International Journal of Nursing Sciences 9 (2022) 26–35

HOSTED BY

Contents lists available at ScienceDirect

International Journal of Nursing Sciences

journal homepage: http://www.elsevier.com/journals/international-journal-of-nursing-sciences/2352-0132

Research Paper

The development and implementation of a model to facilitate self-care of the professional nurses caring for critically ill patients

Mpho G Chipu, Charlene Downing*

Department of Nursing, Faculty of Health Sciences, University of Johannesburg, Doornfontein Campus, Johannesburg, South Africa

ARTICLE INFO

Article history:
Received 8 October 2021
Received in revised form
16 December 2021
Accepted 17 December 2021
Available online 26 December 2021

Keywords:
Intensive care units
Nurses
Self-care
Self-management

ABSTRACT

Objectives: This article aimed to describe the development, implementation, and evaluation of the model's effectiveness to facilitate self-care of professional nurses caring for critically ill patients in ICUs.
Methods: The methods of Chinn and Kramer, Walker and Avant were utilized to generate this model. The study included four steps to develop, implement and evaluate the model: Step 1 - concept analysis; Step 2 - placing the concept in relationship statements; Step 3 - description and evaluation of the model; and Step 4 - implementation and evaluation of the model. The implementation and evaluation of the model included two phases: a one-day workshop to present the model, and three months of model implementation. The study was conducted in a specific tertiary hospital in Gauteng Province, South Africa. Twenty-five participants were identified amongst the five ICUs, and only eight participants accepted the invitation. Out of the eight participants, only six professional nurses working in different ICUs in the public sector were interviewed.
Results: The model was divided into three stages: relationship, working, and termination; it comprised the primary and secondary contexts in which the facilitation of self-care occurs. The model process occurred in a spiral form. The registered nurses benefitted holistically from the three presenters at the workshop, and the social worker contributed to their emotional self-care activities. Three themes emerged: The model brought positive experiences, change, and self-awareness; the model benefitted the registered nurses holistically; role modeling self-care practices motivated and benefitted others.
Conclusion: The model implementation assisted the registered nurses' in developing self-awareness and resilience. They gained more knowledge regarding self-care, and the model encouraged them to implement improved self-care practices. They became role models of self-care and motivated their friends and families.

What is known?

- The demanding nature of work exposes the nurses as front liners to developmental states such as stress.
- The critical care nurses working shifts were the lowest in participating in health-promoting behaviours.
- The application of the three theoretical frameworks in self-care: Orem, Pender, and Watson theories.

What is new?

- The model facilitates the self-care of professional nurses caring for critically ill patients in Gauteng.
- The development and implementation of the model to facilitate self-care of professional nurses in Gauteng ICUs.
- The evaluation of the model to facilitate self-care of the professional nurses in the South African context.

1. Introduction

According to Statistics South Africa, forty-nine million people, or eighty-three percent of the 53 million people, rely on the public health sector in South Africa [1,2]. A shortage of nurses characterized the burdened sector even before the COVID-19 pandemic.

* Corresponding author.
E-mail addresses: chipu.mpho@gmail.com (M.G. Chipu), charlened@uj.ac.za (C. Downing).
Peer review under responsibility of Chinese Nursing Association.

https://doi.org/10.1016/j.ijnss.2021.12.010

Shortage of nurses resulted in nurses having psychological distress. The Human Sciences Research Council indicated that the nurses in the public sector were the highest amongst the health care workers suffering from psychological distress [3,4]. The prevalence of work-related stress amongst health care professionals was between 32.4% and 41.2%. Workplace stress occurs in registered nurses due to the nature of their work environment. The demanding nature of the work exposes the nurses as front liners to develop negative mental states such as stress [5]. A study amongst Sweden nurses indicated that more than 80% of the nurses had high job strain [6].

Various factors contributed to the stresses: working night duty, weekends, long hours, work overload, and supervising other people's work. Shift work impacts nurses' physical and psychological health as it causes a disruption in social and family life, difficulty in maintaining relationships, disturbances of sleep, and poor eating habits. These signs relate to compassion fatigue as registered nurses prioritize their patients' health over theirs. They often develop a deficiency of rest characterized by food and fluid deprivation and subsequent reduction in micturition [7].

The findings from the American Nurses Association indicated that 68% of nurses are placing their patients' health, wellness, and safety before their own. If a provider is not well, it must be understood that it becomes difficult to heal others without harming yourself [8,9]. Nurses find it difficult to locate the self-care activities due to their busy schedules, and when a nurse is unable to care for themselves, it is nearly difficult to take care of others [10]. The critical care nurses and the nurses working shifts were the lowest in participating in health-promoting self-care behaviours [11]. Nurses were found to be overeating due to rotational shifts. Multiple impediments in critical care units were identified, such as the lack of food and storage facilities and space to exercise. The registered nurses had difficulty in bringing healthy food from home. Other barriers included lack of breaks, canteen opening times, and poor canteen food selection. The nurses' habits were also affected by their colleagues' eating and failure to take breaks due to responsibilities at work and home. Their levels of motivation and self-efficacy towards self-care were deficient due to long working hours, which resulted in fatigue and stress [12,13]. The nurses must adopt self-care practices that assist them in reducing stress to protect their well-being. Those self-care activities include the actions that nurture and restore their mental, physical and spiritual well-being.

Despite the various models worldwide being implemented to facilitate self-care, there was still a gap in the South African context to promote self-care for the registered nurses in Gauteng Province. The researcher developed the model using the three theoretical frameworks, which were Orem's theory of self-care [14], Pender's health promotion model (HPM) [15], and the theory of human caring by Watson [16]. The researcher chose and applied Dorothea Orem's theory of self-care which focused on the ability of the individual to engage in self-care. Self-care ability is influenced by basic conditions such as age, gender, state of health, family system factors, socio-cultural orientation, patterns of living, and resource adequacy and availability [14]. Pender's HPM was also applied to assist the registered nurses in understanding the determinants of health behaviours. The model explains how individuals can be motivated to achieve better health through engagement in healthy behaviours. The theory provides registered nurses with improved autonomy and encourages them to make better decisions in actively participating in self-care. The components of Pender's HPM are behaviour-specific cognitions and affect, individual characteristics, and health-promoting behaviours [15].

