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Improving awareness of physical therapy students on infection control policies and procedures in COVID-19 outbreak: A cross-sectional study

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Awareness and education of policies and regulations for controlling infections in physiotherapy (PT) practice is a critical subject with rare previous studies. Noting that COVID-19 as distressing threat. Avoiding spread of healthcare associated infections is done via strong strategies on proper cleaning, disinfecting and sterilizing equipment. This study was done to measure & provide a better considerate of infection control policies and regulations during PT practice to ensure physiotherapists (PTs) and patient safety. An electronic questionnaire was sent to 180 physiotherapists in Jeddah, KSA [senior physiotherapists, interns & students]. Data statistical analysis revealed a huge gap between the participants' answers, in favor of the seniors. From the result we can conclude that physiotherapists and students should be well-educated about national & international standard principles of infection control, using protecting equipment and safe disposal of infected objects.

Keywords: COVID-19, Infection control awareness, Patient safety, Physical therapy, Policies & procedures.

INTRODUCTION

Health care–associated infections (HCAI)] are nowadays definitely the commonest complications touching patients and staff. Presently, around 5 and 10 percent of patients in acute care acquire infection, and the risks have gradually increased during current years (Weinstein, 1998 and Jarvis, 2001). Infection control actions are critical to avoid recently spread Middle East respiratory syndrome corona virus (MERS-CoV) in health care facilities (Center 2013). We should act properly to decrease the risk of spread of the virus from an infected patient to others, health-care workers and companions (Shefer et al. 2011). Health care personnel should be educated, competent with skills on infection prevention and control (Mackenzie et al. 2014). Physical therapy patients are generally compromised by immobility and chronic devastating conditions or acute conditions, as trauma, wounds or burns, placing them at high risk for evolving an infection after exposure to microorganisms. Infection control in physical therapy can prevent transmission of healthcare related infection (Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, 2014). The World Confederation for Physical Therapy (WCPT) declared that infection stoppage as well as controlling is the concern of every personnel in health facilities delivering and it is a must to be driven in routine procedures.

The WCPT inspires its affiliate organizations to certify that PTs must be acquainted with all principles of infection avoidance and control wherever they work, with all standards praised by the medical division. Having safe work atmosphere that supplies strategies and guidelines on infection prevention and control,

proper safety (e.g. vaccinations, equipment & materials), alertness & worthy training in infection prevention and control is a must (Larsen et al. 2002).

Standard precautions are mandatory for the basic level of infection control (Boyce et al. 2009). They include worthy hygiene practices, regular hand washing, cut as well as scratches must be protected with an impermeable covering, besides using all other personal defensive tools, such as gloves, eye guard, masks, aprons, gowns and overalls. This will help to break the spread of infections. All body substances (except sweat and tears) of all people are considered possible causes of infection. In addition, we should practice these securities for the management and care of all patients irrespective to their infectious status (Bury & Stokes 2013).

Certain policies and procedures including staff policies as contact with patients with signs or symptoms of infection (i.e., skin injuries, urinary infection, and diarrhea) must be reported to superiors (Chinn & Sehulster 2003). The director will refer them to occupational health to be evaluated for possible work restraints. Patients with infected injuries to be listed at the end of scheduling dates if probable. In addition to hydrotherapy, certain processes must be taken in different equipment as pools (adding Chlorine at a pH of 7.5- 7.8 to resist organic load, scheduling variations or activity restrictions for patients with contagious clinical manifestations & pool empting every two weeks for cleaning (Centers for Disease Control and Prevention (CDC), 2011). Hot and cold packs (both should be cleaned by submersion in the hydro collator at a predetermined temperature of (71°C), cold packs can be washed using mild soap and water, or disinfected with 70 % alcohol if infected with blood or any body fluid & hand towel during direct patient contact for covering hot packs must be used once only and to be laundered after every patient. Paraffin wax therapy must be used on subjects with unbroken skin. Skin areas being treated must be cleaned using antibacterial soap preceding dipping in the paraffin, wax must be disinfected latterly in that day by turning the timer switch on for one hour, temperature degree must reach (100°C) and then must return to usual treatment temperature spontaneously. Moreover for wax reuse, leave it to harden & remain to filter to the bottom, remove deposit, & return fresh wax to bath for reuse (College of physiotherapists of Ontario). While for exercise rooms/gymnasium, all apparatus and toys must be easily sterilized. If not possible, it must have a shield, to be washed if noticeably dirty (e.g. weights).Following guidelines for washing to escape patient injury or damaging equipment, or interfering with functioning (LASER, electrotherapy apparatus). Change the plinth sheets between patients. Rubbing reusable stuffs as scissors with 70% alcohol among patients (Joint Commission, 2016).

