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Research article

Assess the communication pattern among conscious mechanical ventilation patients and nurses in the selected intensive care unit

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ABSTRACT

Conscious ventilator dependent patients often experience communication difficulties due to intubation. The study aimed to understand the conscious mechanical ventilation (MV) patients and nurses existing communication pattern in the ICU and develop the augment alternative communication method (AAC). In this quasi experimental study (pretest and posttest design), participants were enrolled using purposive sampling method and assigned to experimental (n = 10) and control (n = 10) groups from ICU based on certain determined criteria. Communication pattern assessment observational check list used to collect the data from both groups. Patients were used paper and pen as aided communication device 45 %, head nodding 95 % and hand movement using fingers 75 %. Patients primarily prefer to communicate with nurses 95% .Patients expressed pain associated in the endo tracheal (ET) tube and inability to communicate 100% and 95% respectively. Ninety percent of the patients expressed feeling of anxiety / fear of dying and feeling of afraid. The study further revealed 100% of the patients expressed trouble sleeping and feeling of discomfort, 100% wanted to know about their condition, when will ET tube be removed and when I go home. With regards to patients physical care needs, 100% expressed thirsty feeling, need to be suctioned and hungry feeling, 75% expressed their lip to be moistened. Related to nurses positive communication strategies, 90% makes eye contact, 85% being kind and spoke slowly. With regards to negative strategies 75% of the nurses spoke too rapidly and self-talk mumbling. Nurses used yes/ no gestures 100%, head nodes 85% and AAC no were not used other than natural methods. Communication pattern assessment helps the nurses to find out and distinguish the sources of discomforts, distressed symptoms especially the domains such as psychological, physiological, spiritual, comfort needs, expectations and preparing appropriate AAC for conscious MV patients.

INTRODUCTION

In intensive care unit (ICU) the essential for invasive mechanical ventilation (IMV) is very usual and its usage is rising in the emerging world. It is significant for organ support therapy to the critically ill. [1] The prevalence of patients requiring prolonged MV leading to ventilator dependence has increased in recent years. [2, 3] The number of patients requiring prolonged MV ventilation for at least 21 days and at least 6 hours a day has been steadily increasing. [4]

IMV patients undergo a communication barrier due to endotracheal tube (ETT) crossing their vocal cords which makes them unable to communicate through speech.[5,6] As a result, they may try to use various communication ways such as head nods, mouthing words, gesticulations and writing. [7] Several MV patients can seeking attention or communicate by using facial expressions or hand signals or other movements[8] and also lip reading and paper and pen are still the most frequently used communication techniques. [9, 10] MV patient is unable to interact verbally in intensive care, which leads the occurrence of stress, fear, anger, frustration and hopelessness. [11] Furthermore, communication barriers often prevent patients from conveying their opinions, resulting in medical care decisions being

made without their knowledge. [12, 13] Patient's relatives also feel helpless and frustrated because they are unable to recognize what their relative is trying to say. When a patient dies without being able to communicate verbally, those emotions are intensified. [14, 15] Healthcare staff often causes stress and frustration. [16,17] and disclose feeling uncomfortable while attempting to communicate with patients undergoing or tracheal intubation. [16] As a result, their interactions with patients are limited to brief interactions about clinical procedures. [18]

Communication with the patient is necessary for adaptation and cooperation in the course of treatment, which influences health professionals to establish efficient communication strategies. [11] The Joint Commission is a healthcare and an accreditation organization in the US, stated that provision of interventions to enable patient communication is a fundamental patient right. It has formulated standards that is mandatory in identifying oral and written communication needs of patients and making appropriate attempts to institute alternative communication strategies for those who are unable to communicate. [19] It is a vital issue to assess and identify the communication needs in an attempt to choose specific type of communication method for various reasons and purposes, which could be a suitable alternative communication method appropriate based on the patient's sensory and cognitive function levels. [20]

