

**KNOWLEDGE AND ATTITUDE ON THE ROLE OF PHYSIOTHERAPY IN
THE INTENSIVE CARE UNIT AMONG OTHER HEALTH CARE
PROFESSIONALS IN SOUTH EAST, NIGERIA**

Authors:

Arinze Christian Okonkwo¹, Cynthia Ogbonna², Joseph Umunnah¹, Uche Chukwuemeka¹

Author Affiliations:

1. Department of Medical Rehabilitation, Faculty of Health Sciences and Technology, College of Health Sciences, Nnamdi Azikiwe University Nnewi Campus, Nigeria.
2. Department of Physiotherapy, University of Jos Teaching Hospital, Plateau State, Nigeria.

***Corresponding Author**

Arinze Christian Okonkwo
Department of Medical Rehabilitation,
Faculty of Health Sciences and Technology,
College of Health Sciences,
Nnamdi Azikiwe University, Nnewi Campus Nigeria.
Ach.okonkwo@unizik.edu.ng

ABSTRACT

Background: The Intensive Care Unit (ICU) is designed to ensure that continuous and comprehensive care is delivered to patients by highly trained staff and should include both clinically oriented and design based multi-professional team members.

Aim: This study set in South East Nigerian States, was therefore aimed to determine the knowledge and attitude of the role of physiotherapy in the ICU among other HCPs in South East Nigeria; and the influence of selected socio-demographic profile of the participants on the constructs.

Methods: A cross-sectional survey involving Sixty (60) conveniently sampled HCPs working in the ICU who consented and participated. The participants' socio-demographic variables were obtained and a questionnaire was used to evaluate the knowledge and attitude of the role of physiotherapy in ICU among other HCPs in south east Nigeria. The obtained data were summarized using descriptive statistics of frequency, percentages, mean, and standard deviation, while inferential statistics of Mann Whitney U test, Kruskal Wallis test, and Spearman-rank correlation were used to analyze data with the alpha set at <0.05 .

Results: The majority of the participants (66.6%) had an acceptable level of knowledge, while all the participants (100%) had a positive attitude. No significant correlation was found between knowledge and attitude ($\rho=0.026$, $P=0.844$). Age had a significant influence on attitude ($P=0.003$), but not on knowledge ($P=0.208$). Gender did not significantly influence knowledge ($P=0.127$) and attitude ($P=0.208$). Educational qualification had no significant influence on knowledge ($P=0.212$) and attitude ($P=0.05$). Profession significantly influenced attitude ($P=0.04$) but not knowledge ($P=0.383$). The clinical experience had a significant influence on attitude ($P<0.0001$) but not on knowledge ($P=0.594$).

Conclusion: Health Care Professionals working in ICU had an acceptable level of knowledge and a positive attitude regarding physiotherapy involvement in the ICU.

Keywords: *Knowledge, Attitude, Role of Physiotherapy, Intensive Care Unit, Health Care Professionals*

Introduction

Physiotherapy is a health care profession that provides treatment to individuals to develop, maintain and restore maximum movement and functional ability throughout a person's life span^{1,2}. The physiotherapist must understand the cultural, psychological, and social factors that affect the patients to provide effective treatment³. Medical history review and physical examination begin the assessment of a patient's condition and it applies to all patients irrespective of age and context⁴. Physiotherapy has many specialties such as cardiopulmonary, geriatrics, neurology, orthopedics, and pediatrics, to name a few².

An Intensive Care Unit (ICU) is an isolated confined ward in the hospital where the most critically ill patients are located together and managed using specialized personnel and equipments⁵. The treatment of the patient in the ICU requires expensive equipments such as advanced monitors, mechanical ventilators, pacemakers, and defibrillators^{6,7}. Patients admitted to the ICU are critically ill patients defined as those with life-threatening health problems who need to receive critical medical interventions and complex care⁸. These patients are known to have a serious health problem that requires a high level of support, which could be in the form of respiratory support or the support of two or more organ systems, including cardiovascular, respiratory, renal, metabolic, or cerebral function⁹. Critically ill patients frequently suffer long-term physical and psychological complications.

