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Effect of Caring Behaviour:
Protocol of caring-based education program

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Abstract
Caring behaviour is essential and crucial to nursing, and it has become an important component in providing appropriate nursing care to patients. This study aims to determine the effect(s) of a caring-based education program on critical care nurses' caring behaviour, efficacy, and work environment. This study will employ a quasi-experimental design with two groups: control (n = 40) and intervention (n = 40) from critical care settings in Penang public hospitals. The data will be analyzed using descriptive and inferential analysis; Pearson correlation coefficient, independent t-test, analysis of variance (ANOVA), and paired t-test.

Keywords: caring behaviour; caring efficacy; healthy work environment; critical care nurses

1.0 Introduction

Patients with severe medical conditions will be admitted to the hospital to receive medical treatment to reduce suffering and improve health; this situation seriously threatens patient safety and patient outcomes. An in-patient area in acute care facilities reserved for critically ill patients requires continuous and sophisticated monitoring and interventions due to the severity of the illness (Leone-Sheehan, 2019). As one of the pillars in hospital care and facilities, nurses are the largest health care workers who spend time twenty-four hours providing care to the patient and are responsible for practicing caring behaviour to optimize patients' health and abilities in preventing illness and injury, facilitating healing and less suffering as mentioned by American Nurses Association (ANA) (2017). While providing care to critically ill patients focus on providing "total support" for bodily systems and organ functions with the appropriate parameters to monitor and manipulate the characteristics of critically ill patients or physiologically decompensated, unconscious, delirious, and immunocompromised (Alshammari et al., 2018). Therefore, critical care nurses in critical care settings need this level of caring.

1.1 Caring Behaviour

Caring is fundamental to nursing, the most important part of professional value. According to Watson's theory, "Nursing promotes health, preventing illness, caring for the sick, and restoring health (Vujanic et al., 2020). In today's efficient and high-tech healthcare environment, nurses must have a caring mentality at its foundation to avoid becoming overly technical. Nursing practice may become more technical with caring behaviour due to the patients' more complex care requirements and a shortage of time. Nurses focused on the human relationship must see, understand, and accept responsibility for providing care (Karlsson & Pennbrant, 2020). Therefore, the highest priority in nursing practice is direct nursing care, evident in nurses' caring behaviour, which will improve patient care and positive patient outcomes.

1.2 Caring Efficacy
Caring behaviour is an approach to improving critical care nurses' concern for patients. However, it is influenced by caring efficacy, in which a nurse is confident in expressing his or her care to patients (Lukmanulhakim et al., 2019). Self-efficacy is strongly related to the competence component of the empowerment concept. Higher self-efficacy results in better self-management, leading to improved health outcomes, reduced healthcare service burdens, and healthcare utilization (Allegrante et al., 2019). Therefore, developing solutions to address any caring inadequacies would be made possible by monitoring critical care nurses' caring efficacy to provide adequate care.

1.3 Healthy Work Environment
In critical care settings, it can be challenging for nurses to work in a profession requiring complex multitasking, heavy workloads, and specialized care for severely ill and dependent patients (Woodrow, 2018). Hence, it has been shown that healthy working environments are especially pertinent for critical care nurses, and a growing amount of research shows that nurse work conditions and patient outcomes are related (Ulrich, 2018). The American Association of Critical-Care Nurses (AACN) defined "a healthy work environment (HWE) is crucial to ensure patient safety, enhance staff satisfaction and retention, and maintain an organization's financial viability" and the ideal work environment provides conditions for physical, mental, and social well-being (Ageel & Shbeer, 2022). Therefore, a healthy work environment is essential to critical care nurses because it will affect mental, physical, and behavioural.

This study aims to determine the effects of a caring-based education program on caring behaviour, caring efficacy, and a healthy work environment among critical care nurses. This study also aims to determine the caring behaviour, caring efficacy, and healthy work environment among critical care nurses, to determine the relationship between caring behaviour and demographic data among critical care nurses, and to determine the relationship between caring behaviour and healthy work environment among critical care nurses in critical care settings.