MATERIALS AND METHODOS
Study Design and Population
Quasi experimental research with pretest and posttest design study was conducted among conscious MV patients in the ICU. **SELECTION OF PARTICIPANTS:** Using purposive sampling techniques 20 participants were selected and allocated to experimental (n=10) group and control (n=10) group. The study includes both male and female of age between 18 to 60 years, mode of ventilator setting CPAP (continuous positive air way pressure) and SIMV (spontaneous intermittent mandatory ventilation), patient on MV after major surgery and medical condition, could understand English/Tamil, oriented to person, place environment and time of observation, required intubation and MV for at least 5 days and alert in Glasgow Coma Scale (GCS) score of 13 to 15, motor activity assessment (MAAS)score of 3, competency and ability to sign informed consent. The study excluded MV patient with corneal ulcer and exposure keratitis, hyperopea, myopia, other visual, hearing, mental illness , cognitive impairment, unconscious state, encephalopathy, cerbro vascular disease, dementia, cranio cephalic trauma, with sedative, anti-anxiety agents, control mode of ventilation, who have tracheostomy, hemodynamically unstable at the time of implementation.

Data Collection Instrument
Structured questionnaire was used to collect baseline demographic and clinical data. All subjects were alert and able to communicate by holding up fingers in response to question. The communication pattern of conscious MV patients and nurses were measured in both groups by communication pattern assessment observational check list (consists of 5 components). it includes baseline communication method adopted by the MV patient for communicating the needs with health care professionals and availability of communication devices in the ICU, Patient communication partner (whom MV patients frequently communicated), frequently expressed communication needs of patients during MV , communication strategies by nurse when MV patients attempts to communicate their needs and appropriate communication methods were adopted by the nurse when communicating with MV patients.

Data Collection Procedure
The files of the patients were analyzed to get baseline demographic and clinical data. The patient's physical and psychological health, as well as had any cognition limitations were assessed and discussed with the nursing staff to find out whether they met the inclusion criteria .The data were collected by observational technique by monitoring and identifying the actual communication pattern of each patient and nurses were observed by the researcher by different work shift session among 20 participants in the experimental and control group and 15 nurses.

Ethical Consideration
The ethical committee of the hospital approved the study protocol. study was conducted at AVM hospital, Salem and Then gam hospital Thangam cancer center, Namakkal (LR.THTCC/PROJECT/01/2018-01 and Dated 3.4.2018 and LR.AVMH/PROJECT/01/2017 and Dated 4.9.2017).Twenty conscious MV patients were selected .The study details of research procedure and its benefits were explained and informed consent was taken after which they were assigned into experimental group and control group.

DATA ANALLYSIS
Descriptive statistics was used to interpret the data. The data were explained as frequency and percentage by using tables.

Table 1: Result of baseline communication methods adopted by the MV patient for communicating their needs with health care professionals.

S.No	Baseline communication method	Observation sessions (n=20)	
		f	%
1.	Writing (pen and paper)	5	50
2.	**Communication board** 1.Using picture board	0	0
	2 Using alphabet board	0	0
	3.Using phrase/word board	0	0
	4.Using erasable board	0	0
3.	Electronic communication device	0	0
4.	Speaking valve	0	0
5.	**Gestures** Head nodding	19	95
	Hand movement by using fingers	15	75
	Squeezing hands	10	50
	Thumbs Up/Down	3	15

6	**Facial expression:**		
	Wink	14	70
	Knits eyebrow	13	65
	Raise eyebrow	10	50
	Wrinkled fore head	7	35
	Expressionless	3	15
	Shut eyes	2	10
7.	Mouthing/lip reading	16	80
8.	Language interpreter needed	0	0
9.	Family members facilitated for ommunication	3	15
10.	Sign language	0	0
11.	Other (document explanation)	0	0

Table 2: Result from identification of frequently expressed or communicated discomforts, distressed symptoms, wants, feelings and needs of patients on MV.

