Nurses’ Self-Efficacy, Confidence and Interaction with patients with COVID-19: A Cross-Sectional Study

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Running Title: Nurses’ interaction with patients with COVID-19

Acknowledgement

The authors would like to thank the participants for their effort and time.

Disclosure statement

The authors declare that they have no conflict of interest

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Abstract

Objective: the aim was to evaluate nurses’ self-efficacy, confidence and nurse-patient interaction during caring of patients with COVID-19.

Methods: A cross-sectional design with online survey was used with a Self-efficacy scale, Self-confidence scale and Caring nurse-patient interaction scale: 23- item Version–Nurse (CNPI-23 N). Results: A sample of 120 nurses participated in the current study. The results showed that the participants had a moderate level of self-efficacy, self-confidence and interaction (M = 28.84 (SD= 7.7), M =47.41 (SD= 9.0) and M= 93.59 (SD=16.3) respectively). Positive relationships were found between nurse’ self-efficacy, self-confidence and nurse-patient interaction (r = 0.81, P < 0.0001 and 0.79, P <0.0001 respectively). Significant differences were found in self-efficacy according to years of experience, academic qualifications and position (F = 2.10, P = 0.003, F = 3.60, P = 0.002 and F = 2.60, P =0.007 respectively). Furthermore, the results indicated that there was a significant difference in self-confidence and nurse-patient interaction also. Conclusion: Nurse educators and administrators should develop and implement further strategies such as continuing education and training, compensatory payment, organizational support and availability of protective measures to increase their self-efficacy, self-confidence and interaction with COVID-19 patients.

Keywords: Self-Efficacy, Self- Confidence, Nurse-Patient Interaction, COVID-19, Nurses
Introduction

In December 2019, a highly infectious virus was identified by the scientists and experts in Wuhan, the capital of China’s Hubei province. This new coronavirus (SARS-CoV-2, the cause of the disease called COVID-19) became an unexpected world health crisis and was classified by the World Health Organization (WHO) as a pandemic [1]. Currently (December 2020), more than 77 million patients have been diagnosed with COVID-19 worldwide and almost 1.7 million deaths have occurred, and numbers are expected to increase.

Patients with COVID-19 experience flu like symptoms including sneezing, coughing, running nose, fever, general weakness and difficulty in breathing [2]. The exponentially growing number of cases and deaths increase the pressure on the health care system in the affected countries. Health care workers (HCW) are also experiencing huge pressures [3]. At this moment, health care professionals including doctors, nurses, scientists, paramedics, laboratory staff, radiologists, physiotherapists and microbiologists around the world are struggling to manage the alarming increasing number of cases. Lack of knowledge about COVID-19 transmission, fear of outbreak, pressure from fearful family members, lack of adequate and available personal protective measures and equipment and no clear curable treatment plan are major problems. Furthermore, HCWs are at high risk of infection because of the nature of their job as they are physically very close to patients and in direct contact with them during the involvement in medical assessment and intervention [4]. This might affect their self-efficacy, confidence and interaction with COVID-19 patients.

Nurse-patient interaction is a prominent factor playing an influential role in the patient experience of care provided by the bedside nurses [5, 6]. It consists of the appropriate attitude and behaviours that cover the clinical, relational and humanistic domains of nursing. The nurse-
patient interaction was linked positively to the quality of nursing care [7, 8], increasing the feeling of being cared for [9], and increasing patient involvement in the treatment plan, power, satisfaction, coping [10-12] and self-transcendence [13].

Self-efficacy is a well-known concept, it affects the nurses’ beliefs, actions and behaviours while caring for sick patients [14]. Experts and scientists recognize self-efficacy as a powerful variable that affects the nurses’ motivation to care, thinking processes and decision making, prioritizing interventions and encouraging them to continue caring for the patients despite difficulties and failure [15-18].