The third historical, theoretical framework applied in this model was the theory of human caring by Jean Watson. Watson believes that utilizing intentional caring-healing modalities such as yoga, meditation, communication with nature, and prayer will restore harmony and wholeness for registered nurses, which will assist in managing work-related stress. Watson also mentions that caring too much might result in the registered nurse developing compassion fatigue [16]. Another Watson's carative factor applied in this study to facilitate self-care of the registered nurses caring for critically ill patients was a supportive and trustful environment for teaching and learning. A facilitator needs to instill the spirit of faith and hope for the self-care process to succeed. The tenth of Watson's Caritas Processes supports self-care and includes practicing loving-kindness to self and others. The Caritas encourages developing trustful interpersonal relationships, fostering spiritual practices, and empathizing with self and others. This will be achieved by creating a caring-healing environment and learning to love, forgive, have mercy and forgive ourselves before offering care and love to others. It is important to treat ourselves with equanimity, loving-kindness, gentleness, and dignity before accepting, caring, and respecting others [16,17].

2. Methods

2.1. Study design

The theory generative methods of Chinn and Kramer [18], Walker and Avant [19] were utilized to generate this model. The researcher used four steps to develop, implement and evaluate a model to facilitate self-care of registered nurses caring for critically ill patients. The four steps were as follows: Step 1 - concept analysis, Step 2 - placing the concept in relationship statements, Step 3 - description and evaluation of the model, Step 4 - implementation and evaluation of the model [19]. The model was implemented using a one-day workshop strategy. The professional nurses were invited to the workshop, taught about the model and its implementation. The guidelines for the implementation of the model were described in detail. The model was implemented for three months in different ICUs, and then the evaluation process occurred.

2.2. Ethical considerations

The ethical clearance was approved by the Research Ethics Committee (REC-01-67-2017), Higher Degree Committee (HDC-01-47-2017), Department of Health, and the CEO of the academic hospital. Verbal permissions to implement the model were obtained from the Head of Department and the operational managers of the ICUs before data collection. Participants read the information letter and signed the consent form. The COVID-19 pandemic suspended face-to-face interviews, and the researcher resubmitted the research proposal to utilize online data collection methods. The research Amendment Application Form was issued on 2 May 2020, and the Ethical Clearance Renewal Letter (REC 241112-035) was renewed on 1 February 2021.

2.3. Developing the model

2.3.1. Search strategies

The articles were searched to include the current publications of self-care-related articles and recent self-care models in the study. The researcher searched peer-reviewed full-text published articles using the Ujoogle, Google Scholar, Google Search, and the University of Johannesburg databases. The following databases were searched via EBSCO Host: Amed, CINAHL, Health Source, MEDLINE, Cochrane Library, psych NFO, ERIC, ScienceDirect, UJIR, and UJ Library Catalogue. Articles published in ResearchGate were utilized. The keywords that the researcher used to search the articles were self-care (holistic approach), self-care activities, self-care strategies, mentoring, orientation, supervision, intensive care units, critical

care nursing, self-care concept analysis, compassion fatigue, workshops, model implementation, statistics South Africa and public health centre. The researcher used qualitative research methodology sources and limited the publication name, type, language, and year published from 2014 to 2021. The year was not applicable when searching the nursing theory books, as some were published from 1959. Exclusion criteria were non-peer-reviewed articles, articles from 2014 below, unpublished articles not written in English, titles and abstracts irrelevant to the topic, and articles not relevant to the study. The total references were $n = 38$ (total articles = 28 and total books = 10) (Fig. 1).

2.3.2. Step 1: A concept analysis

The concept analysis was conducted in two stages: concept identification and classification of related concepts. The central concepts were derived from the researchers' previous master's dissertation findings. The themes that emerged from the dissertation resulted in the professional nurses experiencing: stress, burnout, compassion fatigue, feelings of worthlessness, and feelings of helplessness. The researcher utilized these findings to develop a model as a frame of reference to facilitate the self-care of registered nurses. Dictionaries, thesauri, theoretical and subject definitions were used to define the identified concepts and classify them. After concept analysis, the central concepts were classified using the survey list developed by Dickoff, James, and Wiedenbach [20].

2.3.3. Step 2: Relationship statements

The identified central concepts were placed in relationship statements to develop a model to facilitate self-care of registered nurses in an ICU. The essential and related attributes of facilitation and self-care were used to construct the relationships. The identified related attributes of facilitation were: the act of assisting, dynamic interactive process, positive environment, mobilization of resources. Related attributes of self-care: taking care of oneself, practicing actions to improve one's health, and taking charge of one's own life. The attributes resulted in the definition of the central concept "facilitation of self-care," which states that: in the facilitation of self-care, the advanced registered nurse caring for self-acts to assist registered nurses caring for critically ill patients through a dynamic, interactive process by creating a positive environment through mobilization of self-care resources to promote their life, health, and wellbeing. Registered nurses make an autonomous choice in their journey to take care of themselves by practicing mindfulness and engaging in self-care actions that improve their physical, mental, emotional, and spiritual health.

2.3.4. Step 3 : Description and evaluation of the model

Based on the concept analysis and relationship statements, a model to facilitate self-care of registered nurses in ICU was developed and described. A diagram was used to describe the model, occurring in a spiral form.

2.4. Implementation and evaluation of the model

2.4.1. The setting and participants

The study was conducted in Gauteng Province, Johannesburg, South Africa, a specific tertiary hospital. The tertiary hospital has six cardiac, cardiothoracic, trauma, neurosurgery, medical, and paediatric ICUs. The ICUs are located in a public sector where registered