They are on long-term mechanical ventilation and as a result, 25% display significant muscle weakness, and approximately 90% of long-term ICU survivors will have ongoing muscle weakness. Prolonged stays in the intensive care unit are also associated with impaired quality of life, functional decline, and increased morbidity, mortality, cost of care, and length of hospital stay¹⁰.

Physiotherapy has been accepted as an integral component in the management of patients who require intensive care; and physiotherapists play a unique role as a part of the ICU team¹¹. Physiotherapists are elemental team representatives of the clinical healthcare team, and they need to understand other practitioners' roles and communicate effectively to provide high-quality, coordinated patient care¹². The aim of physiotherapy in the ICU is to enhance function, reduce the length of stay, and improve the quality of life of critically ill patients, including those receiving mechanical ventilation¹³. Muscle weakness, joint stiffness, impaired functional exercise capacity, physical inactivity, and respiratory conditions such as retained airway secretions, atelectasis, and respiratory muscle weakness are physical reconditioning and associated problems of a critically ill patient which requires physiotherapy interventions¹⁴.

Interdisciplinary teamwork is an essential component of holistic care since team members' skills, experience, and knowledge are pooled together to produce the best outcomes¹⁵. Each of the members in the Intensive Care Unit (ICU) team plays a unique role according to the patient's needs. In the current demanding healthcare environment, inter-professional team practice is being promoted as a comprehensive means of providing cost-effective healthcare¹⁶.

Literature suggests that professional specialization has led to fragmentation between professions, which are likely to result in healthcare team members being unable to look at the problems of patients as a whole team¹⁷. A small number of studies have highlighted a part of the attitudes and perceptions that may underlie inter-professional relationships and their effect on teamwork and the effectiveness of management in critical care^{17,18}. Communication is being identified as of particular interest because of the complex socio-technical tendency of the ICU environment. Interpersonal factors have been reported as the main causes of stress in high-dependency areas whereas poor communication is reported as the cause of errors¹⁸.

Knowledge is defined as the capacity to acquire, retain and use information through experience, comprehension, discernment, and skill¹⁹. Knowledge is vital in generating appropriate actions by providing the background for articulating possible courses of action which will yield the intended result²⁰. The greatest challenge facing physiotherapists is creating awareness among the masses and other healthcare providers about the role of physiotherapy in health care delivery²¹. Just as poor awareness about a profession can lead to misconceptions about it, good awareness can enhance its appreciation and use. Thus good awareness of the role of physiotherapy in the health care delivery system may influence adequate use of it²². For this study, knowledge refers to the understanding and awareness of HCPs regarding physiotherapy management in the ICU.

Attitudes are learned evaluations concepts associated with the people think, feel, and behave²³. The quality of one's attitude is judged from the observable, evaluative responses that are made²⁴. Attitude is defined as a mental position relative to a way of thinking or being, and it can imply positive or negative behaviour²². For this study, an attitude refers to the positive and negative behaviour of HCPs in Anambra state toward physiotherapists working in the ICU as well as toward physiotherapy services in general in the ICU.

The presence of active teamwork between HCPs within the ICU team from various disciplines may improve efficiency, functional outcomes, and the cost of care for patients²⁵. The multidisciplinary relationship plays a major role in effective patient care so the provision of effective and efficient health services needs communication and coordination between practitioners¹⁵. The awareness of every member's role in the multidisciplinary environment of ICUs is important and any lack of knowledge among HCPs may influence the referral process and the delivery of patient care²⁶. The awareness of the importance of the role of a physiotherapist in the ICU may therefore influence the patient care process²⁷. In the ICU the physiotherapist as a rehabilitation expert is involved in assessing, treating, and managing critically ill patients who have a variety of neurological, respiratory, cardiac, medical, and surgical conditions. The aim of physiotherapy in the ICU is to enhance function, reduce the length of stay, and improve the quality of life of critically ill patients, including those receiving mechanical ventilation²⁷.

The primary physiotherapy interventions provided to critically ill patients are focused on physical reconditioning and associated problems. These typically include muscle weakness, joint stiffness, impaired functional exercise capacity, physical inactivity, and respiratory conditions such as retained airway secretions, atelectasis, and respiratory muscle weakness¹¹.

