



TO FIND OUT THAT PHYSIOTHERAPIST IS AWARE OF PREVENTION OF CARDIO- THORACIC CONDITIONS ASSOCIATED WITH NEUROLOGICAL DISEASES

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Abstract: This study has been undertaken to investigate the awareness of physiotherapist about chest complication in neurological diseases. A cross sectional online survey was sent to physiotherapist during covid-19 lockdown period in the month of May 2021 and Aug. 2021. The sample size for this cross-sectional study was 150, in which we only get 122 responses. One sample proportion test was used in the analysis of this study, to test hypothesis. After analyze the data we found most of the physiotherapist is the age between 22-30 years, male and graduate clinician. Maximum number of participants aware about cardio-thoracic conditions associated with neurological diseases. So, the conclusion of this study shows that most of the participants knows about the cardio-thoracic conditions associated with neurological diseases, most of them result from decreased functional performances, which is easily reduced by home based physiotherapy programs.

Index Terms – physiotherapist, cardio-thoracic conditions, neurological diseases, chest physiotherapy, lungs, respiratory muscles.

I. INTRODUCTION

The physiotherapist has an important and a diverse role within the ICU as a member of the multidisciplinary team in managing the cardiorespiratory complications and to maintain the functional abilities.^[3] Chest physiotherapy has conflicting data about its effect on intracranial pressure (ICP) in neurological patients with head injury.^[4,5] Mean arterial blood pressure (BP) and central venous pressure should be monitored in order to prevent adverse events such as autonomic dysreflexia or bradycardia in the patients admitted to the neurological hospital. Coughing can further increase the risk of re-bleed in patients with cerebral bleed.^[6] Since there is a risk of ICP elevation and autonomic disturbances, the physiotherapy treatment methods need to be modified in neurological condition of patients.^[4] Furthermore, as the majority of patients admitted in neurological hospitals are unconscious, the routine treatment strategies, which requires patients' volitional effort may fail and alternative therapy strategies need to be adopted for patients in these ICUs.^[1]

There are theoretical reasons for routine physiotherapy in neurological hospitals. Routine physiotherapy may help in maintaining the airway, improve ventilation and maintain bronchial hygiene. It is found that during day time; almost 90% of the hospitals had physiotherapists available, whereas during weekends only 66% of the hospitals had physiotherapists in Australian ICUs. It is evident that physiotherapists are employed in the hospitals for routine chest physiotherapy and early mobilization.^[2]

Various factors may influence physiotherapy practices in Indian hospitals, when compared with the hospitals in developed countries such as: (1) Awareness about the technique, (2) availability of the equipment, (3) training or education of the physiotherapist, (4) physiotherapist: Patient ratio, (5) presence of respiratory therapists, (6) cultural differences, (7) attitude of other professionals toward physiotherapy, (8) evidence-based practice considerations, (9) medical management of the patient (such as sedation practices, modes of ventilation favored, inclination for early tracheostomy), (10) open versus closed ICUs, and (11) case-mix of unit.

Variations in the chest physiotherapy practices may also be related to the hospital referral policies and autonomy provided for a physiotherapist. In order to assimilate the current chest physiotherapy practices in neurological condition, questionnaires and

surveys are regarded as better method when the population to be reached is large. Questionnaires can be sent to distant places by E-mailing them to the respondents.

To the best of our knowledge, there are presently no studies that examine the chest physiotherapy practices in neurological condition. Therefore, we conducted a national level survey of physiotherapists to knowledge of awareness among physiotherapist for prevention of chest complication. The aim of this survey was to find out that physiotherapist is aware of prevention of cardio-thoracic conditions associated with neurological diseases.

II - METHODOLOGY

2.1. Ethical statement

The web-based open E-survey research is submitted and Approved by the ethics committee of Saaii college, Kanpur. we ensured that the study was performed according to the principles laid by, declaration of Helsinki (Revised 2013), Council for International Organizations of Medical Sciences (CIOMS) guidelines, International ethical guidelines for health-related research involving humans (2016) and National guidelines for biomedical and health research involving human participants (2017). The purpose of the survey, introduction and about the length of the survey was added within the web-based open E-survey. A separate statement of consent was asked before starting the survey questionnaire.

