | 26.5 | |
| | Total | 77 | | |
| | Yes | 48 | 47.92 | $P < 0.05^*$ |
| | No | 37 | 36.62 | |

| | | |
|---|-------|----|
| Received professional training in dealing with COVID-19 | Total | 85 |
| 19 | | |

*Statistically significant difference.

4. Discussion

Few studies have investigated the impact of dealing with COVID-19 patients on nurses' professional self-concept and self-confidence. Dealing with COVID-19 patients might change nurses' professional self-concept and professional self-confidence. This chapter discusses and highlights the main findings of how professional self-concept and professional self-confidence were affected during the COVID-19 pandemic.

4.1. Professional self-concept

One of the main interests of this study was to compare groups' similarities and differences in professional self-concept across exposure and comparison groups. By comparing the results, the exposure group had a lower average of professional self-concept than the comparison groups, especially in the care and knowledge dimensions. The lower average in the exposure group might result from lacking enough time to be prepared ahead of time before the pandemic strike. Also, it might be related to working under high pressure, especially those who work at field hospitals, as they do not have enough time to update their knowledge and practices.

This result is consistent with another study done by Zang et al [33]. Their results indicated that the most prevalent problem in the survey was altered self-image with (87.8%) of the screened frontline subjects; these results provide new insight into the relationship between dealing with a crisis like the COVID-19 pandemic and its impact on the frontline healthcare workers especially nurses.

In contrast with this study, another study indicated that professional self-concept among nursing students in China was high. This might be because the screened subjects were nursing students and had no real experience in the nursing field, and the data were collected during the first stage of this pandemic before facing the consequences [34].

Moreover, in contrast with this study, another study indicated that the professional identity for intensive care and emergency nurses was greatly improved during the primary stage of the COVID-19 outbreak [9]. This difference in results might be due to differences in the work environment and cultural issues, as our research setting consists of different nationalities, cultures, religions, and languages. On the other hand, Zhang's study was exclusive to intensive care and emergency nurses, and it was conducted during the first stage of the COVID-19 pandemic.

4.2. Professional self-confidence

The other main interest of this study was to compare groups' similarities and differences in professional self-confidence across the exposure and comparison groups. The results indicated that the exposure group had a similar total score of professional self-confidence to the comparison group. This might be because HMC has standard training, competency validation, and revalidation across all HMC facilities, which might decrease the staff practices' variation and making nurses feel competent.

This study result contrasts with another study done by Simonetti et al. (2021). Simonetti et al., in their study, found that the prevalence of low self-efficacy among Italian nurses during the COVID-19 pandemic was high [35]. This might be due to the severe epidemiological spread of Corona in Italy, conversely with Qatar.

Moreover, in contrast with this study, another study conducted by Vagni et al.,2020, they revealed that the frontline staff dealing with the COVID-19 pandemic had low self-

efficacy in coping with challenges and threats [36]. This might be due to the severe epidemiological spread of Coronavirus in Italy as well as that might be due to screening many disciplines in the survey like doctors, nurses, and other healthcare providers.

4.3. *Deference based on the socio-demographics*

The results indicated that there are no statistically significant differences between the groups based on socio-demographics. This might be because HMC treats all staff from different gender, cultures, religions, and ethnicities professionally and in equity.

This result contrasts with another study done by Sabanciogullari and Dogan (2017); thier study showed that the professional self-concept was higher with older nurses, females, seniors, and master's degree holders. This difference may be the participants were not exposed to a stressful situation like the COVID-19 pandemic [37].

4.4. *Deference based on the work-related factors*

In addition, this study indicated that the satisfied staff had a higher level of professional self-concept among those who dealt with COVID-19 patients than moderately or dissatisfied staff. This result is consistent with other studies [31,38]. This agreement might be because staff satisfaction is affected by many job-related factors like stress, burnout, and pressure at work, which are considered expected complications during the COVID-19 pandemic.

Also, this study revealed that those who got professional training in dealing with COVID-19 patients had a higher level of professional self-concept than those who did not get such training. This result is consistent with other studies [24,25,35,39,40]. These studies agreed that the trained nurses have higher professional self-confidence than those who did not get such training. This might lead to a high level of professional self-concept as both professional self-confidence and professional self-concept are considered crucial elements of professional identity.

4.5. *Strengths and limitations*

As far as we know, this is the first study to assess the professional self-concept and professional self-confidence among nurses dealing with COVID-19 patients in the state of Qatar. The online survey opened excellent access to recruit nurses in the exceptional period of the COVID-19 pandemic. However, it is beyond the scope of this study to address the relationship between the professional self-concept and professional self-confidence from a side and how it is affected by staff burnout, clinical behaviors, engaging in health-promoting behaviors, and turnover.

This study sampling frame was multi-cultural and multi-nationalities. However, ethnicities like Europeans, Chinees, Russians, and other nationalities were not screened in the survey, as HMC- has rare staff from these regions.

Also, the convenience sampling technique was adopted in our survey. However, considering probability sampling technique like simple random sampling will give more accurate results. Moreover, a longitudinal study design will be required to assess the long-term impact of dealing with the COVID-19 patients.

On the other hand, utilizing a more suitable sample and close groups in numbers will allow establishing the parametric statistics and getting more powerful results. Also, the conceptual and theoretical frameworks were not used in this study.

4.6. *Conclusions*

The professional self-concept level among the exposed group to COVID-19 patients was lower than the comparison group of those who did not deal with COVID-19 patients, while the professional self-confidence level among the exposed group to COVID-19 patients was similar to the comparison group.

On the other hand, the satisfied staff and those who received professional training in dealing with COVID-19 patients reported a higher level of professional self-concept than

dissatisfied staff and those who did not receive professional training in dealing with COVID-19 patients.

4.6. Recommendations

It is recommended that healthcare leaders and policymakers improve nurses' professional self-concept by enhancing staff satisfaction and creating strategies that target professional training in dealing with COVID-19 patients to prepare the staff ahead of time to deal with such pandemics in the future.

In addition, nursing students should be well prepared for working with highly contagious diseases and dealing with crises such as COVID 19. Therefore, dealing with crises courses should be integrated within the nursing curricula of undergraduate students.

On the other hand, future research work is recommended to establish whether staff burnout, clinical behaviors, engaging in health-promoting behaviors, and turnover are factors that affect the professional self-concept or not.

4.7. Practical Implications

The perceived professional self-concept was low for these frontline nurses and correlated with satisfaction level and professional training. Therefore, to guarantee nurses' occupational safety, stable mental health, and staff retention, healthcare leaders should recognize the commitment of frontline staff nurses and pay more attention to staff professional self-concept.

Also, healthcare leaders should pay more attention to the staff satisfaction level, screen satisfaction level frequently, address any changing satisfaction level, and treat the correlated factors.

On the other hand, nursing educators should keep updating the staff nurses in the new knowledge and protocols to fight against the COVID-19 pandemic. Also, nursing educators must explain to the frontline staff the expected patient needs that come from the new disease progress and find a way to bring the feeling of enjoyment during patient care. Also, nursing educators should train the frontline staff about how to solve nursing problems.

Author contributions

NFA: Conceptualization.

AAA: Formal Analysis

NFA, NFE, AAA, AJN: Data curation, Methodology, Manuscript preparation.

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