The knowledge and attitude of every healthcare profession towards other healthcare professions may affect the delivery of patient care²⁸. The study was aimed to determine the knowledge, attitude of other HCPs working in the ICU on the role of physiotherapy in the ICU, and the influence of socio-demographic variables on the knowledge and attitude.

Method

Study participants

Sixty (60) Health Care Professionals (HCP) working in the intensive care unit consented to the study. Those who were eligible for inclusion were HCPs working in any of the ICU sub-categories such as Coronary ICU, High dependency unit, Medical ICU, Surgical ICU, Neurological ICU, and Pediatric ICU at the time of the study, the participants were registered HCPs at their regulatory bodies and HCPs that were eligible for inclusion were employed for at least six months in the intensive care units before the time of their selection in selected Hospitals in South East, Nigeria which included Federal Medical Center Owerri Imo State, Federal Medical Center Umuahia Abia State, Federal University Teaching Hospital Abakiliki Ebonyi State, Nnamdi Azikiwe University Teaching Hospital Nnewi, Anambra State, and the University of Nigeria Teaching Hospital Enugu Enugu State.

A priori power analysis was performed using G*Power 3.1.9.7 software, based on alpha level of 0.05, power of 0.8, effect size of 0.4 and degree of freedom of 5. The minimum calculated sample size was 58 but 60 participants were recruited for the study. The study was hence fully powered.

The study protocol was approved by the Ethics Committee of Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State. An approval was obtained from the management of the selected hospitals in South East Nigeria. The participants were given a detailed explanation of the study protocol and its objectives. Those who volunteered to participate signed a written informed consent before being recruited for the study.

Procedure

An adapted questionnaire that focused on the knowledge and Attitude of other HCPs was self-administered to all the participants. The questionnaire was modified from a questionnaire developed by Jones²⁷ on perception of medical staff on intensive care physiotherapy in the past 6 months in United Kingdom, Australia, Canada, South Africa, and Hong Kong. Content validity was done through review by a physiotherapists and the relevant HCPs working in one of the selected hospitals' intensive care unit. The questionnaire was modified based on the outcome of the review. It was pilot-tested at one of the intensive care units and changes made based on the feedback from the pilot participants. It is a 35-item questionnaire divided into three sections. The first section collects data on participants' socio-demographics, the second section collects data on knowledge and the third section gathers information on attitude. The scoring of participants' knowledge ranged from 1 = "True", 2 = "False" and 3 = "I don't know" A total score of knowledge questions was = 14. The scoring of participants' attitudes ranged from 1 = "Disagree", 2 = "Neutral" and 3 = "Agree", from a total score of attitude =36 an average of greater than 70% was determined to be acceptable by the researchers.

Data Analysis

A post-hoc power analysis performed using G*Power 3.1.9.7 software revealed that the study was sufficiently powered (0.85) at alpha level of 0.05, sample size of 60, effect size of 0.4 and degree of freedom of 5. Descriptive statistics of mean, standard deviation, proportion as well as frequencies were used to summarize the data. Inferential statistics of Mann-Whitney U tests Kruskal Wallis tests and Spearman's correlation test order were used in testing the hypothesis with the alpha set at <0.05.

Results

The majority of the participants were females (56.3%) and were currently married (55%). About one-half of them (51.7%) fell within the age range of 20- 29 years with the majority (98.7%) attending the tertiary institution. A large number of them were nurses (45%), had 1-5 years of clinical experience (48.3%), worked in a general medical ICU setting (43.3%), and had less than 1-3 years of work experience in the ICU(80%) (Table 1).

The majority (66.6%) had an acceptable level of knowledge on the role of physiotherapy management in the ICU. However, their mean knowledge score was 10.4 ± 2.05 . (Table 2). All the participants (100%) had a positive attitude regarding the role of physiotherapy in the ICU. However, their mean attitude score was 32 ± 2.4 (Table 2).

Age had a significant influence on knowledge ($K=10.714$, $P<0.05$), with the age range of 50-59 years having the highest mean rank (49.25). However, no significant influence was found between profession and knowledge ($K=5.227$, $P=0.383$), sex and knowledge ($U=358.500$, $P=0.208$), clinical experience, and knowledge ($K=1.902$, $P=0.593$) (Table 3). Moreso, Age had a significant influence on attitude ($K=14.228$, $P<0.05$), with the age range of 40-49 years having the highest mean rank (50.57). Profession had a significant influence on attitude ($K=11.619$, $P<0.05$), with other health professionals excluding medical officers, nurses, general surgeons anesthetists, and neurosurgeons having the highest mean rank (40.80).

