“PREVALENCE OF DYSPHAGIA AMONG CHRONIC OBSTRUCTIVE PULMONARY DISEASE PATIENT IN BANGLADESH”

By

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“PREVALENCE OF DYSPHAGIA AMONG CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENT IN BANGLADESH”

A research presented to the

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Approval

"Prevalence of Dysphagia among Chronic Obstructive Pulmonary Disease Patient in Bangladesh"

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Declaration

I am **Abul Kashem Shihab** declaring that the work presented here is my own. All source used in the study have been cited accordingly. The methods and objectives of the research study ensure the safety of each and every participants. Any mistakes or inaccuracies are my own responsibility.

Signature and Date

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Bangladesh

Dedication

Dedicated to……...

……...My Parents

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List of Acronyms

Abbreviation	Elaboration
BHPI	Bangladesh Health Profession Institute
COPD	Chronic Obstructive Pulmonary Disease
GERD	Gastroesophageal reflex Disorder
NIDCH	National institute of Chest Disease and Hospital
QOL	Quality of life
SDQ	Swallowing disturbance questionnaire
SLT	Speech and Language therapy
SPSS	Statistical Package for Social Science
WHO	World Health Organization

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Executive Summery

Chronic Obstructive Pulmonary Disease (COPD) has been identified as a significant challenge in public health in Bangladesh, alongside that it is one of the main causes for the ever increasing chronic morbidity and mortality rate across the globe. There are large number of COPD patients who are suffering from dysphagia and after all they face problem in their quality of life. Many COPD patients suffers from swallowing difficulties but still there is no study in Bangladesh which explains dysphagia among COPD patients. The aim of the study to determine the number of people having swallowing difficulties following chronic obstructive pulmonary disease (COPD).

This study was a cross sectional prospective survey which was conducted in National institute of Chest Disease and Hospital (NIDCH), Dhaka, Bangladesh. 113 participants with chronic obstructive pulmonary disease (COPD) including both male and female of all ages were gathered using purposive sampling and was interviewed face-to-face using Swallowing Disturbance Questionnaire (SDQ). Data was using descriptive statistics. A computer program- "Statistical package for social sciences, version 22 (SPSS) used as a data analysis tool.

According to Swallowing Disturbances Questionnaire (SDQ) scoring, out of 113 participants in this study, 32(28.35%) participants had dysphagia.

This study indicates that majority of people with chronic obstructive pulmonary disease (COPD) suffer with swallowing difficulties. Also the risk of aspiration is high among these people.

Key words: Prevalence, Chronic Obstructive Pulmonary Disease (COPD), Dysphagia

Chapter 01 Introduction

1.1 Introduction

In recent times, Chronic Obstructive Pulmonary Disease (COPD) has been marked as one of the main reasons of chronic morbidity and mortality across the globe. It is currently the fourth leading cause of death in the world (Lozano et al., 2012). According to the estimation of World Health Organization (2018), COPD may become third leading cause at the end of 2030.

Due to the complications in collecting epidemiological data, it is quite hard to gather population-based COPD data as it is not abundant in low-income countries because the setting is quite expensive. COPD usually affects 10 to 13% of adults aging over 40 years. (Alam et al., 2015), one of the most drastic cause is patient remain undiagnosed until the condition of patient is severe enough that it may cause respiratory disease. The study has been conducted in hospitalized setting and the study acquired a prevalence rate of 11.4% in urban population with people in the age group of 35 or more (Islam et al., 2013). The general observation showed the prevalence globally in case of COPD is 10.1% and grows with the increasing number of age with the percentage varying from 6.1 - 17.9% in South-East Asia, China and India. On the other side, the prevalence rate in case of death for COPD is 90% in low- and middle-income countries. The man and woman ratio of COPD is now almost equal. In the last 15 years, the death women due to COPD has increased by 30% exceeding that of men. The total deaths from COPD are projected to increase by 30% over the next 10 years, unless urgent measures are taken to reduce the risk factors, particularly tobacco use (Scelza, Greco, Lopes, & de Melo, 2015).

COPD may be referred as the presence of chronic bronchitis, obstructive bronchiolitis and emphysema. Chronic bronchitis may be defined as the inflammation of the airways delivering air to the lungs. The surrounding tissue in the smaller airways get damaged and air gets trapped in the alveoli is called emphysema. These air sacs are randomly overstretched and unable to function correctly due to shortness of breath. These patients wastes a lot of energy in breathing that increases their metabolic rate, increasing their caloric needs. So, the COPD group needs to eat enough to meet their heightened caloric needs, as Martin-Harris (2000), also stated that COPD patients

complain about eating as it is tiring. The COPD population also has an issue regarding malnutrition. Patients with COPD are present with difficulties in maintaining swallow-respiratory coordination (Shaker et al., 1992). There is a highly developed synchrony between respirations and swallowing that is crucial for the safe transit of food to the stomach. Incoordination may results in a dangerously high risk of penetration and aspiration. Patients with COPD may be susceptible to changes in the coordination of swallowing due to impaired lung function (Kijima et al., 1999). It has been reported that patients with COPD tend to have difficulty in aponea period, thus increasing the risk of aspiration. Swallowing disorders were also common in patients with COPD who presented with gastroesophageal reflux (Mokhlesiet.al. 2001).