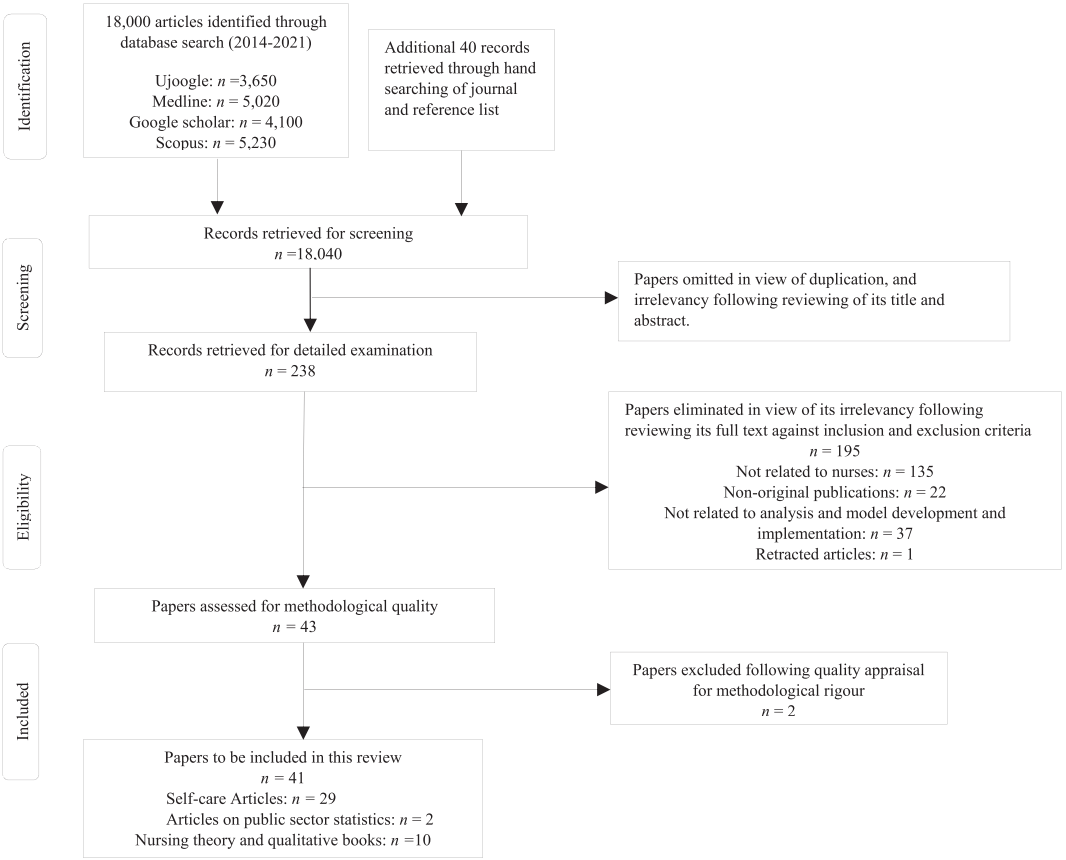

Fig. 1. Flow chart of the study selection process of the development and implementation of the model.

nurses care for critically ill patients. The specific hospital was chosen as it was a referral hospital in its referral chain around South Africa. The complicated, unstable patients from other hospitals are referred to the specific hospital. Due to the shortage of specialist nurses in South Africa, this setting utilizes intensive care trained nurses, trauma trained, and professional nurses not trained in ICUs. The model was implemented for three months in the different ICUs in a public sector in Gauteng, South Africa.

The purposive sample of the workshop included professional nurses. They worked in different ICUs within the specific public hospital in Gauteng Province. The participants worked in other adult ICUs such as trauma, neurosurgical, cardiac, cardiothoracic, and general. The inclusion criteria were registered nurses working in a public hospital, working in a critical care unit for two years, having knowledge of and experience caring for critically ill patients, is willing to attend the workshop, and being involved in model implementation. The exclusion criteria for this study were registered nurses working in the wards, agency nurses, registered nurses been working in the critical care unit for less than two years and have no willingness to attend the workshop. Twenty-five participants were identified amongst the five ICUs, and only eight participants accepted the workshop invitation. All eight participants participated in the workshop. The participants comprised seven females and one male aged between 28 and 64 years. The researcher targeted all the age groups of the registered nurses as a self-care model that is beneficial to all those who care for critically ill patients. All critical care nurses are prone to stress irrespective of age.

2.4.2. The step of implementation and evaluation

The implementation of this model took place in two phases: Phase 1 and Phase 2.

2.4.2.1. Phase 1: Model implementation. Phase 1 focused on the implementation of the model in the workshop. The researcher organized a one-day workshop. The dietician, the social worker, and the physiotherapist were the three presenters invited via email to motivate the participants in the workshop. The email invitation included the information letter about the study and the researcher's contact numbers for accepting the invitation and the workshop program. The program was divided into four sessions—the researcher presented at the first session and described the three phases of the model. The researcher's session was followed by the dietician's session, the social worker's session, the physiotherapist's session, and the evaluation session. The self-care model was implemented in an ICU for three months.

2.4.2.2. Phase 2: Model evaluation. Phase 2 focused on evaluating the effectiveness of the model. After the workshop and after three months of model implementation, the model evaluation was done in interviews. The purpose of evaluating the implementation of the model was to measure the workshop's impact by gathering feedback from the participants. The model's evaluation included follow-up sessions that were interrupted by the occurrence of COVID-19, where social distancing was restricted, and the researcher was restricted to visit the participants physically. The observations and field notes collected during the presentations of the three presenters were included in the evaluation of the workshop. Field notes were also collected after the online interviews. The participants were asked an open-ended question to reflect on the workshop and the model implementation. "Reflect on the workshop, how was the researchers', social worker, dietitian, and the physiotherapist' sessions."

2.4.3. Data collection

After the workshop, in-depth individual phenomenological interview methods were used to implement the self-care model. Data collection methods were changed from face-to-face interviews to online platforms during the COVID-19 pandemic. The change was implemented to ensure social distancing as a precautionary measure to combat the COVID-19 pandemic. The online data platform methods, which were then approved, were Zoom, WhatsApp, telephone, and Microsoft Teams. The first interview was performed online via Zoom with the supervisor present to observe correct data collection methods. The online interviews were audio-recorded, and there was the verbatim transcription of the audio recordings. The researcher was a female Ph.D. student working as a professional nurse in a trauma ICU when the study commenced and developed an interest in researching stresses that the professional nurses experience when caring for critically ill patients. The study resulted in the development of the self-care model. The researcher was promoted to clinical facilitator in the trauma ICU. Before model implementation, the researcher established a relationship by organizing a workshop presenting the self-care model. Participants were asked this question "How was it for you to implement this model?" Communication skills such as probing, reflection, paraphrasing, summarizing, and active listening were applied to explore this question further. The interviews were scheduled for 40 min. Out of the eight participants, only six were interviewed. After the fifth interview, there was the repetition of answers and comments. Therefore, the researcher continued with the sixth interview to confirm the saturation of data collection. The two participants who attended the workshop but were not interviewed were busy conducting the elementary ICU program during data collection. This program aimed to recruit registered nurses working in the general wards to work in ICU departments to combat the staff shortage.

2.4.4. Data analysis

Data analysis reduces the data, gives meaning, and organizes data [21]. The data were analysed according to Giorgi's phenomenological method [22,23]. The following five steps recommended by Giorgi were followed. 1)Assume a phenomenological attitude. 2) Read the entire written account to sense the whole. 3) Delineate meaning units. 4) Transform the meaning units into psychologically sensitive statements of their lived meanings. 5) Synthesise a general psychological structure of the experience based on the constituents of the experience. The researcher chose Giorgi's phenomenological data analysis as it focuses strongly on the psychological perspective of the participant. The researcher met with the independent coder to discuss the themes and categories identified, and together with the coder, decided on the final themes and categories [22,23]. The researcher and the independent coder reached a consensus through Skype, and data were analysed through thematic coding.