2.2. Sample and design

A cross-sectional online survey was sent to physiotherapy professionals during COVID-19 lockdown period in the month of May 2021 and Aug 2021. Clinicians, academicians and researchers were included in the study by a simple random sampling method. Physiotherapist and professionals who are not willing to spare time for filling survey questionnaires, who do not have an account in social networking sites such as Facebook, WhatsApp, and Instagram and who do not have smartphone were excluded from the web-based open E-survey.

2.3. Survey development

A series of questionnaires were created for the survey. The Survey contained four sections.

The first section contains a consent form, the second section include Demographic data, the third section of survey comprised questions about knowledge of cardio-thoracic complications and the fourth section include knowledge of prevention of cardio-thoracic complications in neurological diseases. Demographic related questions included in the survey were age, gender, height, and weight. Third and fourth section contains question related to knowledge and awareness of cardio-thoracic complications in neurological diseases. We want to know that how therapist tackle these conditions happened in their practices.

2.4. Administration of survey

The study was executed by sending the online link (<https://forms.gle/A53tshNkK4rTj92PA>) to the Physiotherapy students and practitioner through social networking sites such as Facebook, WhatsApp, and Instagram. 150 potential participants were identified and E-survey link was sent to them through the messaging services. The Survey was administered using the online survey portal, Google forms. As people are mostly active on social networking sites and messengers when compared to frequent checking e-mails, social networking sites were used for circulating the survey questionnaire. The reminder survey link was sent to them, if response was not received within a period of two weeks. Web-based open E-survey is cost-effective, eco-friendly, time-saving and practically feasible during the pandemic period.

2.5. Sample size

The sample size for this cross-sectional study was 150, in which only 122 responses we get. The incomplete submission of survey questionnaire was not possible due to the function in Google Forms which prevent submission of partially answered or filled Questions. Hence, when the survey responses hit 122 and time limit is exceeding the web based open E-survey link has closed for accepting further responses and analyzed.

2.6. Variable

According to Polit DF, Hungler BP (2004)⁸ A variables imply something that varies, and variables may be any quality of a group or situation that takes on different values.

Demographic variables: Age, weight, height, gender, is source of information.

Research variables: knowledge and awareness regarding cardio-thoracic condition in neurological diseases.

Selection and development of tool: Tool is an instrument used by the researcher to collect data. The instrument selected in research should be far as possible be vehicle that would be best obtaining data for drawing conclusion, which are pertinent to data. The self-structured questionnaire was used for study, where interested in establishing rapport and obtaining facts of study.

Validity of tool: Burns N, Groove SK (2003)⁹, state that validity is the extent to which the method of measurement includes all the major elements relevant to the construct being measured. To measure the content validity of the tool, the questionnaire was given to the 3 experts from the field of Physiotherapy. The experts were chosen based on their clinical expertise, experience, qualification, and interest in the problem area. The validity of tool was confirmed by expert's opinion regarding relevance of items.

Reliability of tool: Polit DF, Hungler BP (2004)¹⁰, state that reliability of an instrument is the degree of consistency with which it measures the attributes it is supposed to be measuring. Reliability of the tool was estimated by split half method which included computing Pearson's coefficient of correlation and thereafter applying Spearman Brown prophecy formula, which was found be r' 0.84. Hence the tools were reliable.

2.8. Data collection procedure

Burns N, Groove SK (2003)¹¹, state that data collection is the identification of subjects and precise, systematic gathering of information (data) relevant to the research purpose or the specific objectives, questions or the assumptions of a study. The data was collected from the physiotherapy professionals by sending the link of google form through mail, WhatsApp and Facebook. The present study was conducted from 01/05/21 to 30/08/21. Purpose of the study was explained to the subjects. The subjects were assured about anonymity and confidentiality of the information provided by them as informed consent was taken from those who were willing to participate in the study. 150 potential participants were identified and E-survey link was sent to them through the messaging services and time taken by each survey to fill approximately 10 – 15 minutes.

III - ANALYSIS

Data analysis was done using IBM SPSS Statistics (software package used for statistical analysis 2019 version - 26). One sample proportion test was used in the analysis of this study, to test hypothesis; which help to determine whether to reject or accept Null hypothesis.