A study in the United Kingdom in 2011 reported a prevalence rate of 11% for dysphagia in the general community (Holland, Jayasekeran, Pendleton, Horan, Jones, &Hamdy, 2011). Dysphagia affects at least 12% of inpatients in acute care hospitals and more than 50% of those in chronic care settings (Dozier, Brodsky. Michel, Walters, & Martin-Harris, 2006). In human organism, swallowing is one of the most frequent courses of movement (Chaw, Shem, Castillo, Wong & Chan, 2011).Difficulty in swallowing also compromises the quality life of the patient. At the least, changes in swallowing can affect enjoyment and social interactions. At the worst, complication can include malnutrition, weight loss and aspiration pneumonia, and may significantly impact length of stay and cost of care for both acute and long term patients (Ashley, Duggan & Sutcliffe , 2006) and may also cause death (Wilkins, Gillies, Thomas & Wagner, 2007). COPD is associated with physical, psychological, and social problems and poorer quality of life (QOL). Dysphagia is a frequent problem among COPD patient (Chaves, Carvalho, Stelmach , & Andrade , 2011).In Bangladesh, prevalence of COPD is higher in rural area (Alam, et al., 2015).It indicates that there may be large number of COPD patients who are suffering from swallowing difficulty. Since swallowing difficulty diminishes the quality of life and may lead to inadequate caloric intake with subsequent malnourishment (Abel, Ruf, &Spahn, 2004). So it is an important issue to address in the context of Bangladesh.

1.2 Significance of the Study

COPD has turned out to be one of the major public health complication in Bangladesh now a days (Alam et al., 2015). There are large number of COPD patients who are suffering from dysphagia and after all they face problem in their quality of life (Abel, Ruf &Spahn, 2004). Abnormalities in the swallowing process are common in patients with COPD (Mokhlesi et al., 2001). Since swallowing difficulty diminishes the quality of life and may lead to inadequate caloric intake with subsequent malnourishment and may also cause death of patient (Martin-Harris, 2000). So it is an important issue to be addressed for COPD patient.

We all know that SLTs are pivotal in the team supporting long-term management of those with dysphagia associated with a long-term chronic or progressive condition (Logmann, 1998).

The findings of this study will redound to the benefit of swallowing difficulties with COPD patient considering that speech and language therapists plays an important role in swallowing difficulties management. Many of the national and international literature are trying to clear the fact about the changes of swallowing procedure in patient with COPD. Recently by reviewing a literature systematically it is exhibited that, it is quite difficult to establish relation between swallowing and COPD for the difference in methodology and principle in selecting the inclusion criteria of participant (O'Kane & Groher, 2009). So this research needs to clarify for contributing a precise information about the relationship between dysphagia and COPD.

Rahman, A. A. et al., (2016) conducted a study about awareness among doctors about the role of speech and language therapists in the management of dysphagia in COPD patients in Pakistan and they showed that out of 70 doctors 32 are agree with the role of speech and language therapists in dysphagia management of COPD patient . But in Bangladesh speech and language therapists does not work with COPD patient rehabilitation. This study may encourage to Speech & Language therapists to develop a good professional relationship with doctors dealing with COPD to get referral from them.

1.3 Objectives

1.3.1 General Objective

- To determine the number of people having dysphagia among Chronic Obstructive Pulmonary Disease patient.

1.3.2Specific Objectives

- To determine the socio-demographic characteristics of the patient.
- To know the prevalence of dysphagia among COPD patient.
- To find out the association between the presence of dysphagia with the age, education level, habitual status, onset of COPD.

1.4 Operational Definitions

Key Words: Prevalence, Dysphagia, Chronic Obstructive Pulmonary Disease

1.4.1Prevalence

Prevalence is the number of cases (e.g. diseases) in a population at one time (Bowling, 1997). In this study prevalence is used for determining the number of COPD patients suffering with swallowing difficulties.

1.4.2Dysphagia

Dysphagia is a term that describe the difficulties of an individual in taking food and liquids. These disorders are also known as deglutition disorders. Swallowing of food is a complex process involving several stages, which includes chewing of the food, preparing it for swallow, initiating for the swallow, propelling the food through the pharynx, and passing the food through the esophagus (Logmann, 1998)

1.4.3Chronic Obstructive Pulmonary Disease

A chronic and progressive lung disorder caused by the loss of elasticity, destruction, thickening of the bronchial wall and mucous accumulation in the bronchial tree. The disruption of the air flow in the bronchial airways because of pathologic changes. Chronic obstructive pulmonary disease is classified into two types. These are chronic obstructive bronchitis and emphysema. (International Classification of diseases, 2018)

1.5 Literature Review

Swallowing disorder, or dysphagia is the impairment of any of the phases of swallowing caused by neurological, mechanical or psychogenic impairment. Singh et al., (2011) noted that lung disease including COPD has the potential to disrupt the coordination of breathing and swallowing. They also suggest that it may happen because of tachypnea, an increased tendency to swallow during inspiration, a reduced duration of apnea and changes in the mechanics of swallowing. To go with that people with COPD have impaired coordination between respiration and swallowing and are more likely to commence swallowing and resume respiration in the inspiratory phase, both in the chronic state as well as during exacerbations of the disease (McKinstry, Tranter & Sweeney, 2010). Alongside it, they have also showed characteristics of dysphagia in people with COPD include oral and pharyngeal stasis, delayed swallow reflex, reduced laryngeal elevation during swallowing, cricopharyngeal dysfunction, and increased frequency of compensatory protective swallow maneuvers, laryngeal penetration and aspiration. (Casaburi & ZuWallack, 2009) cited in Rahman A.A. et al., (2016) patients'excerbation with COPD may also have oropharyngeal swallowing problem which may contribute to prolongation and complication in their illness.

In a study involving 14 patients with COPD, the participants were unable to use pulmonary air to clear the larynx for protecting the airway resulting in an increased risk of aspiration (Chaves et, al., 2011). According to a retrospective study among 78 outpatient veterans with COPD referred for a videofluoroscopic swallow examination, the prevalence of dysphagia was 85%. Silent aspiration and laryngeal penetration were noted in 56% of patients (Mokhlesi et al., 2003). Prevalence of dysphagia in patients with COPD vary widely, ranging between 20 and 92% of patients who self-report swallowing abnormalities (Mokhhlesi et al., 2002). Some researchers, indicate that 100% of patients with COPD display abnormalities in swallowing on videofluoroscopic assessment, during both the acute and stable phases of illness (Maclean, 1998).