2.0 Literature Review
Theory of Human Caring by Jean Watson states that "humans cannot be treated as objects and that humans cannot be separated from self, other, nature, and the larger workforce; thus, it focused on "the centrality of human caring and on the caring-to-caring transpersonal relationship yet its healing potential for both, the one who is caring and the one who is being cared for" (Kandula, 2019). While Adriana (2018) stated, in a wide range of perspectives, caring has been classified by many theorists, which include definitions of caring as a behaviour, an ideal, a process, a value, a phenomenon, a principle, and a core of the body of knowledge in nursing. Patients treated for various diseases have varying interpretations of care and caring activities. Therefore, the previous study found that the essential criteria to determine the caring behaviour among critical care nurses working in critical care settings are related to factors associated with caring behaviour, caring efficacy in influencing caring behaviour, and the impacts of a healthy work environment on caring behaviour.

2.1 Associated Factors in Caring Behaviour among Nurses
Critical care settings are distinct health service workplaces that provide high staffing ratios, advanced monitoring, and organ support to improve patient morbidity and mortality to critically ill patients who either suffer from life-threatening conditions or are at risk of developing them (Jackson & Cairns, 2020). The factor that influences well-being, health, and patient outcomes affect patient satisfaction, nursing care quality, and changes in patients' plans to return to the institution for care, all of which are important indicators of quality services (Assefa et al., 2022), results in actual adverse occurrences that have an impact on the standard of care and patient safety (e.g., errors in medication administration, falls, decubitus ulcers and hospital-acquired infections), poor outcomes among nurses (e.g., low work satisfaction, high turnover intention, work stress, job burnout and increased absenteeism) and, ultimately, adverse organizational outcomes (Stănesu-Yadav & Lillekroken, 2023).

While impacting the quality of patient care, researchers worldwide found that the relationship between patients' satisfaction and the quality of patient care is critical in evaluating the quality of nursing care (Jagoda et al., 2019). Sometimes, evaluating, assessing, and understanding the effect on the patient's satisfaction is difficult after the nurses have been performing caring behaviour (Stănesu-Yadav & Lillekroken, 2023).

On the other hand, demographic characteristics that influence caring behaviour are related to nurses' caring behaviour (performance) and patients' satisfaction, where female patients were more satisfied with nursing care than males (Arsat et al., 2022), and demographic factors (age, education, economy, position, and experience) had significant effects on nurses' caring behaviour (Zhang et al., 2021). Thus, the development and advancement of demographic features of nurses while in this field significantly impact nurses' caring behaviour Arsat et al. (2022). As a result, demographic considerations considerably impact this profession and should be considered.

2.2 Caring Efficacy in Influencing Caring Behaviour

A quantitative study by Lukmanulhakim et al. (2019) found that nurses with a high caring efficacy often feel confident in their ability to give medical interventions and fulfil patient's needs. Low caring efficacy was identified from statements in which the nurses often feel they need to be more confident in expressing their empathy, care, and communication. Nevertheless, the results are parallel to the previous study, which found that sex, educational background, length of working, and employment status correlate with caring efficacy and performance, but there is no correlation to age. Therefore, caring efficacy and nurses' caring behaviour can benefit health services since the issues can increase people's trust. It also can give patients satisfaction; thus, the number of patients who come to the hospital will be more significant.

2.3 Impacts of Healthy Work Environment (HWE) on Caring Behaviour
HWE is one of the factors in improving patient safety, and care increases the need to evaluate and define the professional work environment using behavioural expectations and practice standards (Bradshaw, 2021). Meanwhile, improving nursing unit environments includes six essential elements: skilled communication, true collaboration, effective decision-making, appropriate staffing, meaningful recognition, and authentic leadership (Hannah, 2023).

Therefore, it is fundamental to promote nurse empowerment, engagement, and interpersonal interactions at work to develop a healthy work environment and high-quality patient care. Healthier working conditions may result in happier nurses, who perform better on the job and provide better patient care, improving the financial viability of healthcare organizations. It takes constant efforts to promote a healthy work atmosphere.

2.4 Effect of Caring-based Education Program Towards Caring Behaviour
One of the core values of the nursing profession is caring, which may be learned, assessed, and quantified. Despite this view, teaching caring behaviour is hardly ever included in the curriculum for nursing education (Lillekroken, 2019). Bowman (2020) mentioned that identifying, studying, and researching the essential components of caring processes and behaviour contribute to locating, researching, and building a scientific-humanistic foundation for nursing treatments that eventually improve patient outcomes and patient satisfaction; it is essential to examine the fundamental elements of caring processes and behaviour. In Watson's theory of human caring has suggested that caring behaviour can be seen and expressed through technical and expressive behaviour since she believes caring is at the heart of nursing. Many studies of caring include influential or related factors, but few studies have investigated interventions to improve caring behaviour among nurses. Table 1 below summarizes the previous studies on the effect of caring-based education programs on caring behaviour.