Self-confidence is a powerful factor that influences rapid, appropriate, safe and accurate nursing intervention in an emergency situation and also while caring for critically ill patients [19]. Nurses with higher levels of self-confidence show more competence in developing appropriate and safe interventions, taking correct decisions and providing patients with a better quality of care [20].

Caring for patients during such a pandemic period such as COVID-19 is a challenge for all health professionals specially the nurses. To increase nurses’ abilities to provide optimal care to COVID-19 patients, it is important to evaluate their level of self-efficacy, confidence and interaction. The results can be used by health care administrators to develop strategies or modules to maximize these influential variables. This study was conducted to evaluate self-efficacy, self-confidence and nurse-patient interaction during caring of patient with COVID-19 in Jordan.

**Material and Methods**

A cross-sectional and correlational design was used with an on-line survey in the current study. After the ethical approval was granted, the research team structured the on-line survey and
double reviewed it before generating its link. Then, the link was uploaded on the Facebook and distributed by the research team. Detailed information about study purpose, methods, and instructions to submit the questionnaire were provided at the beginning of the questionnaire. In addition, participants were informed that they were free to participate and withdraw anytime, no identification details were required, and that data would only be used for scientific purpose. Participants who met the inclusion criteria: being a Jordanian nurse, has access to the internet and working in hospitals, were invited to participate. Cohen (1998) formula was used in the current study to estimate the sample size. Cohen identified three levels of effect of sample size: small effect 0.20, medium effect 0.50, and large effect 0.80. Based on this classification, a medium effect of correlations between the study variables was used to guide the sample size calculation. [21]. A sample of 115 nurses was estimated with an effect size of 0.5, alpha at 0.05, and a power of 0.80. However, a convenience sample of 120 nurses completed the study survey. Link to study survey was republished daily by the research team. Data were collected in a three week period. After the data collection phase was completed, two researchers from the team printed out the questionnaires and entered the data into Statistical Package for the Social Sciences (SPSS) (version 26); a third researcher re-checked the data entry for increased accuracy.

Measures

In addition to sociodemographic characteristics including gender, age, position, marital status, academic qualifications and years of experience, three instruments were used in the current study including:

Self-confidence Scale (SCS): 12 items with a five points Likert scale (1= not confident, 2 = hardly confident, 3 = confident, 4 = very confident and 5 = extremely confident), with the scores
ranging between 12 and 60, and higher scores indicating more confidence. The scale was developed by Hicks (2006); it was valid and reliable with Cronbach’s alpha 0.96 [22].

**Self-efficacy scale:** it has 10 items with a four points Likert scale (1= not at all true, 2 = hardly true, 3 = moderate true and 4 = exactly true). The scores ranged between ten and 40, higher scores indicating a high level of self-efficacy. The scale was developed by Schwarzer and Jerusalem and was a valid and reliable scale with a Cronbach’s alpha of 0.80[23].

**Caring nurse-patient interaction scale: 23- item Version–Nurse (CNPI-23 N)**

CNPI-23N is a short scale of 23 items with a 5 point Likert scale (1 = not at all to 5 = extremely). It reflects four main domains of nursing care including: humanistic care (4 items), relational care (7 items), clinical care (9 items), and comforting care (3 items). The scores range between 23 and 115, higher scores indicating more interaction. The scale was valid and reliable with Alpha coefficients for the four domains also adequate (0.63 to 0.74, 0.90 to 0.92, 0.80 to 0.94, and 0.61 to 0.76, respectively) [24].

**Analysis**

Descriptive analysis including mean, standard deviation, frequency and percentage were performed. Pearson moment correlation (r) was used to explore the relationships between the study variables including self-efficacy, self-confidence and nurse-patient interaction. Differences in self-efficacy, self-confidence and nurse-patient interaction according to the nurse’ academic
qualifications, years of experience, gender and positions were evaluated by using an ANOVA test. Data were analyzed by using SPSS (version 26).