Stein (2009), described the presence of severe cricopharyngeal disturbances described from videoradiography in a cohort of 17 patients with COPD. Patients were observed to have worsening respiratory symptoms after eating or swallowing saliva. Patients gave subjective complaints of sticking sensation with foods, the habit of cutting foods

into small pieces, eating very slowly, expectoration of food particles with a few histories likely indicative of aspiration pneumonia.

Another study in this sector showed that the patient suffering from COPD have significant changes in swallowing reflex, such changes can become a risk factor for disease exacerbation (Kobayashi et al., 2007). Gross et al., (2009) also include in their study that patients with COPD had alterations between breathing and swallowing, and this alteration may increase the risk of pulmonary aspiration contributing to the involvement of this disease. Chaves et al., (2011), conducted a research between 35 individuals with COPD and 35 healthy individuals, matched for age and gender. Their research found that the individuals with COPD showed symptoms of dysphagia in the pharyngeal and esophageal phases of swallowing with presence of disrupt airway protection, history of pneumonia and nutritional symptoms. Good-Fratturelli, Curlee& Holle (2000), founded that Sixty-five percent of the patients showed subjective signs and symptoms of swallowing dysfunction in the questionnaire. Almost half of the participants (49%) showed measurable ones in the swallowing tests. They also conducted a combination of subjective and objective findings with a percentage of 78% having swallowing dysfunction.

An evidence suggests that people with COPD may not be aware that they have swallowing problem as chronic cough is hard to distinguish from coughing caused by penetration and aspiration (Ilsley, 2011). Research results suggest an early intervention-based, educative approach combined with specialist clinical assessment and management can improve patient's condition in case of eating, drinking and swallowing.

Cvejic et al., (2009) have provided convincing evidence on the relation of aspiration and swallowing in patients with moderate COPD. In their controlled case study 16 COPD patients were assessed by sub-mandibular videofluoroscopy while their respiratory function was being monitored and noticed a relation between COPD and dysphagia. O'Kane & Groher, (2009) conducted a study on a group comprised of 67 subjects with COPD and 19 controls and suggested that laryngeal aspiration phenomenon was related to the alteration in the pharyngeal phase of swallowing.

Terada, Muro & Ohara et al., (2010) suggests that the prevalence of abnormal swallow reflex is higher in subjects with COPD. Rogha ,Behravesh & Pourmoghaddas, (2011) conducted a study with 110 COPD patients. Out of them 59 (53.6%) patients showed symptoms of Gastroesophageal reflux disease (GERD). Robinson et al., (2011) conducted a study that found among 23 (56%) out of 41 patients had a positive swallow test.

Bastille et al., (2012) compared clinical evaluation of swallowing of a subject diagnosed with COPD. The result of the evaluation was that swallowing was normal. However the patient had chronic cough. Because of this videofluroschopy showed laryngeal penetration and aspiration, which was difficult to evaluate due to the decreased sensitivity of the laryngeal region.

Chapter 02 Methodology

2.1 Study Design

Investigator conducted this study to identify the number of people having dysphagia in chronic obstructive pulmonary disease. Investigator used quantitative cross-sectional prospective survey design. It is one of the most commonly used survey research design. Quantitative research is techniques of research which collect numerical information from subject (Hicks, 2000). Frankel & Wallen (2000) said that the main function of survey research is to obtain precise objective descriptions from a specific universe of people or entities and it requires the investigator asking a group of people questions about a particular topic or issue. Cross sectional study is an appropriate design to conduct the study. In cross sectional study, investigator gathered demographic and other relevant characteristics for study. Besides these cross sectional survey design is simple to conduct cheaper and so quick method (Hicks, 2000).

2.2 Study place

The study conducted in National Institute of Diseases of the Chest and Hospital (NIDCH), Dhaka, Bangladesh.

2.3 Sample

2.3.1 Study population

All people with COPD patient admitted in National Institute of Diseases of the Chest and Hospital (NIDCH), Dhaka, Bangladesh.

2.3.2 Sample size

Larger sample is the representative of the population in a survey study, but in many situations, it is not possible for the researcher both for practical and financial reasons (Hicks, 2000). So the investigator used a sampling equation to determine the sample size.

We know that-

Sample size: $n = \frac{z^2 p(1-p)}{d^2}$

$= \frac{(1.96)^2 \times 0.103(1-0.103)}{(0.05)^2}$

$= 141.97$

Where,

n= Required sample size,

z = confidence level at 95% (standard value of 1.96),

P = 10.3%

= 0.103 (The prevalence of COPD is 10.3% by LLN criteria in Bangladesh)

d= margin of error at 5% (standard value of 0.05)

So, sample size 142.

2.3.3 Sampling procedure

Investigator used purposive sampling from the population who will meet the inclusion and exclusion criterions.

2.3.4 Inclusion criteria

- Both male and female participants.
- Chronic obstructive pulmonary disease including chronic bronchitis, emphysema
- Patient age limit is 18-70 years.
- Under optimized clinical treatment.

2.3.5 Exclusion criteria

- Patient who have heart disease
- Patient who have other pulmonary disease (asthma, bronchiastasis etc)
- Patient who have oro-pharygeal surgery
- Subjects who is unwilling to participant in this study will be excluded.
- Other neurological deficits (Stroke)

Rationale for Inclusion and Exclusion:

The two main types of chronic obstructive pulmonary disease (COPD) are chronic obstructive bronchitis and emphysema (International Classification of diseases, 2018) and patients with COPD were included as they are to show signs of swallowing difficulties and according to my observation they showed signs of swallowing difficulties supporting the reviewed literature (Kobayashi et al., 2007). The major risk factor for COPD is tobacco smoking, which is highly prevalent in Bangladesh and COPD may occur with any gender. According to (WHO, 2009), In Bangladesh 23% smoker age ≥15 years among all population. For this reason, 18-70 years age groups and all genders were included in the study.

The participants were required to be cognitively stable, as the investigator collected data directly from participants using interview, so they are able to answer questions appropriately. People with COPD with history of any neurological condition including history of stroke were excluded as COPD patients have symptoms of swallowing problem if he/she has stroke. As oral structures are needed to be within normal limit for successful oral intake, and it may confused with swallowing difficulty due to COPD, patients with structural abnormalities in oral functions were excluded from the study.

