CHAPTER-V
DISCUSSION

In this chapter the findings of the present study have been discussed according to the study objectives in comparison with results of other studies.

In the current study, maximum staff nurses, were between 20-29 years, had one to five years of clinical experience and were females. This observation was similar to the findings of Nael et al[67], Gaffar,[62] and Sen[66].

Majority (54%) of staff nurses were graduates and had 1 to 5 years of experience in critical care areas. These observations were similar to studies conducted by Nael etal.,[67] and Vyas et al.[110]

Objective 2: To evaluate effectiveness of Individualized Communication Protocol on knowledge of staff nurses working in ICU.

Pre-test results revealed that a majority of staff nurses 100 (59%) had good knowledge, 58 (34%) had poor knowledge, and only 13 (8%) had very good knowledge regarding communication with comatose patients. After administration of Individualized Communication Protocol, the majority of staff nurses 140 (82%) were in the category of very good knowledge, and only 28 (16%) remained in the category of good knowledge. Similar findings were seen in study done by Raju et al.,[70] where the results revealed that teaching regarding use of communication board while speaking with patients on mechanical ventilator improved the knowledge of staff nurses in post-test.

Further, study findings were supported by Kashyap[72], which showed that the instructional module on care of unconscious patients improved the knowledge of staff nurses. In another study done by Sen[66], the results demonstrated that teaching was an effective approach to improve the knowledge of nurses about communication with comatose patients.

Objective 3: To evaluate effectiveness of Individualized Communication Protocol on practiceof the staff nurses working in ICU

In the present study, practice results showed that all (100%) staff nurses had below average practice score regarding communication with comatose patients before intervention.

In a study conducted by Swash[111], healthcare practitioners in the ICU reported that effective communication is so important, but it takes time, and staff nurses are untrained in this area. In similar study, Wilson[112] observed that 11.9% of staff nurses had good communication with unconscious patients in ICU. Additionally, most ICU nurses stated that verbal communication with intubated patients was critical and there was some confusion regarding the consciousness level of unconscious patients. According to Weich[113], communication skills—both verbal and nonverbal are currently undervalued in the current scenario due to lack of time and interest in other people. Elliott et al.[114] also observed less communication by nurses with unconscious patients. According to Leathart[115], intensive care nurses received very minimal or no training for communication with comatose patients.

In present study after administration of Individualized Communication Protocol the majority of staff nurses had average 97 (57%), 66 (39%) had above average and only 8 (5%) had below average practice score. Above findings indicated that both verbal and non-verbal communication practices on comatose patients by staff nurses working in ICU improved after administration of Individualized Communication Protocol. Above results were in accordance with the study findings conducted by Daya[32] indicated that teaching was effective and beneficial for the ICU nurses in improving their communication practice with comatose patients.

Objective 5: Correlation between pre-test knowledge and pre-test practice of staff nurses on communication with comatose patients.

In present study, a weak positive correlation between pre-test knowledge and practice of staff nurses on communication was observed. The results were alined with the study by Daya[32], which demonstrated the low co-relation between pre-test knowledge score and pre-test practice score.

Objective 6 & 7 : Association between level of pre-test knowledge and level of pre-test practice of staff nurses with their selected demographic variables.

The current study findings showed no statistical association between pre-test level of knowledge and practice of staff nurses with their demographic variables.

According to study conducted by Greci[116], there was no statistically significant association between socio-demographic variables of staff nurses with their level of knowledge. These findings were supported by Mohamed et al.[117] which revealed no statistically significant association between level of practice of staff nurses and their socio-demographic variables.

Objective 8: The opinion of ICU nurses on acceptability of Individualized Communication Protocol

In present study, (91–98%) of staff nurses had favorable opinion about acceptability and usability of Individualized Communication Protocol in terms of adequate information, practical application, communication channels, content, language, and ease of use of Individualized Communication Protocol. Above opinions were consistent with the study findings of Castelino et al.[81] which revealed that a significant proportion of staff nurses either agreed or strongly agreed that SBAR (situation, background, assessment, recommendation) communication technique used in the study was an effective tool during handing over of patients between shifts.