Results

Sample characteristics
A sample of 120 participants completed the study survey, around half of them were females (N = 64, 53.3%), a majority had bachelor degree (N = 87, 72.5 %) and were working as registered nurses (N = 105, 87.5%). Table 1 details these results.

Nurses’ self-efficacy, self-confidence and nurse-patient interaction domains
Mean and standard deviation (SD) were calculated. The results showed that the participants had moderate self-efficacy (Mean = 28.84, SD = 7.7), and self-confidence (Mean = 47.41, SD = 9.0). High Humanistic Care and Comforting Care were reported (Mean = 15.93 (SD = 2.9) and 12.93 (SD = 2.4) respectively). The results are presented in table 2.

Relationship between self-efficacy, self-confidence and nurse-patient interaction
Pearson moment correlation (r) was used to explore the relationships between the study variables including self-efficacy, self-confidence and nurse-patient interaction. Significant positive relationships were found between self-efficacy, self-confidence and total CNPI-23 N (r = 0.81, P < 0.0001 and 0.79, P < 0.0001 respectively). Table 3 details these results.

Difference in self-efficacy, self-confidence and nurse-patient interaction according to the participants’ characteristics
Differences in the participants’ levels of self-efficacy, self-confidence and nurse-patient interaction according to their years of experience, gender, academic qualifications and current positions were calculated by using an ANOVA test. The results indicated that there was a
significant difference in self-efficacy according to their years of experience, academic qualifications and position (F = 2.10, P = 0.003, F = 3.60, P = 0.002 and F = 2.60, P =0.007 respectively), furthermore, the results indicated that there was a significant difference in self-confidence and nurse-patient interaction also. Table 4 details these results.

**Discussion**

The current study aimed to evaluate nurses’ self-efficacy, confidence and nurse-patient interaction while caring for patients with COVID-19 in Jordan. In this, Jordanian nurses showed good levels of self-efficacy, self-confidence and nurse-patient interaction while treating these patients. COVID-19 nurse-patient interaction consists of four domains of nursing practice including clinical care, relational care, humanistic care and comforting care. These domains were maintained and provided by the Jordanian nurses in the current study. The results indicate that the nurses were willing to provide the appropriate care for the patients with COVID-19 and recognized the importance of nurse-patient interaction in this critical condition. A moderate level of nurse-patient interaction was reported in the current study. This moderate level could be explained by fear of contamination, family influence to avoid direct contact for a long time, workplace environment such as number of assigned patients, available safety measures and perceived level of knowledge about the pandemic [25]. These findings contradict three previous studies. First, in 2003 HCWs during the outbreak of Sever Acute Respiratory Syndrome (SARS) many HCWs such as doctors and nurses were not willing to treat and interact with SARS patients [26-28]. Second, in Germany, HCWs including doctors, nurses, medical student and administrators showed their intention to leave their job during the pandemic in order to protect themselves and their families [29]. Third, 50 % of clinical and non-clinical HCWs were unwilling to work during the pandemic in the USA [30].
In Jordan, many strategies were implemented to enhance HCWs especially nurses’ self-efficacy, self-confidence and nurse-patient interaction during COVID-19 pandemic including increasing their knowledge about the disease, continuing education and training, reinforcement of the positive attitudes, compensation payment, verbal and non-verbal expressions of thanks by the government and the public, availability of personal protective equipment (PPE), decreased workload and nurse-patient ratio and continuing psychological support.

In Jordan, self-efficacy and self-confidence played a significant and influential role in increasing nurse-patient interaction during the COVID-19 pandemic. Self-efficacy was linked to the nurses’ positive attitude and health behaviours such as interaction with the patients in different and difficult circumstance and conditions [31]. During the previous pandemic of SARS, nurse self-efficacy was identified as a main predictor and influential factor for nurses’ intention to care for and interact with patients with SARS in Taiwan [32]. Self-confidence has been associated with mastery of clinical skills and increased clinical proficiency and competency [33]. In the current study, Jordanian nurses showed self-confidence in treating and interacting with patients with COVID-19; this could be explained and linked to the preparation and training, availability of the protective measures and organizational support. During the pandemic, a confident nurse could master his/her clinical skills, communicate and interact with the patients and be able to response to emerging situations properly and effectively [34].