2.4 Data collection

2.4.1 Data collection Instrument

A structured questionnaire-Swallowing disturbance questionnaire (SDQ) used as a data collection instrument. The English questionnaires were converted into Bangla to ask the participants during the interview. In that time, some other necessary materials also were used like pen, pencil, stop watch, white paper, and clipboard. The investigator took permission from each participant by using a written consent form.

2.4.2 Swallowing disturbance questionnaire (SDQ)

The swallowing disturbance questionnaire (SDQ) that had originally been designed and validated for detecting swallowing problems among patients with Parkinson's disease and was now applied for identifying patients with dysphagia associated with various other etiologies.

Swallowing disturbance questionnaire (SDQ) is a 15 item questionnaire on swallowing disturbances, where 5 questions are related to oral phase swallowing (question 1-5), and 10 questions are related to pharyngeal phase (question 6-15). The first 14 question on the questionnaire are rated by 4 point (0-3) scale (0 for no disability and 3 for severe disability) and one is a yes/ no question (yes is scored as 2.5 and no is scored as 0.5) (Manor, Giladi, Cohen, Fliss, & Cohen, 2007).

2.4.3 Data collection Procedure

Investigator collected data from the participants through face to face interview. At first investigator will take permission from SLT department of Bangladesh Health Professions Institute and then the authority of NIDCH for data collection. After Investigator had conducted a pilot study. Then investigator went to the study place with consent form and Swallowing disturbance questionnaire (SDQ). Investigator explain the participant about the purpose of the study and ensured patients information treated as confidential and in the event of any report or publication ensured that the source of information remains anonymous. After taking consent, investigator read the instruction of Swallowing disturbance questionnaire (SDQ) and collect data from patient or caregiver response. Pen, Paper used for data collection.

2.4.4 Data analysis

Investigator used descriptive statistics for data analysis. Because descriptive statistics are commonly used to make sense of survey data (Hicks, 2000). Data analysis through the software named Statistical Package for Social Science (SPSS). By descriptive statistics investigator showed the result easily. A computer program- "Statistical package for social sciences, version 22 (SPSS) used as a data analysis tool. To show the findings or results investigator used bar graph, pie chart and table.

2.4.5 Ethical consideration

Researcher took permission from the authority of BHPI, NIDCH. Voluntary participation from the participant's was considered. Participants were provided with a written consent form. The Investigator was collect written permission to conduct the research from the participants. Participators were informed verbally about the aims and objectives of the study and investigators role as well. Participants also assured that the study would have no harm to the participants physically or mentally because

it was a survey study and was not involve any experiments. Confidentiality was maintained by the investigator by keeping the name, address and personal information of the client confidential and as data was not shared with others except the supervisor of the investigator. Participants were also being informed that they had full rights to withdraw themselves or refuse to answer any question any time during the study.

Chapter 03 Results

In this study, the investigator's aim was to determine the number of people with COPD suffering from swallowing difficulty. So the investigator had collected 113respondents and collected data from them. The data were analyzed by descriptive statistics and calculated as percentages and presented by using pie charts, column and tables.

3.1 Demographic information

3.1.1 Gender of Participants

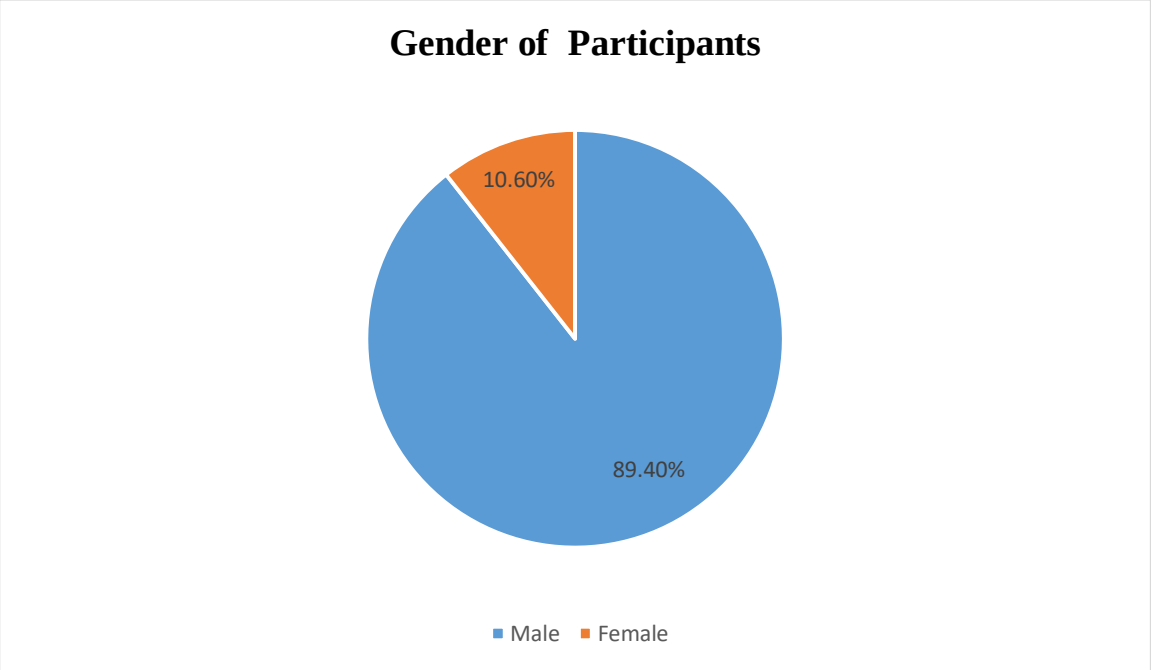

Figure 3.1.1: Gender of Participants

From this study, among the 113 participants more than half of participants 89.40% (101) were male and 10.60% (12) were female.