3. Results

3.1. Description of the model to facilitate self-care of professional nurses caring for critically ill patients

The model comprises the primary and secondary contexts in which the facilitation of self-care occurs (Fig. 2). The contexts are shaded in red and peach and surrounded by broken rectangular borders. The primary context represents the ICUs in Gauteng Province in South Africa. The primary context triggers stress and burnout experienced by registered nurses living with uncaring for self. The secondary context represents the living space where the interaction of the professional nurses with their friends and family

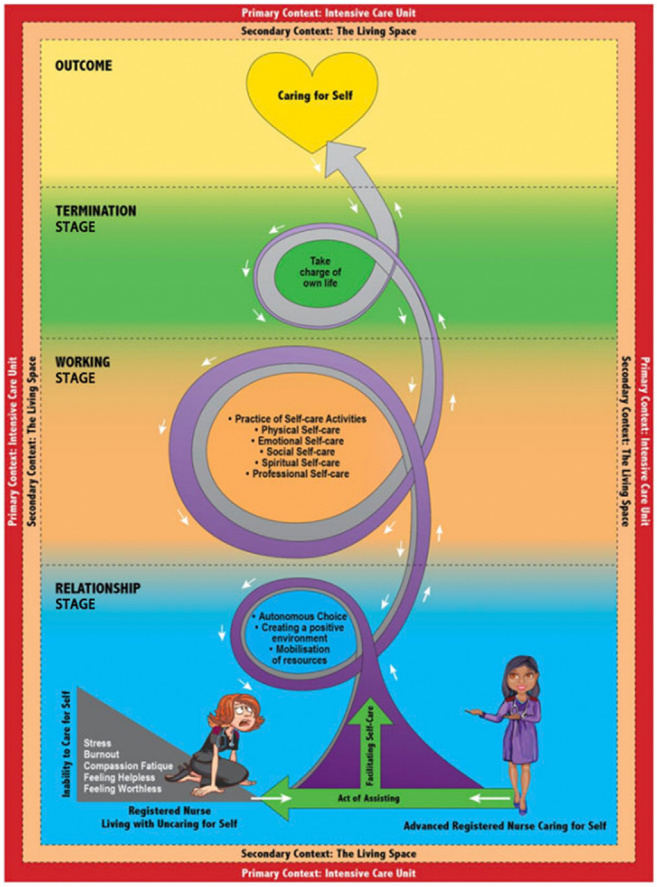

Fig. 2. A diagrammatic representation of a model to facilitate self-care of registered nurses in ICU.

members occurs. The living space is represented with a peach border as it is associated with encouraging communication, calming down, and inspiring good manners [24]. The living space is a context where the facilitation of self-care occurs through the physical, social, mental, psychological, and spiritual dimensions. The model is divided into three stages: relationship, working, and termination.

In the relationship stage, the registered nurse living with uncaring for self appears on the left-hand side, sliding off the triangle. Sliding off towards the position of the advanced registered nurse caring for self is an indicative sign of failing to cope and crying for help. The colour grey of the triangle and the grey attire that the registered nurse is living with uncaring for self are associated with negative feelings such as depression [24]. Feelings of stress, burnout, and compassion fatigue, feeling helpless and worthless are portrayed in the triangle.

The advanced registered nurse caring for self is illustrated on the right-hand side of the model. Standing boldly on the rectangle indicates stability. Stability shows the ability to stand up on your own. Her smiling face, hands reaching out to the registered nurse living with uncaring self-indicate, and willingness to assist throughout the self-care journey. The purple dress that the advanced registered nurse caring for self is wearing signifies independence. The process occurred in a spiral form, starting from the relationship phase until the outcome was achieved. The loops originate in the relationship phase and end in the termination phase. Both these loops begin immediately after assisting, one emerging from the grey triangle and the other from the blue rectangle. The grey loop indicates the movement of the registered nurse living with uncaring for self, while the purple loop indicates the movement of the advanced registered nurse caring for self. The loops change in size as they move upwards. The grey loop becomes smaller at the beginning of the triangle and grows bigger, and becomes the largest loop in the termination phase. The size of the loops determines the amount of self-care knowledge the registered nurse gained during the facilitation process. The bigger the size of the loop, the more self-care knowledge the registered nurse has acquired. The relationship phase is the first phase where the creation of a positive environment occurs between the advanced registered nurse caring for self and the registered nurse uncaring for self. The arrows were coloured green to symbolize renewal and rebirth. Green is also an emotionally positive colour that restores a sense of wellbeing and revitalizes us physically, emotionally, and mentally exhausted [24]. There is the mobilization of resources such as life skill training, and the registered nurse uncaring for self makes an autonomous choice to go through the self-care journey.

In the working stage, the advanced registered nurse caring for self-focused on ensuring that the registered nurse uncaring for self is taught and practices the physical, social, emotional, spiritual, and professional self-care activities. This stage is the largest peach-coloured phase where most activities happen. The colour peach is a combination of orange and red, symbolizing calmness. Peach colour enhances communication and brings a high degree of positivism. The colour peach encourages tough situations and gives us the power to continue until solutions are achieved [24]. The different presenters were invited to assist with the self-care activities at the workshop. The social worker focused on debriefing; the physiotherapist was involved with aerobics training while the dietician reinforced the importance of nutrition.

The termination stage is the final stage of the model where the registered nurse uncaring for self was evaluated by the advanced registered nurse caring for self. The termination stage is the same size as the relationship stage. The green colour symbolizes growth [24]. The objectives of the termination stage focused on evaluating the following: the stressors, the practice of self-care activities, and utilization of the acquired life skills, as well as the participants to take charge of their own lives. The researcher evaluated the participants, and during the interviews, one of the participants responded by saying:

> *"This model has changed me. I am taking care of myself. I have learned that it is very important to take care of yourself, especially when looking after these patients."* (Participant 4)

Taking charge of self implies making self-compassionate choices on how we act in the real world. This is done when an individual practices self-compassion and remains calm in failure. The individual becomes self-determined, self-motivated, and has the autonomy to complete tasks in their own time. Self-management entails being dedicated and saying no to factors and people that cause harm to us. Taking charge of self by being resilient and acknowledging our feelings when we are vulnerable or going through grief. Nurses should be strong in body, mind, and spirit. The nurses should develop a daily self-care routine to meet their basic needs such as nutrition, hygiene, exercise, and social contact. The outcome of the process is reached when the registered nurse living with uncaring for self is at the point where she can manage her stress, has increased feelings of worth, and has developed resilience. They should monitor their stress levels, and if they feel overwhelmed, they must consult a therapist. The individual should maintain social interaction and supportive networks [25,26]. The outcome illustrated that the registered nurse uncaring has achieved self-care goals and can care for self. The result is represented by the

shape of a heart which signifies that the registered nurse living with self-neglect is now happy, has self-compassion, and can promote her physical, social, mental, and spiritual being. The colour of the heart is now bright yellow which revolves around sunshine and evokes feelings of happiness and positivity [24]. There is the probability of relapsing at any of the three phases. Self-care is a continuous process.