Total Consent for Participation=122

Total Successful Participants in Survey=122

Total Unsuccessful Participants in Survey=00

Table-1: Age wise distribution of the Participants

Age group (In Yrs)	Number of Participants	Participants %
Under 21	5	4.10
22-30	100	81.9
31-40	15	12.29
41-50	02	1.64
Total	122	

Table-2: Gender wise distribution of the Participants

Gender	Number of Participants	Participants %
Male	67	54.9
Female	55	45
Other	0	0
Total	122	

Table-3: Qualification wise distribution of the Participants

Qualification	Number of Participants	Participants %
BPT	105	86
MPT	17	14
Other	0	0
Total	122	

Table-4: Occupation wise distribution of the Participants

Occupation	Number of Participants	Participants %
Student	21	17.2
Clinician	45	36.8
Freelancer	28	22.9
Hospital	18	14.7
Professor	10	8.2
Total	122	

Table-5: Do the Participants know about cardio-thoracic conditions associated with neurological diseases.

Category	Number of Participants	Participants %
YES	101	82.8
NO	03	2.45
MAYBE	18	14.75
Total	122	

Table-6: Is Chest complication result from decreased functional performance of the patient?

Category	Number of Participants	Participants %
Strongly Disagree	01	1
Disagree	03	2
Neutral	06	5
Agree	31	25
Strongly Agree	81	66
Total	122	

Table-7: Is home based physiotherapy help to reduce chest complication?

Category	Number of Participants	Participants %
Strongly Disagree	01	1
Disagree	02	2
Neutral	04	3
Agree	28	23
Strongly Agree	87	71
Total	122	

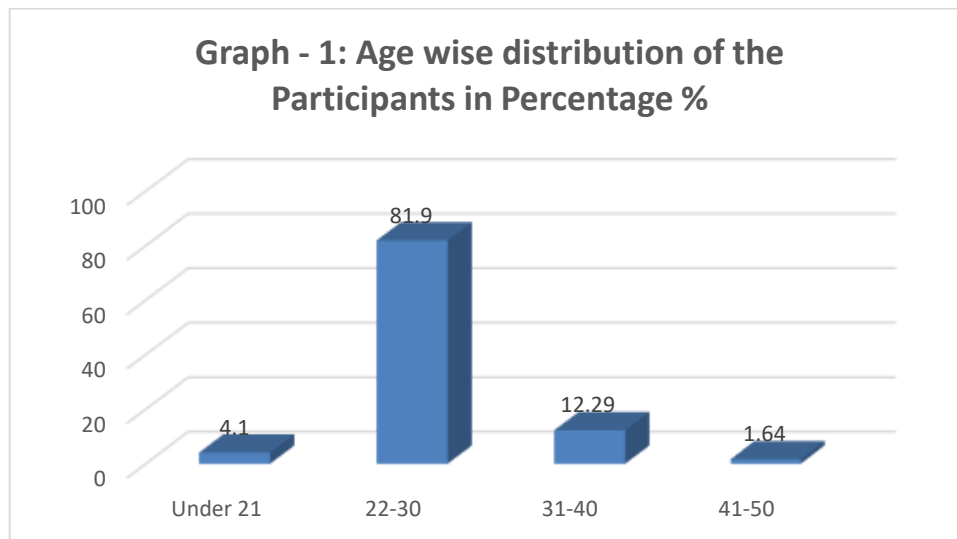
Table-8: Is patient need supervision of physiotherapist?

Category	Number of Participants	Participants %
Strongly Disagree	0	0
Disagree	0	0
Neutral	1	1
Agree	22	18
Strongly Agree	99	81
Total	122	

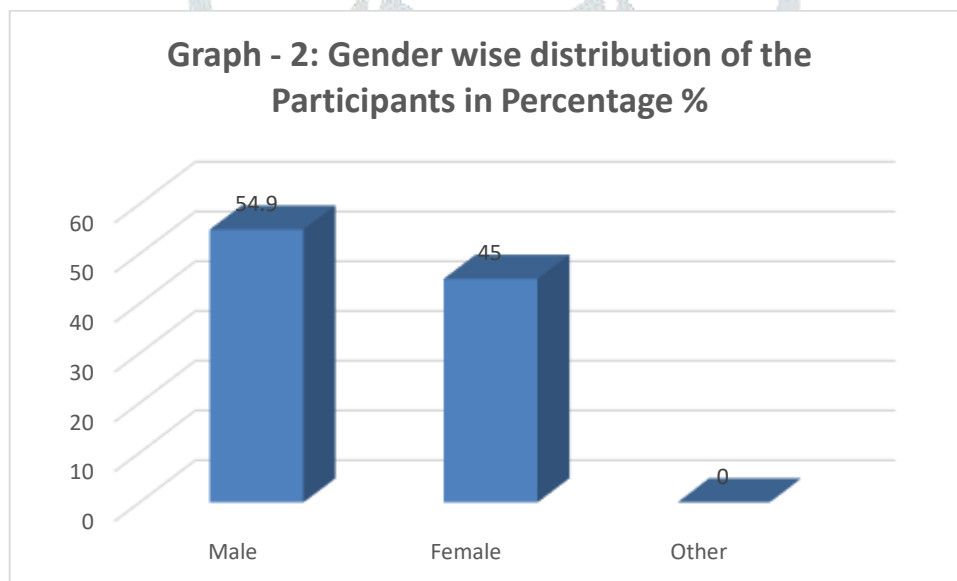
Table-9: Is physiotherapy helpful in regaining lung expansion and strength of respiratory muscles?