S.No	Frequently expressed communicated sources of discomforts, feelings, distressed symptoms, wants, wanted information and needs of patients on MV.	Observation sessions (n=20)	
		f	%
1.	**1. Expression of sources of discomforts**		
	a. Pain or discomfort associated with ET tube/bladder tube	20	100
	b. Noise and bustles	10	50
	c. Difficulty in mobilization/turning	18	90
	d. Inability to communicate/talk	19	95
	e. Privacy	3	15
	f. Lights on/lights off	5	25
	g. Daily needle puncture	4	20
	h. Feeling of itches	6	30
	i. Feeling of hot/cold	3	15
2	**2. Expression of Emotions/feelings**		
	a. Feeling of Frustration	16	80
	b. Feeling of Loneliness	14	70
	c. Feeling of Anger	10	50
	d. Feeling of Sadness	9	45
	e. Feeling of Anxiety/fear of dying	18	90
	f. Feeling of afraid	18	90
3.	**3. Expression of distressed Symptoms**		
	a. Difficulty in breathing	5	25
	b. Feeling of gagging/ choking by ET tube	15	75
	c. Feeling of dizzy	3	15
	d. Feeling of Nausea	18	90
	e. Feeling of vomiting	18	90
	f. Feeling of Fatigue/tired	12	60
	g. Difficulty in sleeping	20	100
	h. Feeling of pain	20	100
4	**4.Expression of wants/desires**		
	a. Want to sit up/lie down	14	70
	b.want a pillow/blanket	4	20
	c.want to change the position/reposition me	16	80
	d. want to elevate the head of bed/lower the head of bed	17	85
	e. want to know day and Time	20	100
	f. want to pray	2	10
	g.want to meet family members /friends/chaplain	20	100
	h. want to meet doctors/nurse	17	85
	i. . want to be alone	0	0
	j. want to someone stay with me	16	80
	k. want to sleep	5	25
	l. Want paper and pen	9	45
	m. Want to watch TV/Video	4	20
	n. want to remove my restraint	0	0
	o. want silence	0	0
5	**5.Expression of wanted /expected information**		
	a. Want to know about my condition	20	100
	b. Want to know regarding treatment/discussion	14	70
	c. Want to know why ET Tube done	17	85
	d. Want to know when will ET tube be removed	20	100
	e. Want to know when I go home	20	100
6	**6.Expression of physical care needs**		
	a. Need to be bathed/ wash face	7	35
	b. Need to be Suctioned/ brushed	20	100
	c. lip to be moistened	15	75
	d. Need to comb hair	2	10
	e. Need to change the dress	9	45
	f. Feeling thirsty/need to drink water	20	100

	g. Feeling hungry(eat)	20	100
	h. Need urinal	7	35
	I. Need bed pan	11	55

Table 3: Result of communication strategies used by the nurses when communicating with MV, when they attempts to communicate their needs.

S.No	Communication strategies used by the nurses	Observation sessions (n=20)	
		f	%
	I. Positive Communication strategies		
1	Being kind and speak slowly	17	85
2	Informative and listen actively	13	65
3	Physically present at the bed side enhance communication	10	50
4	Asks tagged yes/no questions	4	20
5	Provides response choices	16	80
6	Physically assists patient	10	50
7	Suggests mode of communication	9	45
8	Wait for patient response and Repeats patient's response	11	55
9	Augments patient's comprehension	10	50
10	Say one item of information pause in between phase and Repeats for clarification	11	55
11	Greets patient by name/touch	15	75
12	Asks open-ended question when patient has method to respond	10	50
13	Makes eye contact	18	90
	II. Negative Communication strategies		
1	Being mechanical and talk loudly	4	20
2	In attentive	4	20
3	Absent from the bed side impede communication	2	10
4	Removes augmentative and alternative communication system inappropriately (i.e- out -of-reach or before patient finished).	0	0
5	Does not provide assistance when needed	8	40
6	Asks questions patient can't answer	10	50
7	Ignores patient's communication attempt	3	15
8	Does not provide opportunity for patient to respond (pause time)	1	5
9	Interrupts patient's message	13	65
10	Does not gain patient's attention before interaction.	7	35
11	Self-talk, mumbling	15	75
12	Speaks to rapidly	15	75
13	Does not look at patient during interaction	5	25