3.1.2 Age of the Participants

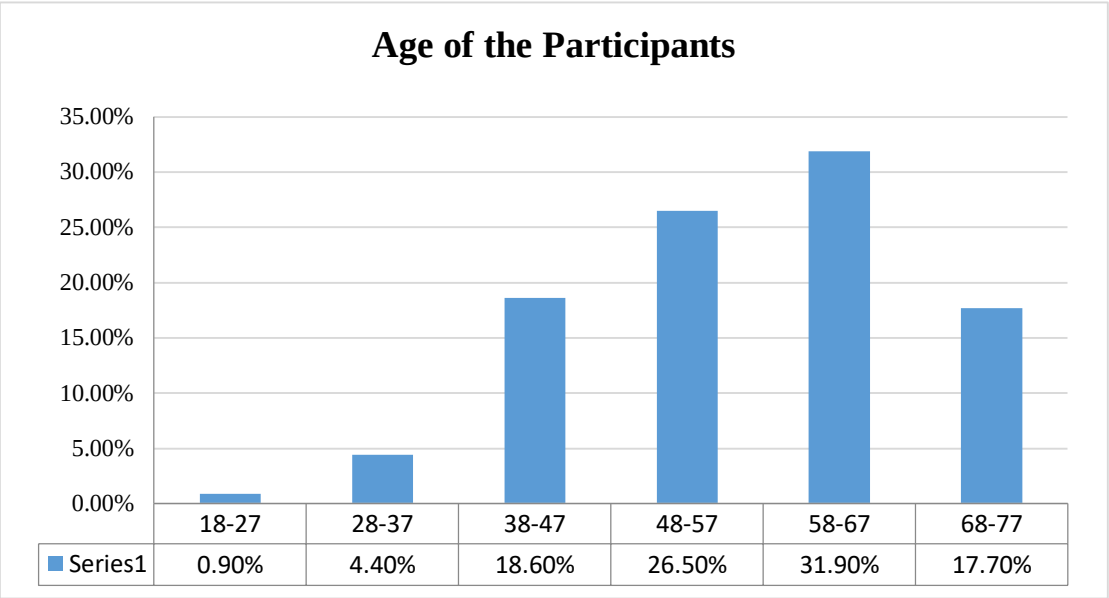

Figure 3.1.2: Age of the Participants

The study shows that the participants , 0.90% (1) was in the age range 18-27 years, 4.4% (5) were in the 28-37 years, 18.6% (21) were in the 38-47 years, 26.5% (30) were in the 48-57 years, 31.9% (36) were in the 58-67 years,17.7% (20) were in the more than 68-77 years.

3.1.3 Educational Level of Participants

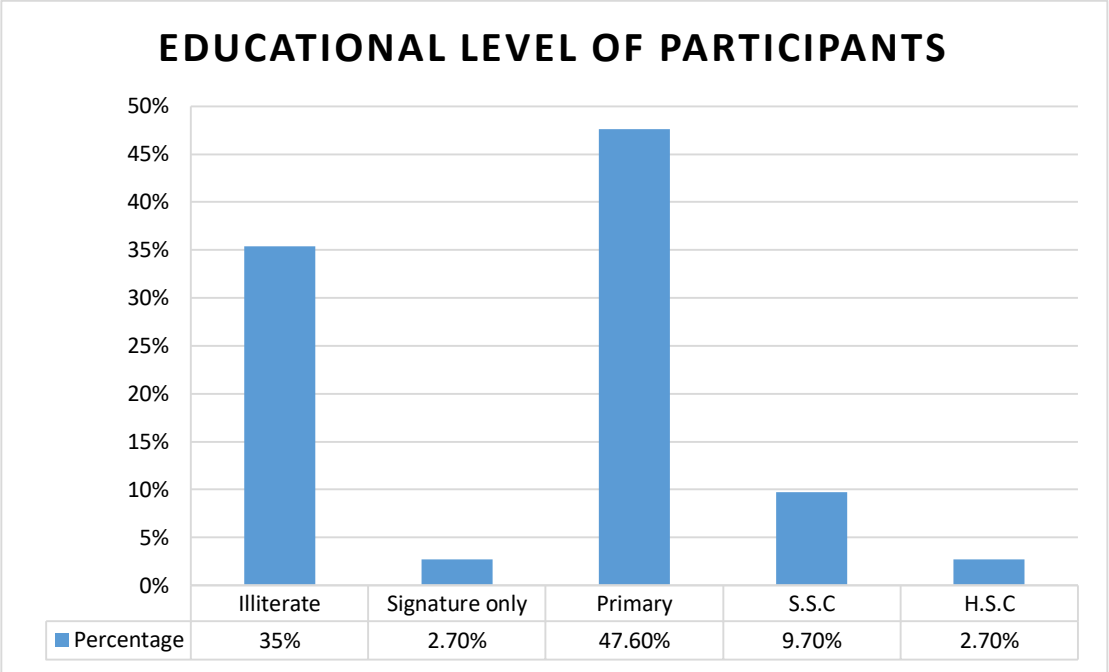

Figure 3.1.3: Educational Level of Participants

From 113 participants in this study, maximum numbers of participants, 47.60 % (56) whose education was primary level education. Also majority of the participants 35.40 % (40) were illiterate. It is also found that 2.70 % (3) participants were signature only and 9.70% (11) were S.S.C pass and 2.70% (3) were H.S.C pass.