3.2. The phase of evaluating the model

3.2.1. Theme one: The model brought positive experiences, change, and self-awareness

The findings of theme one was further explored in three subthemes.

Sub-theme A: Experiences of registered nurses about the model. The registered nurses reported positive experiences regarding the self-care model. They verbalized through online interviews that the information presented at the workshop was clear, and the workshop was presented in a pleasant and comfortable atmosphere. These are the words of the participants:

> *"The researcher was clear and straight to the point."* (Participant 6)

> *"It was not easy, but I had to pick myself up. We formulated WhatsApp groups where we talked and encouraged one another. Shared what we eat and which supplement to take."* (Participant 5)

The combination of different presenters made the workshop very valuable, interesting, and educational. The following direct quotations supported this theme:

> *"There were a lot of things that I didn't know that they are important in our daily lives."* (Participant 1)

> *"As nurses, we tend to put other people first and forget about our wellbeing."* (Participant 4)

Sub-theme B: Change has taken place compared to self-care before the workshop. The researcher noted that the registered nurses were close to burnout before the workshop. They experienced fatigue, were drained and unmotivated. They had no energy left for their families after working a shift. They were stressed and practiced poor lifestyle habits. They mainly struggled alone with the different emotions. The model assisted them as they experienced change which benefitted their families, friends, and colleagues. This is evident from the following verbal quotations:

> *"I was burnout before implementation of the model, and now I feel stronger, wiser and ready to change."*(Participant 4)

> *"I am transformed, and I have changed the way I look at people (laughing)."* (Participant 2)

> *"I am a different person now, especially the way I see things, the way I think. I am not saying I am perfect, but I am not going back to the life I was living before knowing the model."* (Participant 5)

> *"I am taking charge of my life, taking a stand, and living a healthy lifestyle."* (Participant 1)

Sub-theme C: Self-care after the model. The registered nurses gained more knowledge regarding self-care after the model. They developed self-awareness and resilience. Their resilience assisted them in coping both at home and work. The model instilled hope, and they became motivated to practice what they had learned. They became aware of the importance of a balanced lifestyle and living healthier at home, at work, and in society. This was evident from the following verbal quotes:

> *"This model has boosted my self-confidence. I started even thinking a lot* about my *future now. I realized that to take care of myself. I should focus on my career and study further. I don't spend time feeling pity for myself anymore, and I believe that I will get whatever I want."* (Participant 1)

> *"After the self-care model, I realized that I need to create time for the gym because it is important. During the lockdown, the gyms were closed. I started skipping, and I was surprised by my family joining me. Even now, we are exercising as a family."*(Participant 5)

> *"When I feel down, I start skipping and drinking lots of water."* (Participant 5)

3.2.2. Theme two: The model benefitted the registered nurses holistically

Theme Two is based on the five sub-themes that describe all the participants' dimensions as human beings that help their holistic well-being. The holistic approach assisted the registered nurses in managing themselves emotionally, spiritually, socially, and physically. The researcher recruited other professional members of the wellness program to reinforce the concept of self-care, such as the social worker, the dietician, and the physiotherapist. The recruitment of other presenters made the workshop more interesting and more valuable. In the words of one participant:

> *"The workshop was informative and educational. She took all those important people such as the dietician, social worker, and physiotherapist, made them be part of the workshop. It helped everyone."* (Participant 3)

Sub-theme A: The different presenters ensure a holistic approach. The different presenters at the workshop ensured that the registered nurses were holistic. The social worker's input contributed to the emotional intelligence of the participants. The registered nurses became aware of the social worker's services in the hospital. These services were not only for patients but also for the wellness of the registered nurses. They started utilizing the debriefing sessions after stressful events. Sharing their feelings and emotions was a new experience, but they felt less lonely by sharing. The verbal quotation from participants was as follows:

> *"Talking to the social worker helped and made me realize that as a nurse, I need to bottle up my feelings. I don't have to be ashamed of my emotions, and I should share my pain with other people."* (Participant 1)

> *"The dietician helped to explain the different sources of food, the importance of reducing salt intake."* (Participant 4)

> *"The physiotherapist kept on pushing me until the session ends. She motivated me, she motivated us."* (Participant 1)

> *"They instilled hope and informed us that they will always be there for us.They reassured us."* (Participant 2)

Sub-theme B: The social worker's input contributes to emotional intelligence. The registered nurses became aware of the social worker's services in the hospital.

> *"Even at home, I'm running around."* (Participant 6)

> *"Talking to the social worker helped and made me realize that as a nurse I need to bottle up my feelings. I don't have to be ashamed of my emotions, and I should share my pain with other people."* (Participant 1)

Sub-theme C: Spirituality. The registered nurses experienced that worshipping, dancing, and reading scriptures with their colleagues helped them, and they were inspired to start their day with morning prayers at work. The following verbal quotes evidenced this:

"My family and I have now connected to our church, and they are sending us online sermons. During the COVID-19 pandemic, I prayed a lot, and this has brought us closer to God." (Participant 6)

"My family and I have now connected to our church, and they are sending us online sermons. During the COVID-19 pandemic, I prayed a lot, and this has brought us closer to God." (Participant 6)

"On Friday mornings, we read a lot of scriptures." (Participant 4)

Sub-theme D: Social aspect. The registered nurses joined WhatsApp groups to share their experiences during the implementation process. They inspired and encouraged one another in these groups and realized the importance of social networking, especially during the lockdown. The following verbal quotations support this:

"We worked in teams. We started buddying. I realized that you cannot work alone." (Participant 2)

"We formulated WhatsApp group where we talk and encourage each other.We share healthy meals and the supplements we should drink. This has helped, and the group has kept us together." (Participant 6)

"During lockdowns, I started organizing picnics at home with my family, and we really had fun and played games together." (Participant 3)

Sub-theme E: Physically. The session with the physiotherapist made the registered nurses aware of their fitness levels and motivated them to keep fit by doing regular exercises. The dietician made them aware of unhealthy eating habits and prepared healthy food. The registered nurses started preparing and freezing healthy cooked meals to avoid eating junk food. They learned about the role of supplements and eating less starch and smaller portions. They also learned how important it is to include fruit and vegetables in their diets and drink more water daily. The following quotations support this:

"Learnt how to reduce portions." (Participant 4)

"Manage weight better …" (Participant 1)

"Learnt how to reduce portions." (Participant 4)

"The exercises were great but draining, and they made me realize that sometimes we think we are healthy and fit whereas we are not. Honestly, this has made me realize that you will not be productive at work if you are not fit. This showed me that you don't have to do vigorous exercises. Little exercises help unwind your mind."(-Participant 1)

3.2.3. Theme three: Role modeling self-care practices motivated and benefitted others

Theme three was supported by Sub-theme A and B.