As frontline HCWs, workload during the pandemic is considered a challenge for the nurses and requires special and additional skills and knowledge. Results from the current study indicated that nurses with more years of experience, who had postgraduate degrees and who worked as head nurses showed high levels of self-efficacy, self-confidence and better interaction while caring for patients with COVID-19. These results are not surprising as the senior and highly
educated nurses are more competent in utilizing evidence-based practice, taking responsibility, controlling and coping with complex situations, working within the team effectively, having leadership roles and maintaining the balance between the patients’ demands and HCWs’ health [35]. During the influenza pandemic, American and Australian senior nurses showed more competence, confidence and rapid response to the complex situations, coordination of care and collaboration with other HCWs [35, 36].

Two limitations in the current study included first, a self-reporting questionnaire was used to evaluate the nurse-patient interaction. This might not be the best way to evaluate the actual interaction, future research can be conducted utilizing different research methods such as observation. Second, an online-survey was used in the current study due to quarantine conditions, this requires access to the internet, so nurses with limited access to the internet were unable to participate, further research using a paper based questionnaire is recommended.

**Conclusion**

Working during the pandemic and outbreak of COVID-19 is challenging and stressful for the nurses. Increasing their self-efficacy and self-confidence will increase their interaction with and treatment of patients with COVID-19. Nurse educators and administrators should develop and implement further strategies such as continuing education and training, compensation payment, organizational support and availability of protective measures to improve their self-efficacy, self-confidence and interaction with COVID-19 patients.

**Acknowledgments**

The authors are grateful to the participants for their time and effort.

**Conflict of Interest**

There is no conflict of interest related to this research.
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Table 1: Sample Characteristics (N = 120)

| Variable                      | Frequency (%) |
|-------------------------------|---------------|
| **1 Age**                     |               |
| 22-26                         | 37 (30.8)     |
| 27-30                         | 16 (13.4)     |
| 30-35                         | 37 (30.8)     |
| 36-40                         | 14 (11.6)     |
| More than 40                  | 16 (13.4)     |
| **2 Years in Nursing**        |               |
| 1-5 years                     | 43 (35.8)     |
| 6-10 years                    | 33 (27.5)     |
| More than 10 years            | 44 (36.7)     |
| **4 Gender**                  |               |
| Female                        | 64 (53.3)     |
| Male                          | 56 (46.7)     |
| **5 Education Level**         |               |
| Diploma                       | 10 (8.3)      |
| Bachelor                      | 87 (72.5)     |
| Postgraduate                  | 23 (19.2)     |
| **6 Current position**        |               |
| Registered Nurse              | 105 (87.5)    |
| Head nurse                    | 15 (12.5)     |
| **7 Marital status**          |               |
| Single                        | 56 (46.7)     |
| Married                       | 61 (50.8)     |
| Divorced                      | 3 (2.5)       |
| Item               | Possible range | Minimum | Maximum | Mean (SD)  |
|--------------------|----------------|---------|---------|------------|
| 1 Self-Efficacy    | 10 - 40        | 20.0    | 40.0    | 28.84 (7.7) |
| 2 Self-Confidence  | 12 - 60        | 24.0    | 60.0    | 47.41 (9.0) |
| 3 Total CNPI-23N   | 23 - 115       | 55.0    | 115.0   | 93.59 (16.3) |
| 4 Clinical Care    | 9 - 45         | 19.0    | 45.0    | 37.0 (7.1) |
| 5 Relational Care  | 7 - 35         | 13.0    | 35.0    | 27.72 (5.3) |
| 6 Humanistic Care  | 4 - 20         | 8.0     | 20.0    | 15.93 (2.9) |
| 7 Comforting Care  | 3 - 15         | 6.0     | 15.0    | 12.93 (2.4) |
Table 3: Relationship between self-efficacy, self-confident and nurse-patient interaction (N = 120).