3.1.4 Occupational Status of the Participants

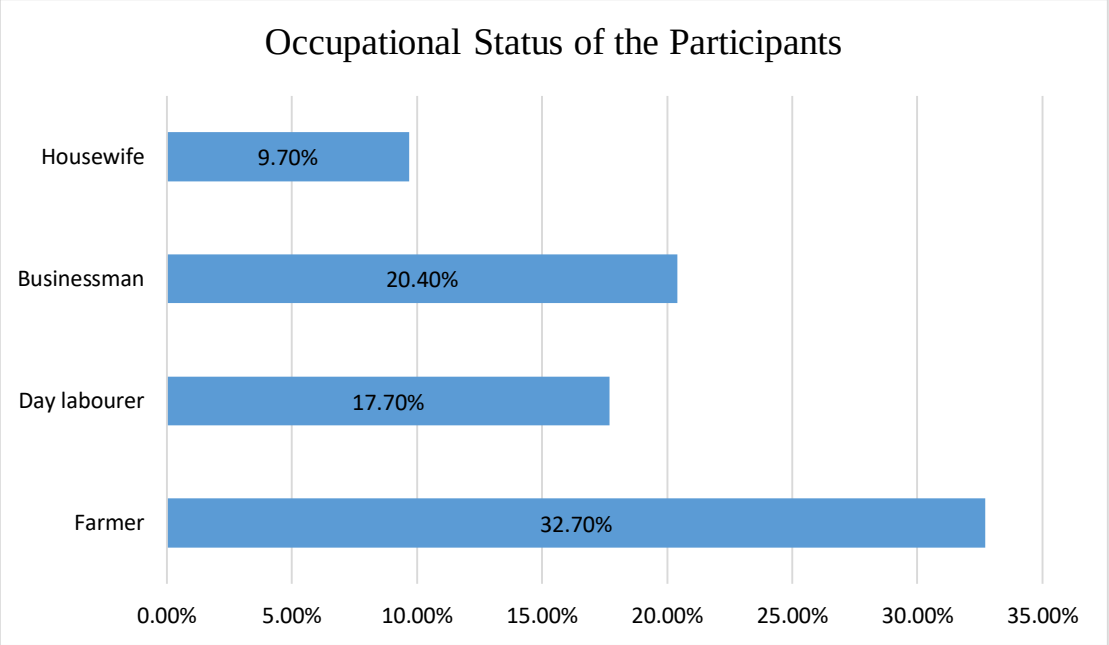

Figure 3.1.4: Occupational Status of the Participants

Among 113 participants, maximum number of people that 32.70% (37) worked in farmer and then second highest respondents 20.40% (23) found those were businessman. Then third majority of participants 17.70% (20) were day laborer (Driver, rickshaw puller, mason). 9.70% (11) respondents found as housewife and 6.20% (7) participants were service holder (Government and Non-Government). Others (Self retirement, electric worker, butcher, and beggar) were 13.30% (15) participants.

3.1.5 Habitual Status

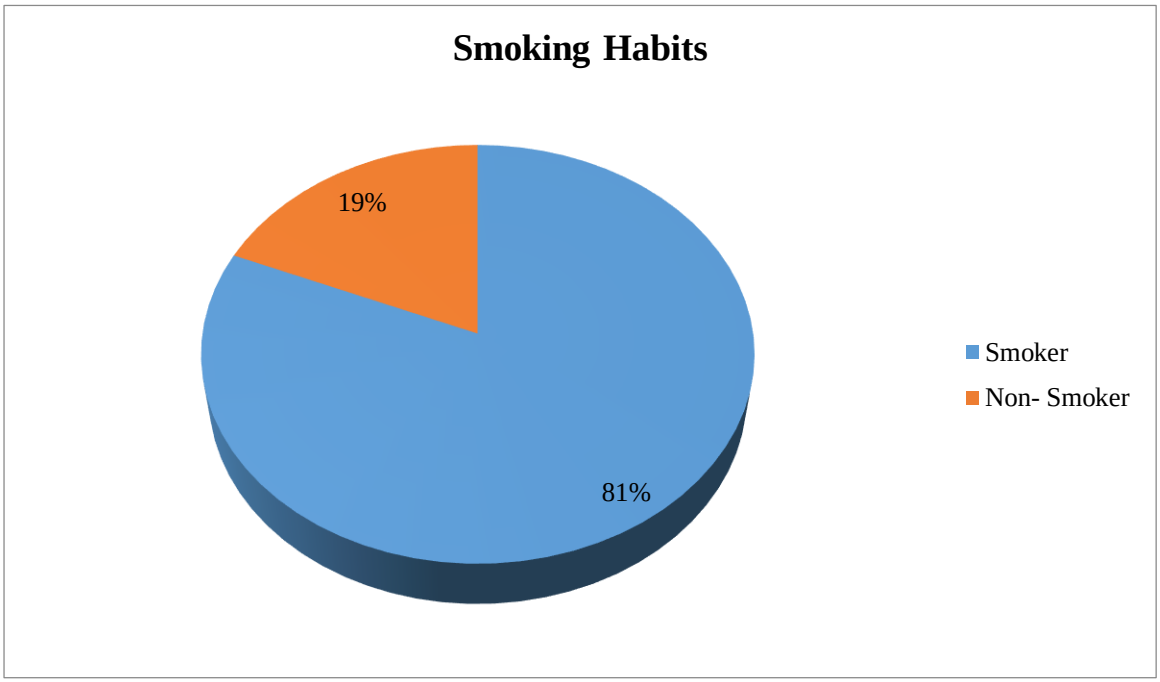

Figure 3.1.5: Habitual Status

Among 113 participants, maximum 81% participants are taking cigarette or tobacco and 11% are not taking cigarette and tobacco.