Also, years of clinical experience had a significant influence on attitude ($K=26.77$, $P<0.05$). Participants with greater than 16 years of clinical experience had the highest mean rank (44.53) (Table 4). A strong positive but no significant correlation was found between knowledge and attitude of the participants ($\rho=0.026$, $p=0.844$). (Table 5).

Table 1: Socio- demographic characteristics of the participants

Variables	Class	Frequency(n)	Percentage
Sex	Male	34	56.3
	Female	24	43.3
Marital status	Single	33	55
	Married	27	45
	Divorced	0	0
Age	20-29	31	51.7
	30-39	16	26.7
	40-49	7	11.7
	50-59	6	10
	60 and above	0	0
Educational attainment	No education	0	0
	Primary education	0	0
	Secondary education	2	3.3
	Tertiary education	58	96.7
Profession	Medical officers	24	40
	Nurse	27	45
	Anesthetists	3	5
	Others	6	10
Clinical experience	1-5 yrs	29	48.3
	6-10yrs	13	21.7
	11-15yrs	3	5
	16yrs and above	15	25
ICU setting	General medical	26	43.3
	Surgical	13	21.6
	Neurological	9	15
	Pediatric	10	16.7
	Coronary care unit	1	1.7
	Mixed high dependency unit	0	0
	Traumatic unit	0	0
	Neonatal	1	1.7
	Others		
Duration of ICU experience	<1yr	24	40
	1-3yrs	24	40
	4-6yrs	2	3.3
	7yrs and above	10	16.7

Table 2: Knowledge and attitude of the participants.

Variables	Class	Frequency	Percentage	Range	mean±SD
Knowledge	Acceptable knowledge	40	66.6	5-14	10.4±2.05
	Unacceptable knowledge	20	33.4		
Attitude	Negativeattitude	0	0	27-36	32±2.4
	Positive attitude	100	0		

KEY:

SD= Standard deviation

Table 3: Influence of some selected socio-demographic characteristics on knowledge of the participants.

Variables	Class	Mean ranks	U/K value	P-value
Sex	Male	32.6	U=358.500	P=0.208
	Female	27.29		
Age	20-29	27.68	K=10.714	P=0.013*
	30-39	33.34		
	40-49	20.43		
	50-59	49.25		
	60 and above	0		
Educational attainment	No education	0	K=1.56	P=0.212
	Primary education	0		
	Secondary education	15.50		
	Tertiary education	31.02		
Profession	Medical officers	78.40	K=5.227	P=0.383
	Nurse	26.31		
	Anesthetists	39.33		
	Others	29.67		
Clinical experience	1-5 yrs	30.53	K=1.902	P=0.593
	6-10yrs	27.58		
	11-15yrs	43.83		
	16yrs and above	30.50		

Table 4: Influence of some selected socio-demographic characteristics on the attitude of the participants

Variables	Class	Mean ranks	U/K- value	P-value
Sex	Male	27.51	U=340.500	0.127
	Female	34.40		
Age	20-29	25.37	K=14.228	P=0.003*
	30-39	34.28		
	40-49	50.57		
	50-59	20.92		
	60 and above	0		
Educational attainment	No education	0	K=1.451	P=0.228
	Primary education	0		
	Secondary education	45		
	Tertiary education	30		
Profession	Medical officers	72.11	K=11.619	P=0.04*
	Nurse	35.02		
	Anesthetists	5.83		
	Others	40.80		
Clinical experience	1-5 yrs	19.62	K=26.722	<0.0001*
	6-10yrs	40.73		
	11-15yrs	21.17		
	16yrs&above	44.53		

Table 5: Correlation between knowledge and attitude of the participants.