|                      | Self-efficacy | Self-confidence | Total CNPI-23N | Clinical Care | Relational Care | Humanistic Care | Comforting Care |
|----------------------|---------------|-----------------|----------------|---------------|-----------------|-----------------|-----------------|
| Self-efficacy        | 1             | 0.73**          | 0.81**         | 0.78**        | 0.75**          | 0.71**          | 0.61**          |
| Self-confidence      | 1             | 0.79**          | 0.76**         | 0.71**        | 0.67**          | 0.63**          |                 |
| Total CNPI-23N       | 1             | 0.94**          | 0.91**         | 0.89**        | 0.83**          |                 |                 |
| Clinical Care        |               |                 | 0.76**         | 0.77**        | 0.74**          |                 |                 |
| Relational Care      |               |                 | 0.81**         |               | 0.70**          |                 |                 |
| Humanistic Care      |               |                 | 0.71**         |               |                 |                 |                 |
| Comforting Care      |               |                 | 0.71**         |               |                 |                 | 1               |

** Correlation is significant at the 0.01 level (2-tailed)
Table 4: Self-Efficacy, Self-Confidence and Nurse-Patient Interaction by Demographic Characteristics of Participants (N =120)

| Variable             | Frequency (%) | self-efficacy score/40 (SD) F (P-value) | self-confidence score/60 (SD) F (P-value) | Total CNPI-23N Score/115 (SD) F (P-value) |
|----------------------|--------------|-----------------------------------------|-------------------------------------------|-------------------------------------------|
| Years in Nursing     |              |                                         |                                           |                                           |
| 1-5 years            | 43 (35.8)    | 22.10 (3.4)                             | 42.10 (2.8)                               | 86.10 (1.2)                               |
| 6-10 years           | 33 (27.5)    | 24.30 (2.1)                             | 45.10 (1.0)                               | 90.10 (1.7)                               |
| More than 10 years   | 44 (36.7)    | 27.10 (1.1)                             | 46.85 (0.8)                               | 92.80 (1.1)                               |
|                      |              | 2.10 (0.003)                            | 3.05 (0.004)                              | 4.80 (0.002)                              |
| Gender               |              |                                         |                                           |                                           |
| Female               | 64 (53.3)    | 27.60 (1.3)                             | 46.10 (1.4)                               | 90.10 (0.7)                               |
| Male                 | 56 (46.7)    | 25.10 (0.71)                            | 45.70 (1.8)                               | 89.20 (1.6)                               |
|                      |              | 3.10 (0.610)                            | 4.05 (0.717)                              | 5.10 (0.810)                              |
| Education Level      |              |                                         |                                           |                                           |
| Diploma              | 10 (8.3)     | 23.10 (1.7)                             | 39.05 (2.1)                               | 85.10 (2.1)                               |
| Bachelor             | 87 (72.5)    | 26.10 (1.8)                             | 45.90 (1.2)                               | 91.10 (1.4)                               |
| Postgraduate         | 23 (19.2)    | 26.80 (1.1)                             | 46.80 (0.7)                               | 92.70 (0.9)                               |
|                      |              | 3.60 (0.002)                            | 3.80 (0.004)                              | 5.50 (0.003)                              |
| Current position     |              |                                         |                                           |                                           |
| Registered Nurse     | 105 (87.5)   | 26.10 (1.8)                             | 45.90 (1.2)                               | 91.10 (1.4)                               |
| Head nurse           | 15 (12.5)    | 26.80 (1.1)                             | 46.80 (0.7)                               | 92.75 (0.9)                               |
|                      |              | 2.60 (0.007)                            | 3.02 (0.006)                              | 4.20 (0.002)                              |