3.1.6 Onset of COPD

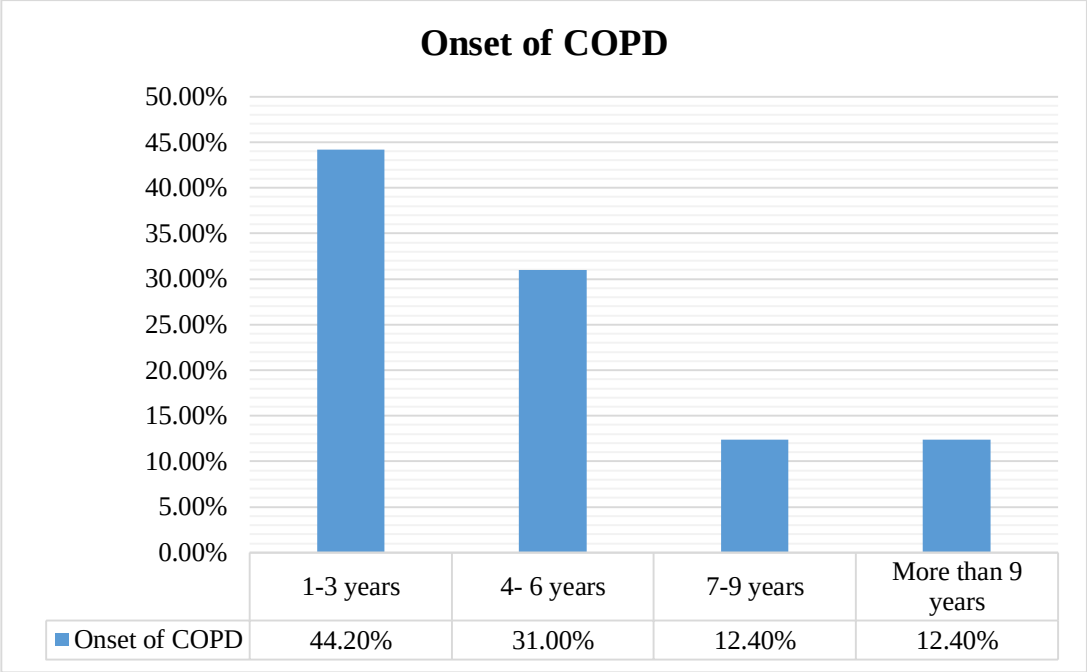

Figure 3.1.6: Onset of COPD

In this study nearly half of the participants 44.20% (50) had diagnosis COPD in 1-3 years earlier. It also found that majority 31.00% (35) participants had diagnosis COPD in 4-6 years earlier and a few one 12.40% (14) participants are more than 7-9 year earlier. And 12.40 % (14) participants had diagnosis COPD more than 9 years ago.

3.1.7 Maximum Phonation Time

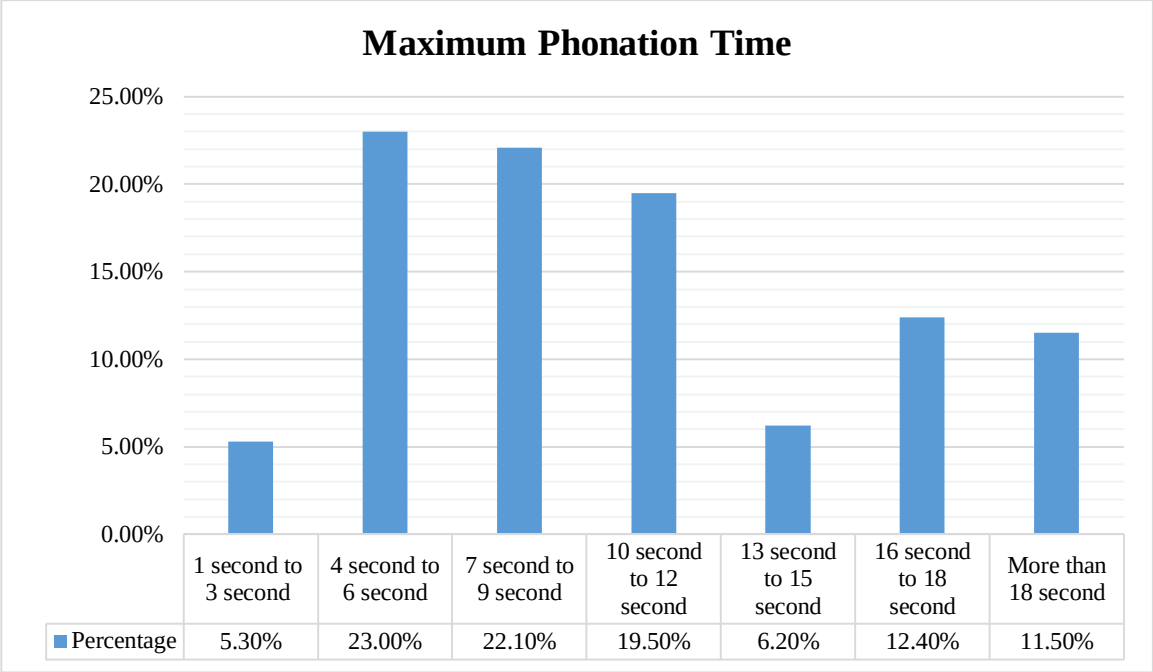

Figure 3.1.7: Maximum Phonation Time

Among 113 participants, 23.00% (26) participants had maximum phonation time is 4-6 second. 22.10% (25) had MPT is 7-9 second and 19.50 % (22) had MPT is 10-12 second. 12.40 % (14) participants had MPT is near 18 second and 11.50% (13) participants had MPT is more than 18 second. 6.20% (7) participants had MPT is 10 - 12 second and 5.30% (6) participants had MPT is 1-3 second.