Table 1. Review of previous studies on the effect of caring-based education programs towards of caring behaviour

Author	Design	Tools	Results
			Caring Behaviour
Bachtiar et al., (2023) Philippines	Non-equivalent control group post-test-only	CBI-24	The mean score of CBI-24 for participants in the control group was 5.04, and in the Experimental group was 5.48. The results showed that patients cared for by trained nurses rated the caring behaviour of nurses better than patients cared for by nurses who were not involved in the training.
Bakar et al., (2022) Indonesia	Quasi-experimental with two groups pretest and post-test design	CBI-42	Nurses between intervention group and control group had similar demographic data in gender and nursing education. The Caring behaviour approach had significant influence to improve the nurses' caring character. There were significant differences in nurses' caring character between the two groups.
Elahi et al., (2021) Iran	Single-blind, randomized, clinical trial with two groups (control group and intervention group)	Larson Caring Assessment Questionnaire (Care-Q)	Caring behaviours scores significantly increased in the intervention group after the education, compared to the control group ($p < 0.001$).
Antonini et al. (2021) Switzerland	Cluster randomized controlled trial with repeated measures	Caring Nurse-Patient Interaction Scale (EIIP-70)	The intervention group appeared to reinforce nurse caring attitudes and behaviours geared to a more humanistic practice.

In general, determining the associated factors on caring behaviour, which are lack of caring behaviour will reduce well-being, health, and patients' outcomes, impact on patient's satisfaction, and demographic characteristics influence the caring behaviour as an information to the critical care nurses the important to provide caring behaviour in nursing care in enhancing patient satisfaction, patients' outcomes, nursing care quality, quality health services, and patient safety. Caring behaviour is an essence in providing nursing care to the patient in critical care settings with the caring-based education program towards of caring behaviour will help the critical care nurses in minimize the mortality and morbidity rate, reducing care cost and shortage the length of hospital stays.

3.0 Methodology
The current study will involve a quasi-experimental study consisting of Phase 1 as a pretest, the intervention phase as an intervention of a caring-based education program, and Phase 2 as a posttest. This study will be conducted in a Public Hospital in Northern Malaysia

(Penang) which is conducted in critical care settings: the General Intensive Care Unit (GICU), Cardiac Intensive Care Unit (CICU), and Neuro Intensive Care Unit (NICU) of the Penang General Hospital (PGH) and General Intensive Care Unit of Seberang Jaya Hospital (SJH). The population in this study will be selected from nurses in critical care settings who are working in three shifts per day where the morning shift starts at 7 am until 2 pm, followed by the afternoon shift starts at 2 pm until 9 pm, and the night shift starts at 9 pm until 7.00 am. The sample size is n = 80 critical care nurses among two hospitals, n=40 at PGH (GICU = 29, CICU = 6 & NICU = 5) and n=40 GICU SJH.

Phase 1
This phase will be a pretest phase where the control and intervention groups will be provided with a questionnaire for the pretest. This phase aims to determine the caring behaviour, caring efficacy and healthy work environment among critical care nurses, identify the relationship between the caring behaviour and the demographic data and the relationship between the caring behaviour and the relationship between caring behaviour and a healthy work environment.
Intervention Phase
This phase will be an intervention of a caring-based education program, which will be provided to an intervention group consisting of one session per week and to be completed by the fifth week. The duration is one hour per session.

Phase 2
This phase will be a posttest phase where the control and intervention groups will be provided a questionnaire for the posttest. This phase aims to determine the effect(s) of a caring-based education program on the caring behaviour, caring efficacy and healthy work environment between the intervention group and control group among critical care nurses before and after the caring-based education program.

3.1 Research Instrument
Questionnaire assessment tools
The questionnaire assessment tools will consist of 1) Socio-demographic data; 2) Caring Behaviour Inventory 24 (CBI-24); 3) Caring Efficacy Scales (CES); 4) Healthy Work Environment Assessment Tools (HWEAT). A self-administered questionnaire in English and Malay will be provided through the survey by the researcher and nurse manager.