Variables	Rho value	P value Attitude
Knowledge vs Attitude	0.026	0.844

Discussion

This study sought to determine the knowledge and attitude of HCPs in South East, Nigeria towards physiotherapy in the ICU; and to investigate the influence of the socio-demographic profile of the participants on the constructs. The outcome of the study showed that females accounted for the majority of the participants, with more than half married, thus revealing the numerical significance of female participants, which is consistent with the general trend in the professions. This may be a reflection of the gender disparity within the professions, which has seen increased participation of women in the medical and health care professions.

Ramakrishnan, et al²⁹ referred to this trend as the “feminization of medicine”, characterized by a dramatic increase in women's enrolment in the medical field, leading to major shifts in the gender composition of the workforce. About one-half of them (51.7%) fell within the age range of 20- 29 years. This finding is similar to a study conducted in Sudan in which a majority of the respondents were within the same age range. Kheir, et al³⁰ stated that this would imply that more younger medical personnel are in the workplace in different specialties and ranks. A large number of the participants were nurses (45%), had 1-5 years of clinical experience (48.3%), worked in a general medical ICU setting (43.3%), and had less than 1-3 years of work experience in ICU (80%). In addition, the majority of the participants were working in General Medical ICUs possibly due to the fact most of the hospitals included in this study had the General Medical ICU as its major ICU. There is also evidence that most hospitals have a General Medical ICU as the primary ICU, which is also designed to care for a variety of critically ill patients, including adult and pediatric populations³¹.

The majority of the participants (66.6%) had an acceptable level of knowledge on the role of physiotherapy management in ICU. This knowledge was presented in terms of the importance of physiotherapy services in the ICU in general, knowledge of commonly applied physiotherapy practices in the ICU, and the effectiveness of physiotherapy treatment on the critically ill patient, including the prevention of complications, length of stay in the hospital or ICU, functional status, and quality of life. This finding corresponds with a survey study done by Shimpi et al³² which found that participants had a good awareness of physiotherapy among referring doctors. These findings regarding the knowledge of participants about physiotherapy management in the ICU in selected hospitals in south Eastern Nigeria suggests that they may possess better knowledge about physiotherapy in the ICU than participants in other African countries. For example, a study conducted in Northern Ethiopia mapped out that nearly 50% of medical doctors had inadequate knowledge and negative attitudes towards physiotherapy³³, and 74.7% in Ethiopia. All the participants (100%) had a positive attitude regarding the role of physiotherapy in ICU patients.

This positive attitude of the participants can be interpreted in two ways. Firstly, the high percentage of adequate knowledge of the HCPs may have resulted in a high percentage of positive attitudes among them. Secondly, the Nigerian physiotherapists they worked with may have effectively carried out their roles in the ICU, prompting positive attitudes from other team members.

A study supporting this finding showed that nurses who worked as part of the critical care team had positive perceptions towards the role of physiotherapists in ICU²⁸. This study justifies the finding of the current study regarding the positive attitudes of other HCPs towards physiotherapists in the ICU. According to Brilli et al²⁵, this is important to note because the prevalent attitude among medical staff will affect the process of teamwork as well as the referral process having a subsequent effect on patient care.

Age had a significant influence on knowledge. This may have been because as age increases people tend to have more knowledge on the role of physiotherapy in ICU. Those within the age 50-59 years had the highest mean. This study also showed that the attitude of participants had a significant positive association with overall years of clinical experience, as well as the number of years of ICU experience. Participants with more years of experience demonstrated better knowledge in their practice, possibly acquired through their additional working experience³⁴. In contrast, however, Gomes³⁵,

found a weak correlation between the number of years working in the ICU and knowledge. However, the study also reported that this correlation is insignificant. It is also interesting to note that 100% of HCPs working in the ICUs were found to have a positive attitude toward the physiotherapists' role in the ICU, regardless of their professions. They accepted physiotherapists as part of the ICU team, contributing to the effective management of patients through medical staff rounds, case discussions regarding the patient's condition, decisions regarding weaning from mechanical ventilation, and discharge planning from both the ICU and hospital.

No significant correlation was found between the knowledge and attitude of the participants, although a previous similar study regarding the knowledge, attitudes, and practices around health promotion amongst Physiotherapists, found a significant positive correlation between knowledge and attitudes³⁶. The knowledge and attitudes of team members are considered to be significant factors that affect teamwork interaction and influence the quality of care provided in the ICU³⁷.