RESULTS

The current study investigate the communication pattern of conscious MV patients and nurses both control and experimental group in the ICU. The Table 1 illustrates the types of base line communication methods adopted by MV patient communicating their needs with health care professionals. The participants in the study used more than one communication methods per event. With regards to aided communication devices 45 % were used paper and pen. None of them were used picture, alphabet, phrase/word boards, erasable board, used electronic communication device and speaking valve because the above mentioned communication methods are not available and not used in the ICU setting. With regards to nonverbal communication the participants have used several nonverbal communication methods. In gesture it was noted that majority 95% of the MV patients were used head nodding, 75% were adopted hand movement using fingers , 50 % were used squeezing hands. With regards to facial expression, 70% were shown wink, 65% were shown knits eye brow, 50% were shown raising eye brow, 35% were shown wrinkled forehead, and 20% were shown shut eye expression. Mouthing and lip reading were used by 80 % and 15 % were used

family members facilitated for communication. In this study MV patients (communication partner) 95% primarily prefer to communicate with nurses, secondly 85 % with family members/Friends, Thirdly 75% with physician and 25% with other health care professionals.

Data presented in Table 2 showed the identification of frequently expressed or communicated several sources of discomforts, feelings, symptoms wants, wanted information and physical needs of MV patients in both groups. With regards to expression of sources of discomforts100% of the participants expressed pain or discomfort associated in the ET tube, 95% were expressed inability to communicate, 90% were felt discomfort due to difficulty in mobilization/turning, 50% were expressed noise and bustle and 30% were expressed feeling itches. A variety of emotions / feeling including frustration, loneliness, anger, sadness, anxiety, fear of dying and afraid were expressed by MV participants while in the ICU. A greater level of feeling of anxiety / fear of dying and feeling of afraid were expressed by 90% of the patients, 80 % were feeling of frustration, 70% were felt loneliness, 50% were felt of anger and 45 % were developed sadness. Related to expression of distressed symptoms, 100% had difficulty in sleeping and feeling of pain. 90% had feeling of nausea and vomiting, 75% had feeling of gagging / chocking by ET tube, 60% had feeling of fatigue / tired and 25% had difficulty in breathing.

With regards to expression of wants/desires, 100% desired to meet family members / friends / chaplain and would like to know day and time. 80% were wanted someone stay with them and change the position / reposition them.85% were wanted to elevate the head of bed / lower the head of bed, to meet doctors/nurse and 70% were wanted to sit up / lie down, 45% were wanted a paper and pen to communicate their needs. With regards to expression of wanted information 100% were wanted to know about their condition, when will ET tube be removed and wanted to when I go home. 70% were wanted to know regarding treatment/discussion and 85% were wanted to know why ET Tube done. With respect to physical care needs, majority 100% of MV patients were expressed feeling of thirsty / need to drink water, need to be suctioned / brushed and feeling of hungry, 75% were need their lip to be moistened, 55% needed bed pan, 45% needed to change their dresses, 35% needed urinal and needed to be bathed / wash face.

In this study Table 3 displays the quality of Communication interaction naturally performed by the nurses with nurses and it is rated as positive and negative strategies when MV patients is attempting to communicate their needs. A total of 26 communication strategies, 13 positive and 13 negative strategies. The same nurses may have expressed several number of times communication

strategies during the interaction with the MVT patients. With regards to positive communication strategies includes 90% made eye contact, 85% of the nurses being kind and spoke slowly, 80 % were provided response choices, and 75% were greeted patient by name / touch, 65% were informative and listened actively ,55% were waited for patient response and repeats patient response pause in between phrase and repeated for clarification, 50% were asked open ended question and physically presented at the bed side enhance communication and augments patient's comprehension ,physically assisted the patients and 45% were suggested mode communication. With regards to negative communication strategies includes 75% of the nurses spokes too rapidly and self-talk mumbling, 65 % nurses interrupted patient message, 50%were asked question patient can't answer, 40 % does not offer assistance when needed and 25% were did not look at patient during interaction.