Category	Number of Participants	Participants %
Strongly Disagree	01	1
Disagree	01	1
Neutral	02	2
Agree	18	15
Strongly Agree	100	82
Total	122	

IV – RESULTS

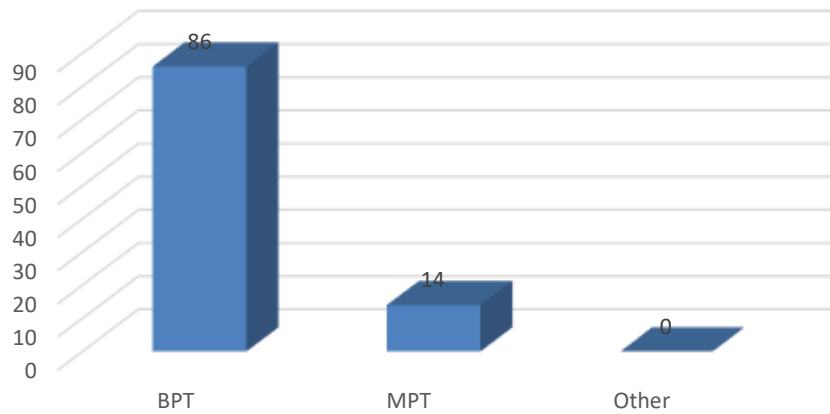


Graph – 1: Represents the age wise distribution of all 122 participants, all age groups are mentioned in years. The result suggests that 81.9% of participants (100 out of 122 participants) belongs to age group 22 – 30 years, 12.29% of participants (15 out of 122 participants) belongs to age group 31 – 40 years, 4.1% of participants (5 out of 122 participants) belongs to age group under 21 years, 1.64% of participants (2 out of 122 participants) belongs to age group 41 - 50 years, it reflects that maximum participant belong to age group 22 – 30 years.



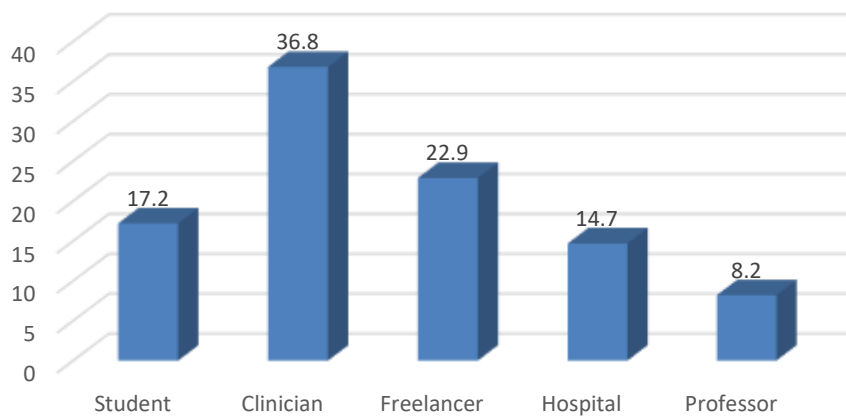
Graph-2: Represents the Gender wise distribution of the all 122 participants, the result suggests that 54.9% of participants are Male (67 out of 122 participants), 45% of participants are female (55 out of 122 participants) & 0% of participants are other (No participants out of 122 participants), It reflects that maximum participant are male.