There is a necessity for consistent informative interferences and education on controlling COVID-19 for all medical staff. Word related safety and security are significantly necessary to limit the threat of transmission to medical students and specialists and deliver ideal patient care (Modi et al. 2020).

Actually in a brief period, health care facilities and society have been seriously tested by one more rising infection. Avoiding transmission and easing back the pace of new contaminations are the essential objectives; be that as it may, the worry of COVID-19 causing basic disease and passing is at the center of open uneasiness. The basic consideration has massive involvement with managing extreme intense respiratory infections regularly from dubious reasons (Srinivas Murthy, et al. 2020).

Nowadays, there is a need for repeated examination for coughing, temperature, dyspnea, or rhinorrhea in patients or staff. The COVID-19 is accepted as profoundly infectious and symptomatic, despite the fact that some asymptomatic cases were counted. Thus limiting the spread of the infection in narrow places, as, physiotherapy areas. Face mask wearing while handling cases, evading face-to-face discussions among clinical staff and cases. In addition to altering rehabilitation approaches for subjects with history of COVID-19. The COVID-19 episode will lead to numerous barriers in rehabilitation centers, clinics and emergency rooms. Administration, managing and treating procedures for COVID-19 patients in rehabilitation centers must start in full power before further virus spread (Chang and Park, 2020).

MATERIALS AND METHODS

Subjects

In the present study, 180 participants from the physical therapy field were selected randomly. Participants were equally divided into 3 groups, including: senior therapists, interns from different hospitals and students.

Research Design

A cross-sectional survey study was done during April 2020, including King Abdul-Aziz University physical therapy students and Interns. We comprised all the participants in answering the survey questions. The Research Ethics Committee at Faculty of Medical Rehabilitation Sciences approved the study.

Survey Instrument

A questionnaire including fourteen questions that measure the concepts of infection control in physical therapy was mailed to all participants. It included multiple choice questions about general knowledge of infection control. This questionnaire aims to measure participants' awareness of infection control in their field. This study was done during April 2020.

The survey was conducted from April to May 2020. The study protocol was approved by the Faculty of Medical Rehabilitation Sciences Ethics & Research Committee, King Abdulaziz University, Saudi Arabia (02 February 2020).

Statistical Analysis

The results were primarily analyzed with Statistical Package for the Social Sciences (SPSS) including only participants who completed the questionnaire, version 21 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics were done. Results are stated as percentages for categorical, continuous and nominal variables, with theory of normal distribution. The p value was also calculated. (Abu-Bader 2021).

RESULTS

The data obtained in the current study showed that two hundred seven subjects were randomly assigned to take part in the study and 27 were excluded. One hundred eighty participants were randomly and equally divided into 3 groups, including: senior therapists, interns from different hospitals and students.

Ways of Infection & COVID-19 Transmission Prevention

For ways of infection & COVID-19 transmission prevention, 40 students chose all methods, with 66.7%, while no student chose early identification of patients requiring isolation (Fig. 1).

Infectious & Blood-Borne Infection Patients Treatment in the Pool

Regarding blood-borne infections (Hepatitis, HIV, COVID-19 & …etc.), if they can be treated in the pool. Figure 2 shows that 88.33 % of students said no (Fig. 2).