In this present study findings also revealed that frequency (episodes) of communication method adopted by the nurses while communicated with MV patients. Augmented alternative communication methods (alphabet boards, communication boards, or picture boards) were not used other than natural methods. The most common communication methods used by nurses includes, yes/ no gestures 100%, head nodes 85%, followed by mouthing words / verbally 75% , communicating   by name and touching the patients 65% , lip reading 35% and 30% were used symbols / gesture. Writing was minimal, 15% of the nurses used paper and pen for communicating with the MVT patient.

DISCUSSION

The present research findings of baseline communication methods supported with study findings of augmented alternative communication methods in intubated COPD patients [21] described that head nods, gesture, mouthing were the key communication methods, eye blinks and facial expression were less common communication methods used by the intubated patients. The participants in the study used a variety of communication strategies in each episode. The research findings accordance with the study report of prevalence of sudden speechlessness in critical care units. The result showed that patients with MV most frequently used unaided AAC strategies such as head nods (84%), mouthing (48.2%) and gesturing (48.2%) to communicate with healthcare providers, caregivers, and family members [22]. The study result showed that head nodes (n=342), mouthing words (n=148), gesture (n=77) and writing (n=26) were frequently used communication episodes by MV Patients. Moreover, during an observation session, most patients used more than one technique, agreeing with previous studies. [23, 24]

With regards to MV patients communication partners result finding were reliable with the results of the studies, [21 23] which indicate that initially patients communicate with nurses, doctors, and

then family members. The study findings shows that 91% (n=634) primarily prefer to communicate with nurses, secondly 2% (n=16) with family members/Friends, Thirdly 4 % (n=30) with physician and 1% (n=9) with other health care professionals. [23]

In the current study finding of identification of frequently expressed or communicated several sources of discomforts, feelings, symptoms wants, wanted information and physical needs of MV patients were accordance with the study findings of communication ability, method, and content among nonspeaking non surviving patients treated with MV in the ICU. Study result shows that majority of the recorded communication content was related to emotions (n = 42), pain (n = 170), other symptoms (n = 24), and physical care needs (n = 23). [23] A study identified that, psychosocial and Psychological stressors perceived by the MV patient include ICU environmental, communication factors, stressful symptoms, and the effectiveness of the treatment. Four common stressors, comprising anxiety, fear, dyspnea, and pain also were identified by MV patients. [25] A study found that several stressful experiences such as pain, fear, anxiety, lack of sleep, feeling tense, inability to speak/communicate, lack of control, nightmares, loneliness and having poor sleeping habits. It indicates that possibility for better symptom management, which may result in a less stressful stay in ICU and better patient end result. [26] The study concluded that the patients were primarily affected by most stressful stress factor was thirst, secondly by presence of tubes in the mouth and nose. [27] In a study results findings revealed that presence of tubes in nose or mouth, being in pain, not being able to sleep and hearing the buzzers and alarms from the machines, being thirsty, were considered by patients as the major stressors. [28] A study proposed that clinical nursing practice additionally meet the needs of patients, such as communicating, participating and improving nursing treatments towards pain, tube management and thirst. [29]

The present study findings of the quality of communication interaction naturally performed by the nurses were similar with the result findings [17] that highlights critical care nurse's deliberate use of AAC strategies and positive interaction behaviors with MV patients such as touching, and smiling, can motivate patients to communicate and help to develop a nurse-patient therapeutic rapport. The findings of the present study supported with previous study [18], the result showed that the most common constructive nurse actions were creating eye contact, asking open ended question and greeting the patient by touching. The overall communication exchanges were generally effective (>70%).