Graph - 3: Qualification wise distribution of the Participants in percentage %



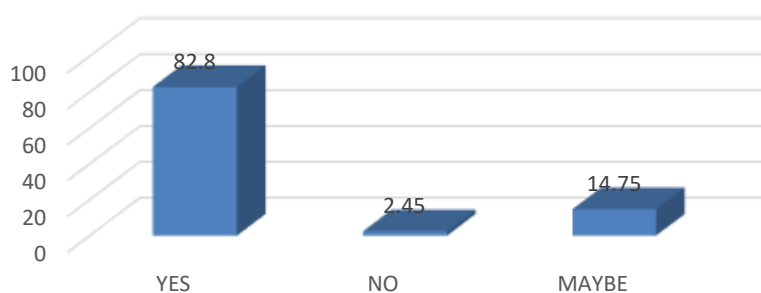
Graph-3: Represents the Qualification wise distribution of the all 122 participants, the result suggests that 86% of participants are undergraduate (105 out of 122 participants), 14% of participants are postgraduate (17 out of 122 participants) & 0% of participants are other (No participants out of 122 participants), it reflects that maximum participant are undergraduate.

Graph - 4: Occupation wise distribution of the Participants in percentage %



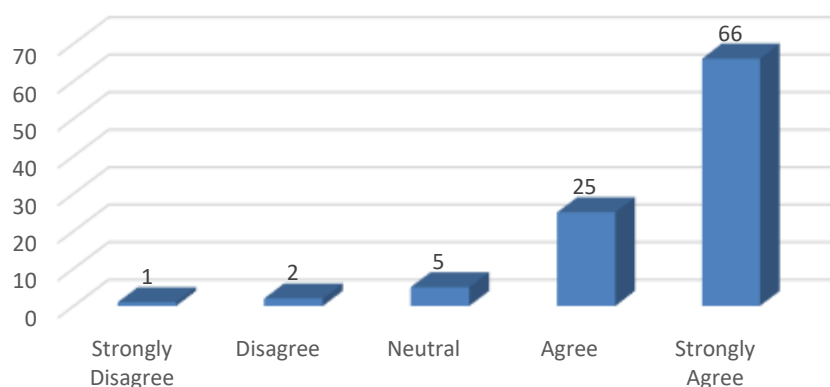
Graph – 4: Represents the Occupation wise distribution of all 122 participants. The result suggests that 36.8% of participants (45 out of 122 participants) are clinician, 22.9% of participants (28 out of 122 participants) are freelancer, 17.2% of participants (21 out of 122 participants) are students, 14.7% of participants (18 out of 122 participants) are work in hospital, and 8.2% of participants (10 out of 122 participants) are professor, it reflects that maximum participant are working as clinician.

Graph - 5: Do the Participants know about chest complications in neurological patients. (Participants %)

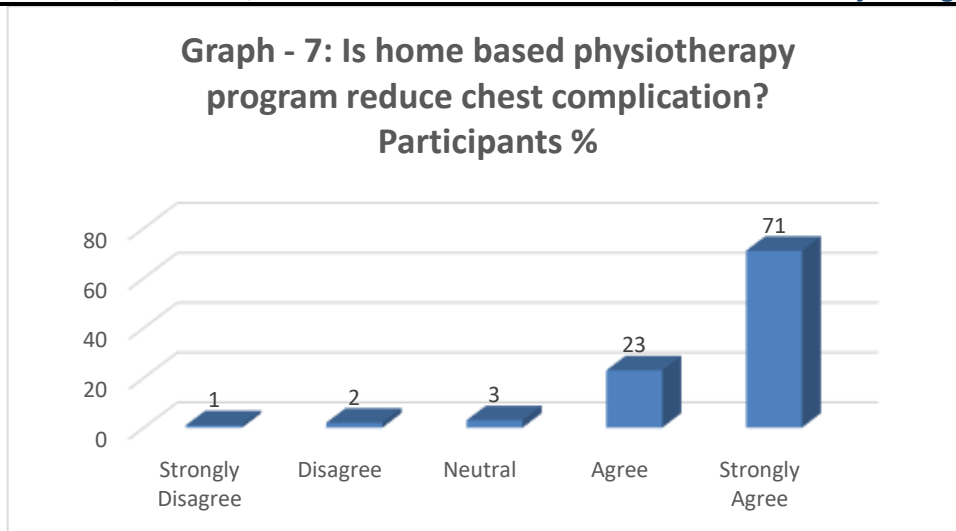


Graph-5: Represents about the knowledge wise distribution of the all 122 participants that they know about chest complication in neurological patients, the result suggests that 82.8% of participants know about chest complication in neurological patients (101 out of 122 participants), 14.75% of participants maybe know about chest complication in neurological patients (18 out of 122 participants) & 2.45% of participants don't know about chest complication in neurological patients (3 out of 122 participants), It reflects that maximum participant of this study know about the chest complications in neurological patients.