Sub-theme A: After the workshop, they took deliberate steps to manage their self-care themselves. The registered nurses adopted a new attitude towards their health, which helped them take responsibility. They started making plans for the future because they felt motivated. They verbalized that they would like to attend more workshops and further develop themselves. The following verbal quotations support this:

"Now I am consistent …" (Participant 6)

"I am going for my professional updates … attending." (Participant 2)

"When you start taking care of yourself … nothing to fear …" (Participant 4)

"Model has boosted my self-confidence … I started even thinking of my future." (Participant 1)

Sub-theme B: Effective self-care ripples out to benefit others as well. Practicing self-care helped the registered nurses as they encouraged and motivated their families, peers, and friends to follow a healthy lifestyle. Self-care improved teamwork and working relationships which improved care for critically ill patients. The following verbal quotation evidences this:

"I am a role model now." (Participant 1)

"Patients are better managed in ICU." (Participant 4)

"I wanted to resign during COVID-19, but peer briefing assisted me, and we reassured one another." (Participant 5)

4. Discussions

The study's objective was to describe the development, implementation, and evaluation of the effectiveness of a model for the facilitation of self-care of professional nurses caring for critically ill patients in ICUs in a public hospital in Gauteng.

The model was developed using three theoretical frameworks, which were Orem's theory of self-care [14], Pender's HPM [15], and the theory of human caring by Watson [16]. The researcher organized a one-day workshop to present the model. Other presenters such as the social worker, dietician, and physiotherapist were invited to motivate the participants. The model was divided into three stages: the relationship, working, and termination. The relationship stage focused on creating a positive environment, mobilizing resources, and making an autonomous decision. The self-care activities practiced during model implementation included physical, emotional, social, spiritual, and professional self-care activities. The physical self-care activities included an aerobic session conducted by the physiotherapist and the dietician.

The first lines of health-promoting behaviours are exercise, proper nutrition, and adequate sleep. Despite knowing health-promoting behaviours, only 42.5% of nurses consumed fruits and vegetables, and more than 70% did not adhere to American Heart Association (AHA) guidelines for performing physical activity. The AHA guidelines recommend a minimum of one hundred and 50 min of physical activity and eating a diet with at least five servings of fruits and vegetables daily [27].

The social worker did the emotional self-care activities that emphasized identifying and managing emotions. Effective stress management strategies and life skills such as time management, decision-making, and problem-solving were taught. The workshop enhanced group interaction facilitated communication and relationships amongst the workshop participants. The workshop increased collaboration and strengthened social support between the researcher, dietician, physiotherapist, and participants.

Social support is one of the coping strategies that can assist nurses with the emotional demands of the situation by getting advice and understanding from another person. Workshops have

shown significant efficacy as adaptive coping strategies. Other interventions that have demonstrated effectiveness include promoting social relationships, meetings, and strengthening social support [28]. The participants were motivated to practice the spiritual self-care activities by having prayer meetings, choosing a spiritual song that fulfilled their soul, and engaging in reflective practices such as meditation. The workshop program's implementation also comprised a 10-min session of spiritual reflection. To take care of your spiritual self, have family prayer times in the morning and evenings, and remember that a family that prays together stays together. Repent and ask forgiveness from God. Read and share the scriptures and spiritual readings with your family, friends, and colleagues [29].

At the workshop, the participants were inspired to utilize professional self-care activities. The researcher encouraged the participants to orientate, supervise and mentor the new ICU staff. Team building activities were encouraged. An effective orientation program prepares the nurses to deliver quality patient care [30]. Peer mentoring assists the nurses by ensuring active participation in their learning, and it develops knowledge and skills such as teamwork, communication skills, and collaboration. Combining a senior nurse with a less experienced nursing student can create a double support system. Mentoring socializes the nurses to nursing, and the mentor acts as a role model and a source of inspiration to bridge theory and practice. Mentors provide emotional and psychological support for mentees in a critical care setting [31,32]. The model was implemented in three months in ICUs by the registered nurses caring for critically ill patients. Data was collected after three months of online platforms. The question asked during the interviews was, "How was it to implement this model?" Data analysis resulted in three themes emerging, as discussed below.

Theme one: The model brought positive experiences, change, and self-awareness. The change took place amongst the participants who implemented the model, and there was increased self-awareness. Self-awareness is a dynamic and transformative process of self-reflection and change. The first step towards self-care is becoming resilient. It involves an objective examination of oneself through introspection by ensuring that an individual knows own thoughts, feelings, beliefs, values, behaviours, and feedback from others [33,34].

The registered nurses gained more knowledge regarding self-care after the model. They developed self-awareness and resilience, and their resilience assisted them in coping both at home and work. The model instilled hope, and they became motivated to practice what they had learned. They became aware of the importance of a balanced lifestyle and living healthier at home, at work, and in society. Individual resilience theory focuses on understanding how an individual overcomes stressful situations. Resilience refers to the ability to recover from stressful life events and bounce back by positively adapting or recovering despite life situations. Resilience enables nurses to cope with their work environment and maintain healthy psychological functioning [18,35].

Theme two: The model benefitted the registered nurses holistically. The researcher, social worker, and dietician presented at the workshop while the physiotherapist involved the participants with an aerobic session of 40 min. The researcher was the first speaker to present the self-care model to ensure that the registered nurses well understand the model for them to implement it in the ICU. The dietician reinforced proper nutrition, and the physiotherapist reinforced exercise. The social worker did debriefing and life skills such as time management, decision-making, and problem-solving. The different presenters at the workshop ensured that the registered nurses were holistic. The social worker's input contributed to the emotional intelligence of the participants. The registered nurses became aware of the social worker's services in the hospital. These services were not only for patients but also for the wellness of the registered nurses. They started utilizing the debriefing sessions after stressful events. The registered nurses experienced that worshipping, dancing, and reading scriptures with their colleagues helped them, and they were inspired to start their day with morning prayers at work.

The registered nurses joined WhatsApp groups to share their experiences during the implementation process. They inspired and encouraged one another in these groups and realized the importance of social networking, especially during the lockdown. The session with the physiotherapist made the registered nurses aware of their fitness levels and motivated them to keep fit by doing regular exercises. The dietician made them aware of unhealthy eating habits and prepared healthy food. Self-care is about incorporating physical self-care activities to improve your wellbeing. The findings of this study indicate that the nurses understand the importance of self-care to maintain their wellbeing. The nurses should know that performing the self-care practices deliberately and health-promoting initiatives reduces stress and improve the quality of life. They realize the importance of physical health, including maintaining their diet, adequate sleep, and physical activity to improve physical and psychological well-being [36,37].