The current findings of frequency (episodes) of communication method adopted by the nurses while communicated with MV patients were concurrent with the study findings of nurse-patient communication interactions in the ICU. The study concluded

that, patients valued 40% of the communication sessions with nurses as moderately difficult and extremely difficult. Assistive communication approaches were occasional, with less to no use of materials for assistive communication (eg, writing materials, alphabet or word boards) [18] in the ICU. A similar result found that nursing staff did not use communication boards, alphabet boards, or picture boards when communicating with intubated patients. [21] Evidence-based intervention are required to enhance critical care nurses' ability to use assisted communication, access to communication resources (e.g., writing instruments, communication boards), and effectively communicate about pain and other symptoms.

CONCLUSION

The aim of the present study is to understand the conscious mechanical ventilation (MV) patients and nurses existing communication pattern in the ICU and develop the augment alternative communication method (AAC).This study findings shows that communicate with intubated patients is a great challenge for both medical and nursing personnel, who may struggle to identify the sources of discomforts and distressed symptoms and meet the psychological, physiological, spiritual, comfort needs and their expectations. Communication pattern assessment helps to find out and distinguish this concern. Based on the study findings, it is essential to improve the communication among patients on ventilator and nurses and need to create an AAC method. It should be appropriate, precise, without cumbersome, less cost, durable, easier to use, intuitive, simple, and user friendly for MV patients. This will result in express and fulfilment of their needs easily, better outcome, such as the absence of complications, early recovery and reduced hospital stay.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest for this study.

REFERENCES

1. Anjalee Chiwhane, Sanjay Diwan, 2016. Characteristics, outcome of patients on invasive mechanical ventilation: A single center experience from central India, The Egyptian Journal of Critical Care Medicine 4(3), 113-118.
2. Oktem S, Ersu R, Uyan ZS, Cakir E, Karakoc F, Karadag B, Kiyan G, Dagli E, 2008. Home ventilation for children with chronic respiratory failure in Istanbul, Respiration76, 76-81.
3. Divo MJ, Murray S, Cortopassi F, Celli BR, 2010. Prolonged mechanical ventilation in Massachusetts: The 2006 prevalence survey, Respir Care 55, 1693-8.
4. Chakor S Vora, Niteen D Karnik, Vishal Gupta, Milind Y Nadkar, Jaimala V Shetye J, 2015. Clinical Profile of Patients Requiring Prolonged Mechanical Ventilation and their Outcome in a Tertiary Care Medical ICU, Assoc Physicians India 63(10), 14-9.

5. Aziza Salem, Muayyad M Ahmad, 2018. Communication with invasive mechanically ventilated patients and the use of alternative devices: integrative review, Journal of Research in Nursing 0(0), 1–17.

6. Khalaila R, Zbidat W, Anwar K, Bayya A, Linton D M, Sviri S, 2011. Communication difficulties and psychoemotional distress in patients receiving mechanical ventilation, American Journal of Critical Care 20(6), 470–479.

7. Happ MB, Garrett KL, Tate JA, DiVirgilio D, Houze MP, Demirci JR, Elisabeth George, Susan M Sereika , 2014. Effect of a multi-level intervention on nurse-patient communication in the intensive care unit: Results of the SPEACS trial. Heart Lung 43(2), 89-98.

8. Puntillo KA, 1990. Pain experience of intensive care unit patients, Heart Lung 19,526-533.

9. Ashworth P, 1980. Care to communicate, London: Royal College of Nursing.

10. Wojnicki-Johansson G, 2001. Communication between nurse and patient during ventilator treatment: patient reports and RN evaluations, Intensive Critical Care Nursing 17(1), 29-39.

11. SaraPina, Madalena Canellas, Rita Prazeres, JoséLopes,TâniaMarcelino, DuarteReis, Cândida Ferrito, 2020. Augmentative and Alternative Communication in Ventilated Patients: A Scoping Review Rev Bras, Enferm 73 (5), e20190562.