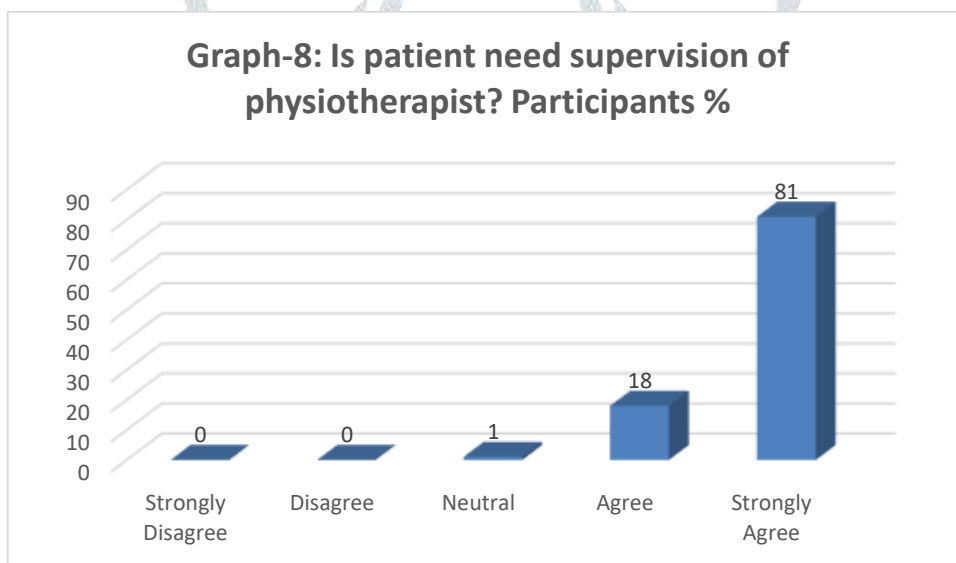
Graph - 6: Is Chest complication result from decreased functional performance of the neurological patient? Participants %



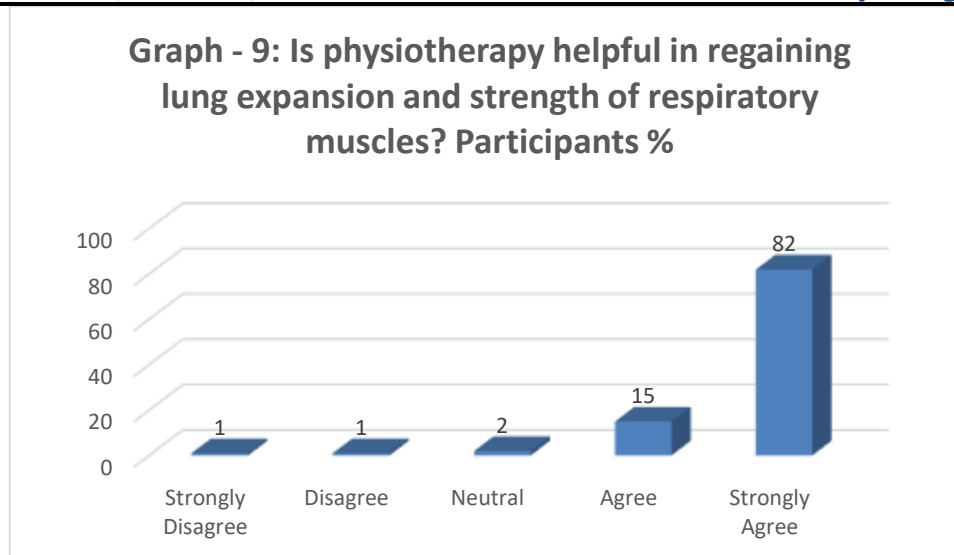
Graph - 6: Represents the decrease functional performance in neurological cases can cause chest complication wise distribution of all 122 participants. The result suggests that 66% of participants (81 out of 122 participants) are strongly agree that Chest complication result from decreased functional performance of the neurological patient, 25% of participants (31 out of 122 participants) are agree that Chest complication result from decreased functional performance of the neurological patient, 5% of participants (6 out of 122 participants) are neutral that Chest complication result from decreased functional performance of the neurological patient, 2% of participants (3 out of 122 participants) are disagree that Chest complication result from decreased functional performance of the neurological patient, and 1% of participants (1 out of 122 participants) are strongly disagree that Chest complication result from decreased functional performance of the neurological patient, It reflects that maximum participant are strongly agree that Chest complication result from decreased functional performance of the neurological patient.