Description of socio-demographic and clinical variables of comatose patients

The socio-demographic characteristics of comatose patients in the present study revealed that 25 (43%) of the control group patients and 23 (42%) patients in the experimental group were between the age group of 56 to 65 years; majority of patients were male both in control group 42 (72%) and in experimental group 40 (72%). These findings were in accordance with study conducted by Yousefi et al.[93], where majority of patients in the experimental group and in the control, group were males.

Both groups were homogeneous in terms of education. This result was also supported by Hoseinzadeh et al.[90], where the most of patients in the experimental group 9 (45%) and the control group 8 (40%) were high school pass.

In terms of medical diagnosis, it was observed in the present study that the majority of the patients 36 (62.07%) in the control group and 20(36.36%) in the experimental group had medical diagnosis that was a neurologic disorder viz. stroke, head injury. This observation was consistent with reports obtained from studies by Eldaodae[118] and Elhawary et al.[119] who reported that majority of patients were admitted with head injury with cerebral contusion and subarachnoid hemorrhage. This finding was congruent with a study conducted by Mohammad[120], Ghoniem[121], and Sawaf [122]

In present study, majority 47 (81.03%) of the patient in control group and 43 (78.18%) in the experimental group got admitted directly from the emergency ward to ICU.

All patients in both groups were on mechanical ventilation, majority of the patients in control group 33 (53%) and in experimental group 29 (47%) had a length of ICU stay between 4 to 7 days.

Objective 4(a) : Effectiveness of Individualized Communication Protocol on clinical outcomes – physiological adverse events of comatose patients

Nurses face many challenges while caring for comatose patients in ICU McNett.[40] As stated by Corner et al[42], various stimulation techniques are thought to supply sensory input required for activating system of the brain, which is responsible for perception and awareness maintenance. So, by incorporating the Individualized Communication Protocol into routine care, the staff nurses can take on a more active and fulfilling role in the recovery of comatose patients in ICU.

At the baseline, there was no statistically significant difference in the physiological parameters such as heart rate, respiratory rate, temperature, blood pressure, oxygen saturation, and blood glucose level between the experimental and control groups. Also, the study findings showed that there was no significant difference in physiological parameters of comatose patients in experimental and control groups after administration of Individualized Communication Protocol. Above finding might have been affected by disease process, treatment regimen and lifesaving supports of comatose patients.

The present study results were in accordance with Vargese et al.[86], where physiological parameters viz. systolic blood pressure, diastolic blood pressure, and SpO2 were same in experimental and control group. Similarly, Mohammed et al.[88] discovered that when unconscious patients were exposed to coma-arousal technique no changes were observed in blood pressure, pulse rate and respiratory rate, SpO2, or blood glucose levels. Similar, findings were observed by Walker et al.[123] after exposing comatose patients to taped familial voices.

In contrary to all above mentioned studies, previous evidence by Perrin[124] suggested a correlation between verbal communication and elevations in blood pressure, heart rate, breathing rate, ICP, bodily movement, and facial movement.

Sensory stimulation resulted in a reduction in heart rhythm and blood pressure that lasted for about 2-3 hours after the stimulus was removed, as observed by Hotz et al.[125] Moreover, Puggina et al.[44] observed statistically significant changes in variables viz. oxygen saturation and respiration after administering familiar voice

messages to comatose patients and concluded that familiar voice messages were stronger stimulusthan the music.

According to Davis et al.[126], five comatose patients diagnosed with brain trauma who participated in a structured auditory sensory stimulation program experienced significant changes in heart rate over time.

The present study also found that the comatose patients in both groups had physiological adverse events which was more in control group than experimental group. The current study findings were similar to Mohammed et al,[88] Othman et al.[27]

Lemke[127] in a study mentioned that suctioning, positioning, uncontrolled environmental arousal (alarms and equipment), or fever are some of the triggers that occur immediately before a sympathetic storming episode (agitation, tachycardia, tachypnea, hypertension, diffuse diaphoresis, and hyperthermia).