12. Patak L, Wilson-Stronks A, Costello J, Kleinpell RM, Henneman EA, Person C, Happ MB, 2009. Improving patient-provider communication a call to action, J Nurs Adm 39(9), 372–376.

13. Karlsson V, Bergbom I, Forsberg A, 2012. The lived experiences of adult intensive care patients who were conscious during mechanical ventilation: A phenomenological–hermeneutic study, Intensive and Critical Care Nursing 28(1), 6–15.

14. Karlsson V, Forsberg A, Bergbom I, 2010. Relatives' experiences of visiting a conscious, mechanically ventilated patient-a hermeneutic study. Intensive Crit Care Nurs. 26(2), 91–100.

15. Happ MB, Roesch TK, Garrett K, 2004. Electronic voice-output communication aids for temporarily nonspeaking patients in a medical intensive care unit: a feasibility study. Heart & Lung. 33(2), 92–101.

16. Magnus VS, Turkington L, 2006. Communication interaction in ICU-Patient and staff experiences and perceptions, Intensive and Critical Care Nursing 22(3), 167–180.

17. Nilsen ML, Sereika SM, Hoffman LA, Barnato A, Donovan H, Happ MB, 2014. Nurse and patient interaction behaviors' effects on nursing care quality for mechanically ventilated older adults in the ICU, Research in Gerontological Nursing 7(3), 113-125.

18. Happ MB, Garrett K, Thomas DD, Tate J, George E, Houze M, Jill Radtke, Susan Sereika, 2011. Nurse-patient communication interactions in the intensive care unit, American Journal of Critical Care 20(2), 28-40.

19. The Joint Commission, 2010. Advancing Effective Communication, Cultural Competence, and Patient- and Family-Centered Care: a Roadmap for Hospitals.

20. Rodriguez CS, Rowe M, Koeppel B, Thomas L, Troche MS, Paguio G, 2012. Development of a communication intervention to assist hospitalized suddenly speechless patients, Technology and health care 20(6), 519-530.

21. El-Soussi AH, Elshafey MM, Othman SY, Abd-Elkader FA, 2015. Augmented alternative communication methods in intubated COPD patients: does it make difference, Egyptian Journal of Chest Diseases and Tuberculosis 64(1), 21-8.

22. Thomas Loris A, Rodriguez Carmen S, 2011. Prevalence of sudden speechlessness in critical care units, Clinical Nursing Research 20(4), 439–447.

23. Happ MB, Tuite P, Dobbin K, DiVirgilio-Thomas D, Kitutu J, 2004. Communication ability, method, and content among nonspeaking non surviving patients treated with mechanical ventilation in the intensive care unit, Am J Crit Care 13(3), 210–218.

24. Fried-Oken M, Howard JM, Stewart SR, 1991. Feedback on AAC intervention from adults who are temporarily unable to speak, Augmentative and Alternative Communication 7, 43–50.

25. Loris A Thomas, 2003. Clinical Management of Stressors Perceived by Patients on Mechanical Ventilation, AACN Clin Issues 14 (1), 73-81.

26. Rotondi AJ, Chelluri L, Sirio C, Mendelsohn A, Schulz R, Belle S, Im K, Donahoe M, Pinsky MR, 2002. Patients' recollections of stressful experiences while receiving prolonged mechanical ventilation in an Intensive Care Unit, Crit Care Med 30(4), 746-52.

27. Gultekin Y, Ozcelik Z, Akıncı SB, Yorgancı HK, 2018. Evaluation of stressors in intensive care units, Turk J Surg 34(1), 5-8.

28. Hweidi IM, 2007. Jordanian Patients' Perception of Stressors in Critical Care Units: A Questionnaire Survey, Int J Nurs Stud 44(2), 227-35.

29. Holm A, Dreyer P, 2017. Intensive Care Unit Patients' Experience of Being Conscious During Endotracheal Intubation and Mechanical Ventilation, Nurs Crit Care 22(2), 81-88.