Wax baths sterilization

Regarding participants' agreement that wax baths must be sterilized at the end of the day, 58.3 % chose (True), and 41.7 % chose (False) (Fig. 3).

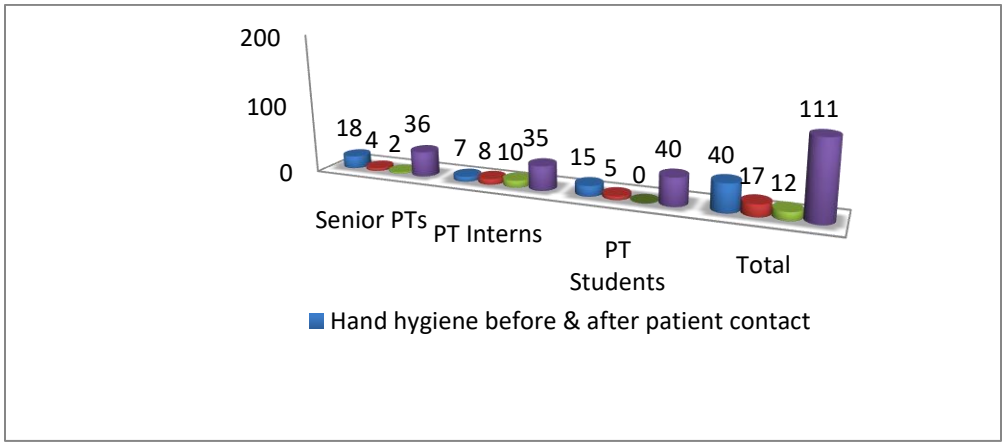

Figure 1: Frequency of ways of infection & COVID-19 transmission prevention.

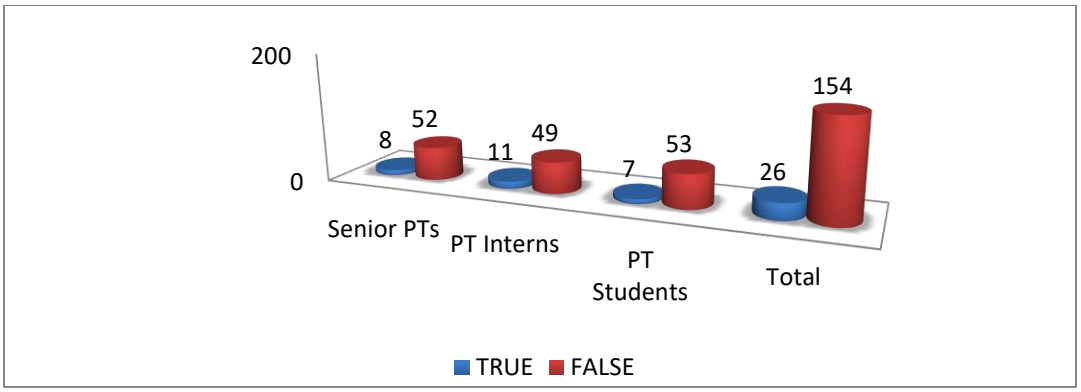

Figure 2: Frequency of results of the question: "Can infectious & blood-borne infection patients be treated in the pool?"