Objective 4(b) : Effectiveness of Individualized Communication Protocol implemented by staff nurses working in ICU on clinical outcomes - level of consciousness in comatose patients

The baseline data shows that level of consciousness of comatose patients in both experimental and control group were comparable at the beginning of the study. The present study found that after implementing the Individualized Communication Protocol, the level of consciousness of comatose patients in the experimental group improved from the 3rd to the 14th day after admission to the ICU.

On the 14th day, it was found that the level of consciousness was clinically better in the experimental group (12), as compared to the control group (8.86), which indicated that the difference in level of consciousness scores was statistically significant ($p<0.05$).

The present study is supported by Goudarzi et al.[31], who monitored changes in patients' levels of consciousness on the 5th day, while the control group didn't become conscious until the 10th day. The current study findings are in line with Othman,[27] where, after administering Structured Communication Messages, level of consciousness level improved in experimental group.

Similarly, Hoseinzadeh et al.[90] discovered an increase in the GCS level in the intervention group starting on the second day. Also, Simoes et al.[38] investigated the effect of organized nurse-generated acoustic-voice stimulation on coma duration. As a result, the intervention group began to experience consciousness on 5th day, while the control group began to experience consciousness on the 10th day.

Happ et al.[103] examined the effects of routine family gatherings for comatose patients as well as coma arousal skills revealing that intervention group had higher consciousness level than control group. In the same line, Mottari[82], observed that unconscious patients who received stimulation program provided by their families and nurses experienced significant enhancement in sensory-motor function compared to control group. Urbenjaphol et al[37] also demonstrated that motor, tactile, visual, and auditory modalities improved in two weeks after a stimulation program was applied to patients with traumatic brain injury.

Objective 4(c) : Effectiveness of Individualized Communication Protocol implemented by staff nurses working in ICU on clinical outcomes - level of agitation and sedation in comatose patients

In the current study, patients in experimental group showed more comfortable behavior and tended to remain in quiet, relaxed, cooperative state than control group. Therefore, they required less sedation (a mean score of -1.44) compared to patients in the control group (a mean score of -3.00). The difference between both groups was statistically significant with a p value of 0.001 on the first day evening till the 9^{th} day. In the present study it was found that the difference in level of sedation was statistically not significant on the 10^{th}, 11^{th}, 13^{th}, and 14^{th} day. Possible explanation for this kind of findings could be the various confounding variables involved in the study viz. disease process, treatment regimen and lifesaving support of comatose patients. Results were similar to observations by Othman et al.[27]

Objective 4(d) : Effectiveness of Individualized Communication Protocol implemented by staff nurses working in ICU on clinical outcomes - level of pain in comatose patients

In the present study, at the baseline, the means of level of pain in control and experimental group, were 8.14 vs. 6.67, respectively. Both groups were comparable at the baseline with a non-significant p value of 0.592. From 5^{th} day till 14^{th} day , the mean level of pain of the experimental group decreased significantly after implementation of Individualized Communication Protocol by staff nurses.

This might be explained by the calming effect of gentle touch used in the Individualized Communication Protocol. The study results were congruent with the results of Vargese et al.,[86] where a significant difference was found between the control and intervention groups in terms of behavioral responses before, during, and after the intervention on the 1st, 4th, and 5th day, with p values of 0.023, 0.031, and 0.030, respectively. These findings are also in line with the observations of Othman et al.[27], who found that implementation of Structured Communication Messages was associated with a reduced level of pain.

Limitations:

The study had following limitations: -

1. As study setting was ICU, neither the staff nurses nor the comatose patients could be randomized.

2. The sample in the study had varied types of medical diagnosis which might have affected study results

3. All comatose patients could not be followed by investigator till 14 days in ICU, since they were shifted to other wards or transferred out, left against medical advice, or died.

Strength of the study:

1. All 171 staff nurses working in ICU in various shifts were trained Individualized Communication Protocol in small groups, reinforcement of teaching was done and they were given one month time to practice ICP on comatose patients admitted in ICU before implementing it to comatose patients in experimental group.

Summary

The analyzed data were interpreted and discussed by investigator with help of literature support.