LIMITATION

The study did not put into cognizance the HCPs working in various dimensions of the intensive care unit.

CONCLUSION

Based on the findings from this study, HCPs working in the ICU team have adequate knowledge and positive attitudes regarding physiotherapy management in the ICU.

Acknowledgment

The authors wished to thank the managements various tertiary hospitals in South East, Nigeria for their support in ensuring that this study was eventful.

Author contributions

All the authors contributed significantly in the study conception, design, data analysis, preparation and revisions of the manuscript.

Funding

The authors did not receive any external source of funding.

Conflict of interest

The authors declare that they have no conflict of interest.

REFERENCES

1. Wallace AS. (2003). Physiotherapy: its role, rules, and ethics. *Australian Physiotherapy Association* 24; 5-8.
2. World Confederation for Physical Therapy. (2011). Policy statement: Description of physical therapy. London, UK: WCPT. Retrieved September 22nd, 2011 from <http://www.wcpt.org/policy/ps-descriptionPT>
3. National Health Service (NHS) (2007). Choices Physiotherapy Available online at <http://www.nhsc.uk/conditions/physiotherapy2007>. Accessed on 07/12/20 at 1:00 am.
4. McMeeken JG, Webb G, Krause K-L, Grant R, and Garnet R. (2005). Learning outcomes and curriculum development in Australian physiotherapy education. The University of Melbourne, 2005; 12-13.
5. Leligdowicz, A., Bhagwanjee, S., Diaz, J. V., Xiong, W., Marshall, J. C., Fowler, R. A., & Adhikari, N. K. (2016). Development of an ICU Resource Assessment Survey for the Care of Critically Ill Patients in Resource-Limited Settings. *Journal of Critical Care*, 38, 172-176.
6. Abubakar, A. S., Ojo, E. O., El-Nafaty, A. U., and Edomwonyi, N. P. (2008). An audit of one-year intensive care practice in a developing country. *The Internet Journal of Anesthesiology*, 18(2). <http://ispub.com/IJSA/18/2/12676> (Accessed 29 November 2015).
7. Cubro, H., Somun-Kapetanovic, R., Thiery, G., Talmor, D., and Gajic, O. (2016). Cost-effectiveness of intensive care in a low resource setting: A prospective cohort of medical critically ill patients. *World Journal of Critical Care Medicine*, 5(2), 150-164.
8. Bennett, K. A., Robertson, L. C., and Al-Haddad, M. (2016). Recognizing the critically ill patient. *Anesthesia & Intensive Care Medicine*, 17(1), 1-4.
9. Hough, A. (2001). *Physiotherapy in respiratory care: an evidence-based approach to respiratory and cardiac management* Physiotherapy in Respiratory Care (3rd edition.), Cheltenham, Nelson Thorne's (2001).
10. Chartered Society of Physiotherapy, Physiotherapy works critical care. Accessed on 2 / 6 / 1 9 <http://www.csp.org.uk/publications/physiotherapy-works-critical-care>
11. Stoller JK, Mascha EJ, Kester L, and Haney D. (2000). Randomized controlled trial of physician-directed versus respiratory therapy consults service-directed respiratory care to adult non-ICU inpatients. *Am J Respiratory Critical Care Medicine* 1998; 158:1068-1075.
12. Davies K, Harrison K, Cloudier DL, Gilchrist M, McFarland L, and Earland J. (2011). Making the transition from physiotherapy student to an inter-professional team member. *Physiotherapy* 2011; 97:139-44.
13. Hanekom, S., Van Aswegen, H., Plani, N., and Patman, S. (2015). Developing minimum clinical standards for physiotherapy in South African intensive care units: the nominal group technique in action. *Journal of evaluation in clinical practice*, 21(1), 118-127.
14. Gosselink, R., Clerckx, B., Robbeets, C., Vanhullebusch, T., Vanpee, G., and Segers, J. (2011). Physiotherapy in the intensive care unit. *Netherlands Journal Critical Care*, 15(2), 66-75.
15. Atwal A, Tattersall K, Caldwell K, and Craik C. (2006). Multidisciplinary perceptions of the role of nurses and healthcare assistants in the rehabilitation of older adults in acute health care. *Journal of Clinical Nursing*; 15:1418-25.
16. Dalley J, and Sim J. Nurses' perceptions of physiotherapists as rehabilitation team members. *Clin Rehabil* 2001; 15:380-9.