Graph – 7: Represents home based physiotherapy program wise distribution of all 122 participants. The result suggested that 71% of participants (87 out of 122 participants) are strongly agree that home-based physiotherapy program reduce chest complications in neurological patients, 23% of participants (28 out of 122 participants) are agree that home-based physiotherapy program reduce chest complications in neurological patients, 3% of participants (4 out of 122 participants) are neutral that home-based physiotherapy program reduce chest complications in neurological patients, 2% of participants (2 out of 122 participants) are disagree that home-based physiotherapy program reduce chest complications in neurological patients, 1% of participants (1 out of 122 participants) are strongly disagree that home-based physiotherapy program reduce chest complications in neurological patients, It reflects that maximum participants are strongly agree that home-based physiotherapy program reduce chest complications in neurological patients.



Graph – 8: Represents physiotherapist supervision wise distribution of all 122 participants. The result suggested that 81% of participants (99 out of 122 participants) are strongly agree that patient need supervision of physiotherapist to reduce chest complications in neurological patients, 18% of participants (22 out of 122 participants) are agree that patient need supervision of physiotherapist to reduce chest complications in neurological patients, 1% of participants (1 out of 122 participants) are neutral that patient need supervision of physiotherapist to reduce chest complications in neurological patients, 0% of participants (0 out of 122 participants) are disagree that patient need supervision of physiotherapist to reduce chest complications in neurological patients, 0% of participants (0 out of 122 participants) are strongly disagree that patient need supervision of physiotherapist to reduce chest complications in neurological patients, It reflects that maximum participants are strongly agree that patient need supervision of physiotherapist to reduce chest complications in neurological patients.



Graph – 9: Represents physiotherapy is helpful in regaining lung capacity and strength of respiratory muscles wise distribution of all 122 participants. The result suggested that 82% of participants (100 out of 122 participants) are strongly agree that physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce chest complications in neurological patients, 15% of participants (18 out of 122 participants) are agree that physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce chest complications in neurological patients, 2% of participants (2 out of 122 participants) are neutral that physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce chest complications in neurological patients, 1% of participants (1 out of 122 participants) are disagree that physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce chest complications in neurological patients, 1% of participants (1 out of 122 participants) are strongly disagree physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce chest complications in neurological patients, It reflects that maximum participants are strongly agree that physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce chest complications in neurological patients.

V – DISCUSSION

To determine awareness of physiotherapist for prevention of cardio-thoracic conditions associated with neurological diseases we conducted Cross sectional simple randomized online survey among the physiotherapy professionals & students. We received 122 feedback with consent based on inclusion & exclusion criteria.

In question 1 we asked age of participants, we found that maximum participants belong to age group 22-30 years which represents the age wise distribution of all 122 participants, all age groups are mentioned in years, the result suggests 81.9% of participants (100 out of 122 participants) belongs to age group 22 – 30 years, 12.29% of participants (15 out of 122 participants) belongs to age group 31 – 40 years, 4.1% of participants (5 out of 122 participants) belongs to age group under 21 years, 1.64% of participants (2 out of 122 participants) belongs to age group 41 - 50 years.

In question 2 we asked about gender of the participants, we found maximum participants were male, which represents the gender wise distribution of all the 122 participants, the result suggests that 54.9% of participants are Male (67 out of 122 participants), 45% of participants are female (55 out of 122 participants) & 0% of participants are other (No participants out of 122 participants).

In question 3 we asked about Qualification of the participants, we found maximum number of participants were graduate, which represents the qualification wise distribution of all 122 participants, the result suggests that 86% of participants are graduate (105 out of 122 participants), 14% of participants are postgraduate (17 out of 122 participants) & 0% of participants (No participants out of 122 participants) are others.

In question 4 we asked about occupation of the participants, we found maximum number of participants were clinician, which represents the occupation wise distribution of all 122 participants, the result suggests that 36.8% of participants (45 out of 122 participants) are clinician, 22.9% of participants (28 out of 122 participants) are freelancer, 17.2% of participants (21 out of 122 participants) are students, 14.7% of participants (18 out of 122 participants) are work in hospital, and 8.2% of participants (10 out of 122 participants) are professor.