Intervention Measurement Tools
This module consists of five topics: 1) Caring and Nursing; 2) Assertiveness; 3) Caring Theories and Values; 4) Interpersonal Relationships and Communication among Critical Care Nurses; and 5) Holistic Approach in Nursing.

3.2 Intervention Program Module
These interventions are based on Watson's theory of human caring, and this module adopted from Seman (2021) and refreshed by the researcher according to the CARING acronym (C = Caring Behaviour and Caring Efficacy, A = Assertiveness, R = Responsible, I = Interaction, N = New Knowledge and G = Good Working Environment). The acronym is C for Caring Behaviour - Providing good caring behaviour will satisfy the nurse and patient and achieve the treatment goals while C for Caring efficacy - Competence and confidence in providing nursing care, A for Assertiveness - Quality of being self-assured and decision-making skills, R for Respect to patients and patient's family as a human being value in providing nursing care and Responsible in providing an excellent caring behaviour to achieve treatment goals, provide patient safety and reduced mortality and morbidity, I for Interact positively with patient and patients' family and strengthen the interpersonal skills., N for New Knowledge - Upgrade knowledge regarding caring to strengthen the nurses' level of caring in providing adequate caring behaviour and upgrade new knowledge regarding technology uses in balancing the arrangement of technology and caring and G for Good Working Environment - Good relationship among critical care nurses, nurse manager, and other healthcare workers, improved skill communication, job satisfaction and effective decision-making.

The intervention will provide detailed knowledge of caring behaviour, caring efficacy, and being well-prepared to work in a healthy environment. At the same time, it will encourage critical care nurses to strengthen their caring efficacy in providing caring behaviour in improving patient outcomes, developing nurse-patient relationships, and reducing organizational costs. Four expert panels will validate the completed caring-based education program.

3.3 Data Collection Process
After ethical approval by the UiTM Research Ethics Committee, permission will be obtained from the selected hospital authorities to recruit the participants.

Phase 1
An explanation of the study and consent given to the control and intervention group participants will be brief. Then, the pretest will be held.

Intervention Phase

The caring-based education program will be delivered to the intervention group. Meanwhile, the control group will continue their usual nursing care according to their hospital standard.

Phase 2
Posttest will be held for the control group and intervention group upon completion of the final session of intervention.

Figure 1 shows CONSORT flow diagram to provide a clear and full report regarding the information about how the trial was conducted, reporting enrolment, allocation, follow-up, and analysis of participants.
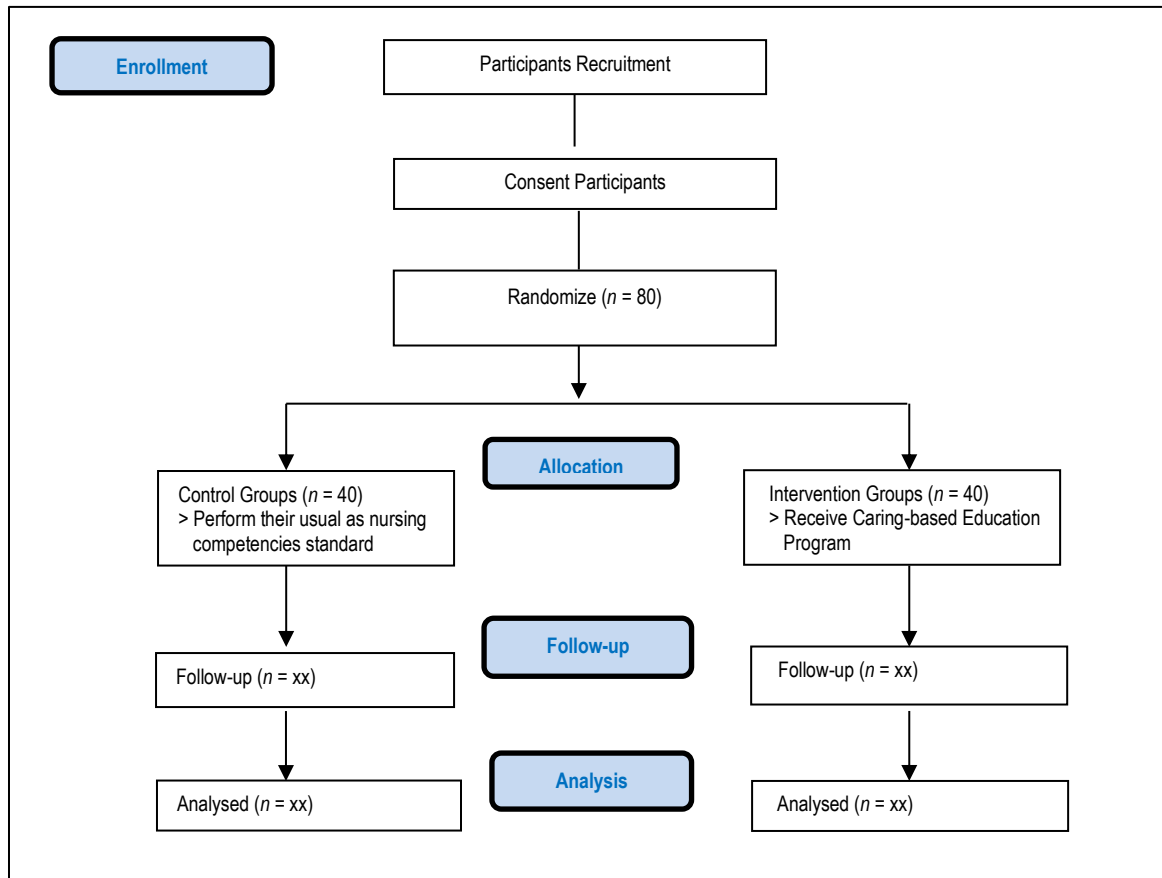