Theme three: Role modeling self-care practices motivated and benefitted others. The registered nurses adopted a new attitude towards their health and develop resilience. Resilience is the ability to bounce back, and it enables the nurses to maintain their health and cope with their environment. They learned to overcome difficulties, solve problems, and utilize the coping mechanisms that relieve their stress. The characteristics of being resilient are coping, control, competence, optimism, self-efficacy, sense of humour, hope, and good spirituality. Resilience boosted their self-confidence; self-mindfulness and communication were improved [35,38].

5. Conclusion

The model raised the nurses' self-awareness and encouraged them to implement improved self-care practices. They considered all their dimensions as human beings, which largely benefitted their holistic well-being. They developed the capacity to self-manage their self-care practices, and by doing so, they act as role models and motivate others. The findings of theme one indicated that the model to facilitate self-care of the registered nurses caring for critically ill patients raised the nurses' self-awareness and encouraged them to implement improved self-care practices.

The registered nurses reported positive experiences regarding the self-care model. They verbalized through online interviews that the information presented at the workshop was clear, and the workshop was raised in a pleasant and comfortable atmosphere.

The model instilled hope, and they became motivated to practice what they had learned. They became aware of the importance of a balanced lifestyle and living healthier at home, at work, and in society. The holistic approach assisted the registered nurses in managing themselves emotionally, spiritually, socially, and physically. The researcher recruited other professional members of the Wellness Programme to reinforce the concept of self-care, such as the social worker, the dietician, and the physiotherapist. The recruitment of other presenters made the workshop more interesting and more valuable. The registered nurses adopted a new attitude towards their health, which helped them take responsibility for themselves, and they started making plans because

they felt motivated.

6. Limitations

Trustworthiness in qualitative research reassures the reader that the study is significant and has value. It focuses on how well the evidence provided by the researcher in his study ensures that the descriptions and analysis represent the reality of the situations and the people being studied [39]. The four criteria to evaluate trustworthiness in qualitative research are credibility, dependability, confirmability, and transferability [40,41]. The study was conducted in the public sector and might not represent the experiences of the registered nurses in the private sector. The study only included one specific hospital in Gauteng and did not represent all the South African public hospitals. The researcher interviewed only six participants who could not represent the South African registered nurses in the public sector. The panel of experts only had experience in model development but were not experts in self-care. There was no consumer representation on the panel. The demographics of the participants did not include prior exposure to self-care activities. The inclusion criteria were only registered nurses working in a public hospital. The implementation of the self-care model was influenced by the occurrence of the COVID-19 pandemic, which affected data collection and model performance.

7. Recommendations

The researcher recommends that the model be used in different domains in the nursing profession, such as nursing practice, nursing education, and nursing research. The model is applicable to be used as a frame of reference in hospitals and clinics in both the public and private sectors. The researcher recommends that this model be replicated with other categories of nursing staff based on the positive feedback from the participants during the evaluation of the model. The model could benefit all nursing categories and not only registered nurses. The model is ideal for use in different units, including emergency units, general wards, specialty wards, and various ICUs. The model is suitable to be used by other researchers in other provinces, countries, and worldwide. The researchers should research whether registered nurses nationally and internationally will receive the same benefit that the South African registered nurses have experienced. Further research is needed to evaluate the value of implementing this model on nursing students, patients, and multi-disciplinary teams. Registered nurses' stress and burnout have increased during the COVID-19 pandemic; hence, research should be done to check if the model to facilitate self-care can assist them. Future research should be done to establish whether integrating the model in the nursing curriculum can benefit nursing students to cope in nursing practice. The model should be integrated into nursing colleges' and universities' nursing curriculum or training programs. It would apply to the primary comprehensive four-year course curriculum, diploma, and degree courses. Both undergraduates and post-graduate students should be included as they all do their clinical practices with patient care.

CRediT authorship contribution statement

Mpho G Chipu: Methodology, Data curation, Investigation, Validation, Writing-original draft, Writing-review and editing, Conceptualization. **Charlene Downing:** Conceptualization, Methodology, Validation, Supervision, Writing-review & editing.

Funding

Nothing to declare.

Data availability statement

The datasets used and analysed during the current study are available from the corresponding author on reasonable request.

Declaration of competing interest

The authors have declared no conflict of interest.

Acknowledgments

The authors acknowledge Prof E. W. Nel who supported and supervised the researcher while on retirement. The research study was partially funded by the Supervisor linked bursary and DET bursary as awarded by the University of Johannesburg.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijnss.2021.12.010.

References

[1] Ngobeni V, Breitenbach MC, Aye GC. Technical efficiency of provincial public healthcare in South Africa. Cost Eff Resour Allocation 2020;18:3. https://doi.org/10.1186/s12962-020-0199-y.
[2] Statistics South Africa. Community survey 2016 statistical release. Statistics South Africa [Accessed 2021-11-07], https://cs2016.statssa.gov.za/wp-content/upload/2016/07/NT-30-06-2016-RELEASE-for-CS-2016_Sr=tatistical-release_1-July-2016.pdf; 2016.
[3] Rabie T, Klopper HC. Guidelines to facilitate self-care among older persons in South Africa. Health SA Gesondheid 2015;20(1):33–44. https://doi.org/10.1016/j.hsag.2015.02.005.
[4] Engelbrecht MC, Heunis JC, Kigozi NG. Post-traumatic stress and coping strategies of South African nurses during the second wave of the COVID-19 pandemic. Int J Environ Res Publ Health 2021;18(15):7919. https://doi.org/10.3390/ijerph18157919.
[5] Maharaj S, Lees T, Lal S. Prevalence and risk factors of depression, anxiety, and stress in a cohort of Australian nurses. Int J Environ Res Publ Health 2019;16(61):1–10. https://doi.org/10.3390/ijerph16010061.
[6] Birhanu M, Gebrekidan B, Tesefa G, Tareke M. Workload determines workplace stress among health professionals working in Felege-Hiwot referral hospital, Bahir Dar, Nortwest Ethiopia. J Environ Public Health 2018;5:1–8. https://doi.org/10.1155/2018/6286010.
[7] Egan H, Keyte R, McGowan K, Peters L, Lemon N, Parsons S, et al. 'You before me':a qualitative study of health care professionals' and students' understanding and experiences of compassion in the workplace,self-compassion,self-care and health behaviours. Heal Prof Educ 2019;5(3):225–36. https://doi.org/10.1016/j.hpe.2018.07.002.
[8] Hossain F, Clatty A. Self-care strategies in response to nurses' moral injury during COVID-19 pandemic. Nurs Ethics 2021;28(1):23–32. https://doi.org/10.1177/0969733020961825.
[9] Linton M, Koonmen J. Self-care as an ethical obligation for nurses. Nurs Ethics 2020. https://doi.org/10.1177/0969733020940371. 969733020940371.
[10] Parks L. Unifying vision: strategies that influence nurse self-care practices in the intensive care unit nurses. Doct Nurs Pract 2021;44:1–51. https://digitalcommons.jsu.edu/etds_nursing/44.
[11] Ross A, Touchton-Leonard K, Perez A, Wehrlen L, Kazmi N, Gibbons S. Factors that influence health-promoting self-care in registered nurses: barriers and facilitators. Adv Nurs Sci 2019;42(4):358–73. https://doi.org/10.1097/ans.0000000000000274.
[12] Power BT, Kiezebrink K, Allan JL, Campbell MK. Understanding perceived determinants of nurses' eating and physical activity behaviour: a theory-informed qualitative interview study. BMC Obes 2017;4:18. https://doi.org/10.1186/s40608-017-0154-4.
[13] Phiri LP, Draper CE, Lambert EV, Kolbe-Alexander TL. Nurses' lifestyle behaviours,health priorities and barriers to living a healthy lifestyle:a qualitative descriptive study. BMC Nurs 2014;13(1):38. https://doi.org/10.1186/s12912-014-0038-6.
[14] Orem DE, Taylor S, Renpenning KMN. Nursing: concepts of practice. sixth ed. St Louis: Mosby; 2001.
[15] Pender NJ, Murdaugh CL, Parsons MA. Health promotion in nursing practice. sixth ed. Boston, MA: Pearson; 2011.
[16] Watson Caring Science Institute. Watson Caritas patient score [Accessed 2020-04-21], https://watsoncaringscience.org/watson-caritas-patient-score/.
[17] Wei H, Watson J. Healthcare interpersonal team members' perspectives on human caring. A directed content analysis study. Int J Nurs Sci 2019;6(1):7–23. https://doi.org/10.1016/j.ijnss.2018.12.001.