In question 5 we asked about the knowledge of physiotherapist that they aware of cardio-thoracic conditions associated with neurological diseases, the result suggests that 82.8% of participants (101 out of 122 participants) know about cardio-thoracic conditions associated with neurological diseases, 14.75% of participants (18 out of 122 participants) maybe know about cardio-thoracic conditions associated with neurological diseases & 2.45% of participants (3 out of 122 participants) don't know about cardio-thoracic conditions associated with neurological diseases.

In question 6 we asked cardio-thoracic complications associated with neurological diseases results from decreased functional performance of the patients, the results suggest that 66% of participants (81 out of 122 participants) are strongly agree that Chest complication result from decreased functional performance of the neurological patient, 25% of participants (31 out of 122

participants) are agree that Chest complication result from decreased functional performance of the neurological patient, 5% of participants (6 out of 122 participants) are neutral that Chest complication result from decreased functional performance of the neurological patient, 2% of participants (3 out of 122 participants) are disagree that Chest complication result from decreased functional performance of the neurological patient, and 1% of participants (1 out of 122 participants) are strongly disagree that Chest complication result from decreased functional performance of the neurological patient.

In question 7 we asked about home-based physiotherapy program reduce chest complications in neurological patients, the results suggests that 71% of participants (87 out of 122 participants) are strongly agree that home-based physiotherapy program reduce chest complications in neurological patients, 23% of participants (28 out of 122 participants) are agree that home-based physiotherapy program reduce chest complications in neurological patients, 3% of participants (4 out of 122 participants) are neutral that home-based physiotherapy program reduce chest complications in neurological patients, 2% of participants (2 out of 122 participants) are disagree that home-based physiotherapy program reduce chest complications in neurological patients, 1% of participants (1 out of 122 participants) are strongly disagree that home-based physiotherapy program reduce chest complications in neurological patients.

In question 8 we asked that patient need supervision of physiotherapist to reduce cardio-thoracic complications associated with neurological diseases, and the results suggest that 81% of participants (99 out of 122 participants) are strongly agree that patient need supervision of physiotherapist to reduce chest complications in neurological patients, 18% of participants (22 out of 122 participants) are agree that patient need supervision of physiotherapist to reduce chest complications in neurological patients, 1% of participants (1 out of 122 participants) are neutral that patient need supervision of physiotherapist to reduce chest complications in neurological patients, 0% of participants (0 out of 122 participants) are disagree that patient need supervision of physiotherapist to reduce chest complications in neurological patients, 0% of participants (0 out of 122 participants) are strongly disagree that patient need supervision of physiotherapist to reduce chest complications in neurological patients.

In question 9 we asked that physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce cardio-thoracic complications associated with neurological diseases, the results suggest that 82% of participants (100 out of 122 participants) are strongly agree that physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce chest complications in neurological patients, 15% of participants (18 out of 122 participants) are agree that physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce chest complications in neurological patients, 2% of participants (2 out of 122 participants) are neutral that physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce chest complications in neurological patients, 1% of participants (1 out of 122 participants) are disagree that physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce chest complications in neurological patients, 1% of participants (1 out of 122 participants) are strongly disagree physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles to reduce chest complications in neurological patients.

VI – CONCLUSION

Hence, we concluded that over all based on result of this study and previous researches, it can be said that the study to find out significant awareness of physiotherapist for prevention of cardio-thoracic conditions associated with neurological diseases as we concluded that –

1. Maximum number of participants belong to age group 22 – 30 years.
2. Maximum number of participants are Male.
3. Maximum number of participants are Undergraduate (BPT).
4. Maximum number of participants are Clinician.
5. Maximum number of participants know about cardio-thoracic conditions associated with neurological diseases.
6. Maximum number of participants know that cardio-thoracic conditions associated with neurological diseases results from decreased functional performance of patient.
7. Maximum number of participants suggests home based physiotherapy help to reduce cardio-thoracic conditions associated with neurological diseases.
8. Maximum number of participants suggests that patient with cardio-thoracic conditions associated with neurological diseases need supervision of physiotherapist.
9. Maximum number of participants suggests that physiotherapy is helpful in regaining lung expansion and strength of respiratory muscles of cardio-thoracic conditions associated with neurological diseases.

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