17. Xyrichis A, and Lowton K. (2008). What fosters or prevents interprofessional teams from working in primary and community care? A literature review. *International Journal Nursing Study*; 45:140-53.
18. Kydona CH, Malamis G, Giasnetsova T, Tsiora V, and Gritsi-Gerogianni N. (2010). The level of teamwork as an index of quality in ICU performance. *Hippokratia*; 14:94-7.
19. Maria, P.L. (2010). Lippincott Williams and Wilkins. *The ICU book. Pp-1065*
20. Balogun JA. (2010). Physiotherapy, past, present, and future. *Physiotherapy Budget* 1998; 1:6-7.
21. Jackson DA. (2002). Where is the physiotherapy profession going? *Physiotherapy*; 22: 400-455
22. Achterbergh J and Vriens D. (2002). Managing viable knowledge. *Systems Research and Behavioral Science*; 19: 223.
23. Schwitzgebel E. (2009) "Belief" The Stanford Encyclopedia of Philosophy, Standard, CA: The Metaphysics Research Laboratory, <http://plato.standard.edu/entries/belief/2006>. Accessed on 07/12/2020 at 1:10 am.
24. Baron RA and Byrne D. (2000). *Social psychology*, 9th ed. Boston. Allyn and Bacon,
25. Brilli, R. J., Spevetz, A., Branson, R. D., Campbell, G. M., Cohen, H., and Dasta, J. F., (2001). Critical care delivery in the intensive care unit: defining clinical roles and the best practice model. *Critical Care Medicine*, 29(10), 2007-2019.
26. Berney, S., Haines, K., and Denehy, L. (2012). Physiotherapy in critical care in Australia. *Cardiopulmonary Physical Therapy Journal*, 23(1), 19-25.
27. Jones A. (2001). Intensive care physiotherapy medical staff perceptions. *Hong Kong Physiotherapy Journal*; 19:9-16
28. Gupte, P., and Swaminathan, N. (2016). Nurse's perceptions of physiotherapists in critical care team: Report of a qualitative study. *Indian Journal of Critical Care Medicine*, 20(3), 141-145.
29. Ramakrishnan, A., Sambuco, D., and Jagsi, R. (2014). Women participation in the medical profession: insights from experiences in Japan, Scandinavia, Russian, and Eastern Europe. *Journal of women's Health*, 23(11), 927-934.
30. Kheir, A.E., Dafaalla, M., Bashir, A., Abuelgaism, N., and Abdalrahman, I. (2016). Medicolegal awareness amongst health professionals in Sudan where are now? *The Online Journal of Clinical Audits*, 8(4).
31. Webb, S.F. (2012). Elsevier Health Sciences. *Egan's Fundamentals of Respiratory Care*.
32. Shimpi, A., Writer, H., Shyam, A., and Dabadghav, R. (2014). Role of physiotherapy in India—A cross-sectional survey to study the awareness and perspective among referring doctors. *Journal of Medical Thesis*, 2(2), 11-15.
33. Kutty, R.K., Gebremicheal, H and Vargehesse, P.T (2013). Knowledge, attitude, practice, and associated factors of Physiotherapy among medical Doctors in Tigray, Northern Ethiopia. A cross-sectional study. *Global Journal of Biology, Agriculture and Health Sciences*, 2(4), 74-81.
34. Quinones, M.A (2004). Work experience: a review and research agenda. *International Review of Industrial and Organizational Psychology*, 19, 119-138.
35. Gomes, V.P. (2010). Knowledge of intensive care nurses on evidence-based guidelines for the prevention of ventilator-associated pneumonia. (M.Sc. Dissertation). PARK TOWN. The University of the Witwatersrand. Pp 176
36. Taukobong, N.P., Myezwe, H.M., Pengid, S., and Van Geertruyden, J.P. (2015). Knowledge, attitude, and practice about health promotion amongst physiotherapists in South Africa. *Physiotherapy*, 101, e1491-e1492.
37. Marino, P.L. (2007). Lippincott Williams and Wilkins. *The ICU book. Pp-1065*.