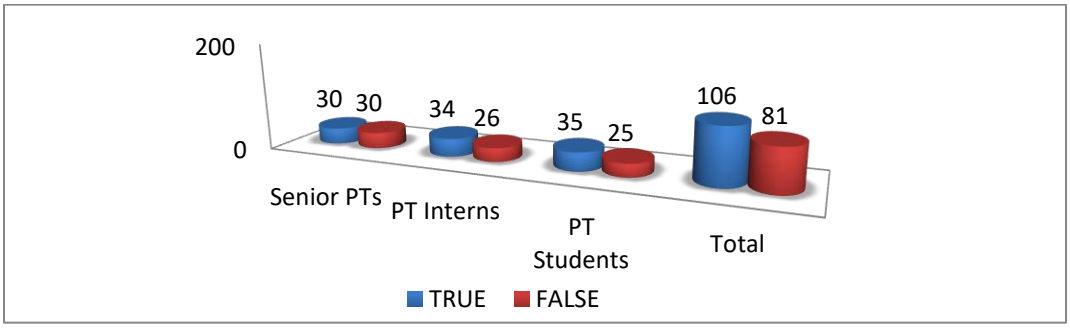

Figure 3: Participants' agreeing that wax baths must be sterilized at the end of each working day

DISCUSSION

As our study was the first one touching this topic in physiotherapy in Jeddah, the aim was to measure & provide the awareness of infection control in physical therapy practice. The results obtained in this study indicated that according to the WCPT, infection prevention and control is in charge of every personnel included in medical care and must be concerned in daily routine. Including health care attained contagions as well as other causes and not only for high-risk infections. Prompt identification, beside managing strategies, are vital for both patient and health care professionals.

WCPT affiliates are urged to follow national struggles to figure, reinforce and keep the capabilities needed under the IHR – for avoiding, defending against, govern and deliver public health services against global disease spread and to support the physical therapists role in fighting against these diseases (Bury and Stokes 2013).

According to this, physiotherapists must recognize and reduce any threats due to infections or used equipment (Canadian Patient Safety Institute, 2011). Using up-to-date infection control procedures. This necessitates maintenance of awareness of infection control actions (Simamora, R. H., 2020). Studying the threats of spread between patients, self, health professionals, afore every patient. Certify that suitable printed infection control protocols (Jeeva & Wright 2014).

Existing infection control actions include hand hygiene, using protecting equipment (e.g. gloves, dresses, face masks, breathing apparatus), sterilizing apparatus properly, and avoiding reuse of single-use tools (e.g. single-use probes), safe removal of waste and sharps and safe holding of unclean linen (Berríos-Torre et al. 2017, and Shiels and Engels 2017).

As governments increase endeavors to avoid or postpone COVID-19 spread, nationally and internationally should get ready for the likelihood that trials and procedures may come up short. After this pandemic spreads over the world, the ICU managers must get ready for its next challenges. ICU specialists, medical managers, governments, and strategy makers must get ready for a considerable increment in ICU bed limit, with an emphasis on foundation and supplies, in addition to medical staff. ICU staff must prepare

for a possible flood of cases and improve work processes, ahead of time, for quick diagnosing and separating patients, managing, and avoiding infection. Emphasis on high quality research, evidence-based results, information sharing, with moral respectability despite remarkable difficulties—will be vital to accomplishment of these actions (Phua et al. 2020).

Information share regarding COVID-19 infected persons among the public and clinical experts presents epidemiological advantages. In addition to the IT system accessibility in gathering extensive medical and nonmedical data to control spreading of profoundly communicable diseases (Park et al. 2020).

For medical care persons executing aerosol-generating techniques (e.g. endotracheal intubation, nebulizer therapy, open suctioning); it's a must to use fitted respiration mask (N95 respirators, FFP2), afore usual surgical masks. As well as personal protective equipment (PPE). In place of ordinary care of non-ventilated cases, or for non-aerosol generation for subjects on mechanical ventilators, using medical face masks is suggested, rather than respiratory ones; moreover PPE (less recommended, low-quality evidence [LQE]) (Poston, et al. 2020).

For this, it is critical that the academic staff pick up from the experience and organizes a ground breaking and insightful methodology as reasonable arrangements, followed by reevaluation. The COVID-19 pandemic may signify a permanent change in medicine with the expansion of tele-health, accommodating researches, and clinical studies with adaptable ways to gain answers. This isn't just a chance for improving practical & clinical training in a process of dynamic curricular advancement and change, yet it might be a fundamental time for other medical strategies (Rose 2020), (Lee 2020)

Medical crisis readiness often neglect considering inpatient rehabilitation. Safety of health care staff as well as patients must be at the cutting edge of delivering rehabilitation service for the public (McNeary, et al. 2020).