[18] Chinn PL, Kramer MK. Knowledge development in nursing theory and process. tenth ed. USA: Elsevier, Inc; 2018.
[19] Ghali BAA, Miri L, Hamzah DK. Self-management and its relation to organizational excellence. Int J Eng Technol 2018;7(4):47–50. https://doi.org/10.14419/ijet.
[20] Dickoff J, James P, Wiedenbach E. Theory in a practice discipline Part 1: practice orientated theory. Part 1:Practice oriented theory. Nurs Res 1968;17(5):415–35. https://doi.org/10.1097/00006199-196809000-00006.
[21] Gray JR, Grove SK, Sutherland S. The practice of nursing research. Appraisal, synthesis, and generation of evidence. eighth ed. . St Louis: Elsevier Inc; 2017.
[22] Giorgi A. Phenomenology and psychological research. Pittsburgh: Duquesne University Press; 1985.
[23] Giorgi A. The descriptive phenomenological psychological method. J Phenomenol Psychol 2012;43(1):3–12. https://doi.org/10.1163/156916212x632934.
[24] Alvi S.A.Y. Color psychology and it's effect on human mind. [Accessed 2020-06-01]. https://www.academia.edu/34799405/Color_Psychology_and_its_effects_on_human_mind.
[25] Hofmeyer A, Taylor R, Kennedy K. Knowledge for nurses to better care for themselves so they can better care for others during the Covid-19 pandemic and beyond. Nurse Educ Today 2020;94:104503. https://doi.org/10.1016/j.nedt.2020.104503.
[26] Walker LO, Avant KC. Strategies for theory construction in nursing. sixth ed. USA: Pearson; 2014.
[27] Ross A, Yang L, Wehrlen L, Perez A, Farmer N, Bevans M. Nurses and health-promoting self-care:do we practice what we preach? J Nurs Manag 2019;27(3):599–608. https://doi.org/10.1111/jonm.12718.
[28] Martínez-Zaragoza F, Benavides-Gil G, Rovira T, Martín-Del-Río B, Edo S, García-Sierra R, et al. When and how do hospital nurses cope with daily stressors? A multilevel study. PLoS One 2020;15(11):e0240725. https://doi.org/10.1371/journal.pone.0240725.
[29] Egunjobi JP. Biopsychosociotechno-spiritual selfcare during Covid-19 lockdown. The Catholic University of Eastern Africa, [Accessed 2020-01-01], https://www.researchgate.net/publication/341055943.
[30] Monforto K, Perkel M, Rust D, Wildes R, King K, Lebet R. Outcome-focused critical care orientation program:From unit based to centralized. Crit Care Nurse 2020;40(4):54–64. https://doi.org/10.4037/ccn2020585.
[31] Sibiya MN, Ngxongo TSP, Beepat SY. The influence of peer mentoring on critical care nursing students' learning outcomes. Int J Workplace Health Manag 2018;11(3):130–42. https://doi.org/10.1108/ijwhm-01-2018-0003.
[32] Dirks JL. Alternative approaches to mentoring. Crit Care Nurse 2021;41(1):e9–16. https://doi.org/10.4037/ccn2021789.
[33] Buvaneswari R, Sylvia J. Self-awareness among nursing students of selected nursing college. Int J Curr Res Aca Rev 2018;6(5):1–6. https://doi.org/10.20546/ijcrar.2018.605.001.
[34] Han S, Kim S. An integrative literature review on self-awareness education/training programs in the nursing area. Perspect Nurs Sci 2016;13(2):59. https://doi.org/10.16952/pns.2016.13.2.59.
[35] Yilmaz BE. Resilience as a strategy for struggling against challenges related to the nursing profession. Chin Nurs Res 2017;4(12):9–13. https://doi.org/10.1016/j.cnre.2017.03.004.
[36] Younas A. Self-care behaviors and practices of nursing students:review of literature. J Health Sci 2017;7(3):137–45. https://doi.org/10.17532/jhsci.2017.420.
[37] Matarese M, Lommi M, De Marinis MG, Riegel B. A systematic review and integration of concept analyses of self-care and related concepts. J Nurs Scholarsh 2018;50(3):296–305. https://doi.org/10.1111/jnu.12385.
[38] Bajaj B. Mediating role of self-esteem in the relationship of mindfulness to resilience and stress. Int J Emerg Ment Health 2017;19(4):372. https://doi.org/10.4172/1522-4821.1000372.
[39] Bloomberg LD, Volpe M. Completing your qualitative dissertation: a road map from beginning to end. 3th ed. Los Angeles, Calif: SAGE; 2016.
[40] Lincoln YS, Guba EG. Naturalistic inquiry. Newbury Park, CA: Sage Publications; 1985.
[41] Grove SK, Grey JR. Understanding nursing research. seventh ed. St Louis, Missouri: Elsevier Inc; 2019.