Fig. 1: CONSORT flow diagram

3.4 Data Analysis
The variables in the research sample of the questionnaire will be analyzed by using Statistical Package for the Social Science (SPSS) version 20.0. Specifically, the data also will be examined by using descriptive analysis for the research objective (RO) 1, RO 2, and RO 3 to determine the caring behaviour, the caring efficacy, and the current healthy work environment practice among critical care respectively. Meanwhile, RO 4 will use the Pearson correlation coefficient, independent t-test, and analysis of variance (ANOVA) to determine the relationship between the caring behaviour among critical care nurses and demographic data. For the RO 5 will use the Pearson correlation coefficient to determine the relationship between the caring behaviour among critical care nurses and the healthy work environment. Meanwhile, RO 6 will use the Paired t-test to determine the effect(s) of the caring-based education program in the caring behaviour, caring efficacy and healthy work environment between the intervention group and control group among critical care nurses before and after the caring-based education program.

4.0 Conclusion and Recommendations

In summary, results from the previous studies mentioned that the caring behaviour among nurses who participate in the caring-based education program is improved. Discussion from previous studies also state that Caring-based educational programs for nurses are widely regarded as an important technique for increasing nurse caring behavior since nursing quality improves patient satisfaction (Bachtiar et al., 2023), job involvement (Elahi et al., 2021), and organization management (Oluma & Abadiga, 2020). Thus, potential improvements resulting from this study's findings span various aspects of healthcare, from patient safety and satisfaction to nurse engagement and education, provide a positive image of the healthcare institution and organization, and the government will face cost-effective related expenses, and resources required for extended hospital stays. Collectively, these improvements contribute to a more effective and compassionate healthcare system within critical care settings. This study only involves the critical care nurses who are

working in critical care settings. Therefore, for future studies, it is suggested that this study be conducted on nurses from various disciplines or units to help nurses practice and strengthen a caring culture so that patients reach an optimal level of recovery and are satisfied with the treatment provided. Therefore, this situation will have a positive impact on nurses, patients, and organizations.

5.0 Limitations
Study limitations will be apparent in the sampling and study location. Regarding sampling, only critical care nurses will be involved in this study and another limitation is the study location where this study only will be done in critical care settings.

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Paper Contribution to Related Field of Study
This study may contribute to patient safety and quality of care, healthcare costs and efficiency, nurse satisfaction and work environment, medication management and error prevention, patient and family satisfaction, professional development and education, research gap and local context, and interpersonal relationships and patient comfort. The findings from this study will encourage critical nurses to provide caring behaviour to improve patients' outcomes, reduce morbidity and mortality, and reduce healthcare costs. However, this study is being done in Penang public hospitals and involves critical care nurses only. Hence, the findings from this study will provide baseline information regarding current caring behaviour practices, especially among the target population. The findings of this study also contribute as baseline information for nursing management and provide continuous nursing education to improve the critical care nurses' integrity in providing care to the patients.

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