It must be commanding that physical therapists recognize the COVID-19 preventive transmission measures. Thus it is recommended that treating confirmed or suspected COVID-19 patients might be with droplet or airborne safety measures, in addition to isolation. Regularly hospitals are capable of confining cases with droplet or airborne infection inside isolated areas. Still, we have limited units of negative pressure apparatuses and/or rooms, so isolation in these areas won't be feasible owing to the huge number of admitted patients (Thomas et al. 2020).

The WHO recommendations on hand sanitation in health care declared that health care personnel's, as physiotherapists must ensure that the used equipment in patient care is safe by making sure that equipment are checked, kept, and used in agreement with policies of health facility's, manufacturers' advices, and judicial necessities. They must have a documented practice for regularly revising maintenance and safety of used equipment and validate this (World Health Organization, & UNICEF, 2012 and World Health Organization, 2011).

In spite of COVID-19 pandemic, healthcare schemes can be excellently arranged via consideration of guidelines of national and global organizations (Reeves, et al. 2020).

The Australian recommendations, mentioned by the APTA, the APTA Cardiovascular and Pulmonary Sector, and the APTA Academy of Acute Care Physical Therapy, highlight precise PT education, alert screening, and using PPE. Novel strategies for providing physical therapy for COVID-19 inside ICUs confesses the need of involving therapists in respiratory therapy, with caution that equipment & tools must be functional. These directions may be published quickly. These guides 'emphases on staff organization and readiness with selection for physical therapy in addition to interferences and personal safety system necessities, it involves above 60 commendations starting from shift plans to the PPE that PTs must use (Thomas et al. 2020).

Health care staff, as caregivers, backing staff, administrates, and readiness team, all could be strained by the dares of a COVID-19 extended reaction, and management must highlight the significance of self-care as core reaction. Medical care employees might inquire if their family members can obtain preference for investigation, immunization, and therapy once it's accessible (Adams et al. 2020).

Medical training and teaching are centered on a robust organization and cohort information expertise. Medical students and learners have faced giant defeat of practice and skills, know-how, academic prospects, and community networks and most are perceiving recurrent and numerous passing away. A lot were concerned about additional defeat so far to originate in these extents (Gallagher, Thomas H., and Anneliese M. Schleyer, 2020).

Conclusively, COVID-19 enforced a large influence at the health care organizations internationally, and needed a response within a very quick time. Most hospitals' departments and wards were adapted to be semi-ICUs and ICUs, and multi-disciplinary teams, that include CRI PTs, doctors, and Nurses, need to have exceptional education for COVID-19. All medical care systems showed unusual settings due to the fact it can expect CRI PTs attendance with all ICU multi-disciplinary teamwork. Though, this is a completely exclusive time in the present, all nations have appropriately devoted to study this crisis, all medical care organizations, as well as health center infrastructures will be to be able to go through much less on this struggle (Pinto, et al. 2020).

CONCLUSION

From the result of this study, we detected that all our students & therapists should be cultured about national & international regular principles of infection control and be trained in hand decontamination, using personal protective apparatus & tools and safe discarding of infected objects. Physiotherapists must retain up-to-date with national & international infection control recommendations and implement it in their practice, taking into respect their setting. These rules should be considered in connotation with the Region Legislative policies affecting practices of the health care instituting and/or health care employee.

CONFLICT OF INTEREST

The authors declared that present study was performed in absence of any conflict of interest.

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AUTHOR CONTRIBUTIONS

Dr. Salwa Elgendy acquired the idea of the study, protocol preparing, reference searching, collecting and analyzing data, and writing final proof of the document. Dr. Afnan Alkhateeb participated in data collection and statistical analysis of data. Both authors shared editing, proof reading and revising the manuscript.

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