3.2 Presence of Dysphagia According to SDQ Score

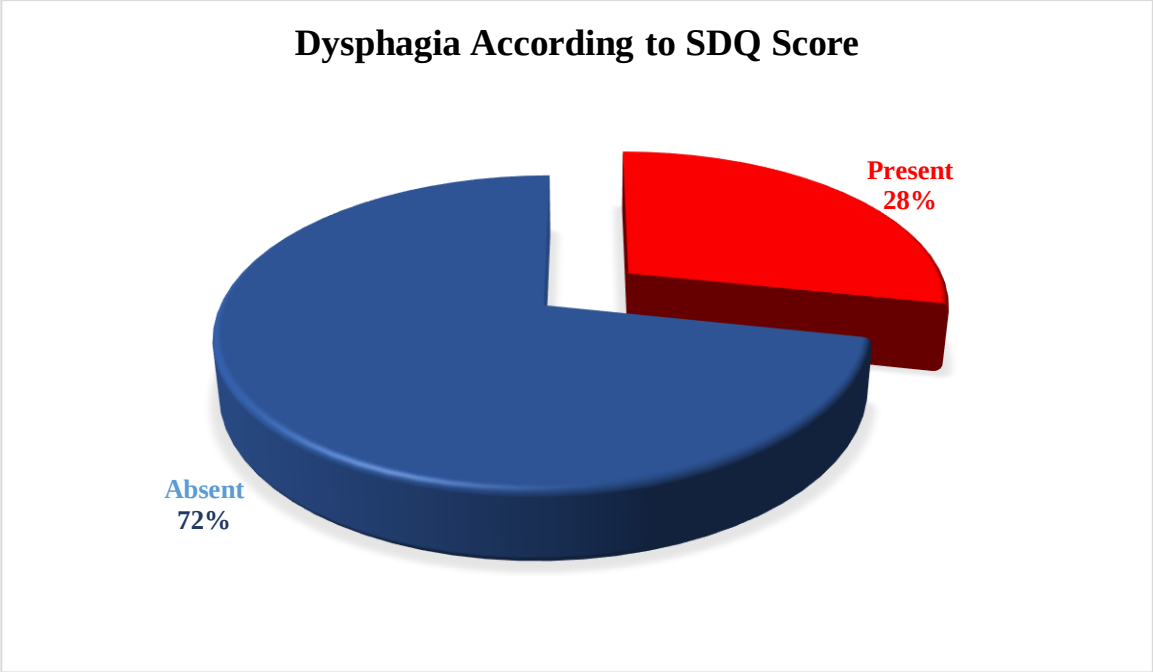

Figure 3.2: Presence of Dysphagia According to SDQ Score

This study shows that among 113 participants, maximum of them 71.7% (81) had not dysphagia according to SDQ score and 28.35 %(32) had dysphagia.

3.2.1 SDQ responses of the participants (Question 1-14)

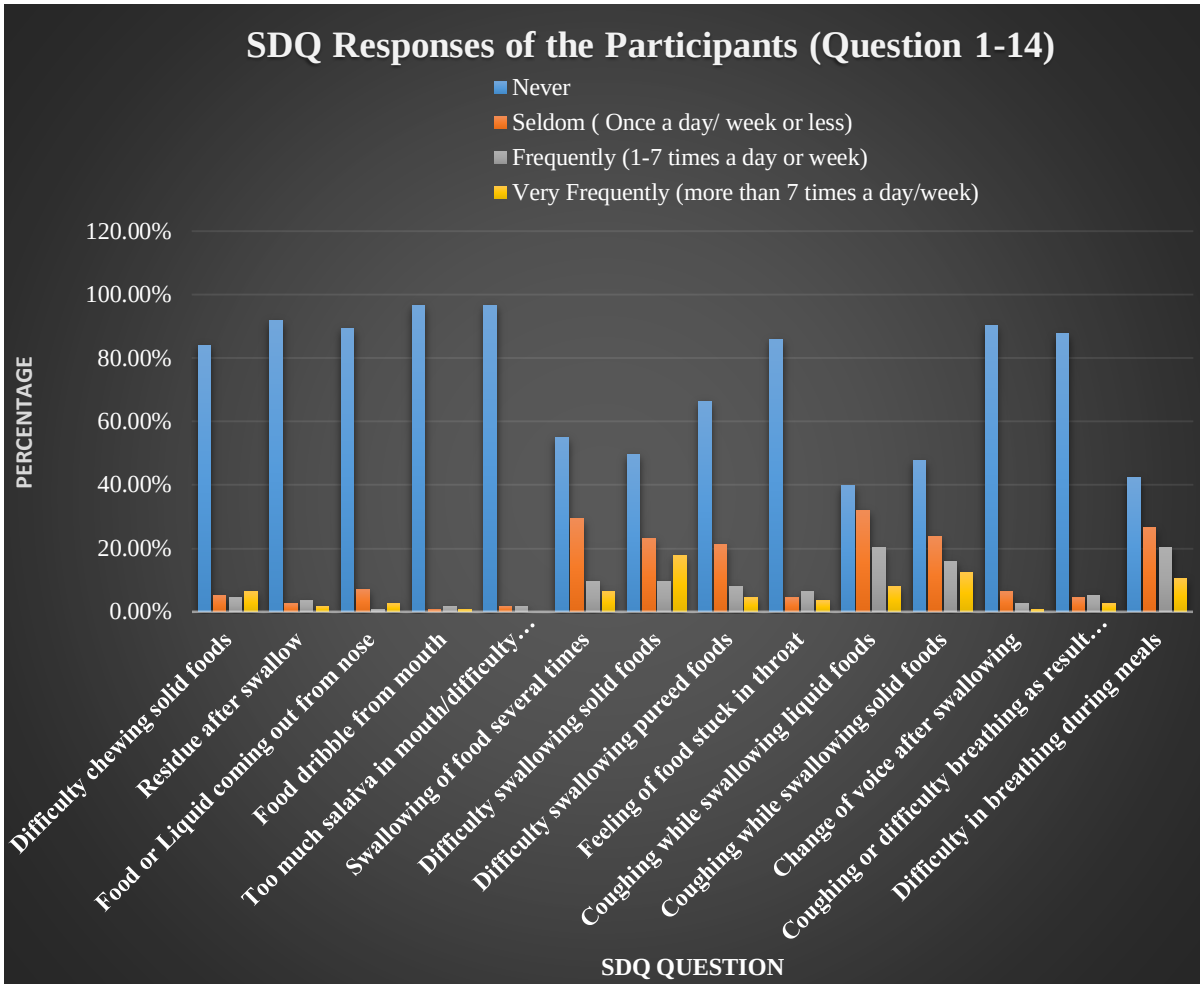

Figure 3.2.1: SDQ responses of the Participants (Question 1-14)

3.2.2 SDQ responses of the Participants (Question 15)

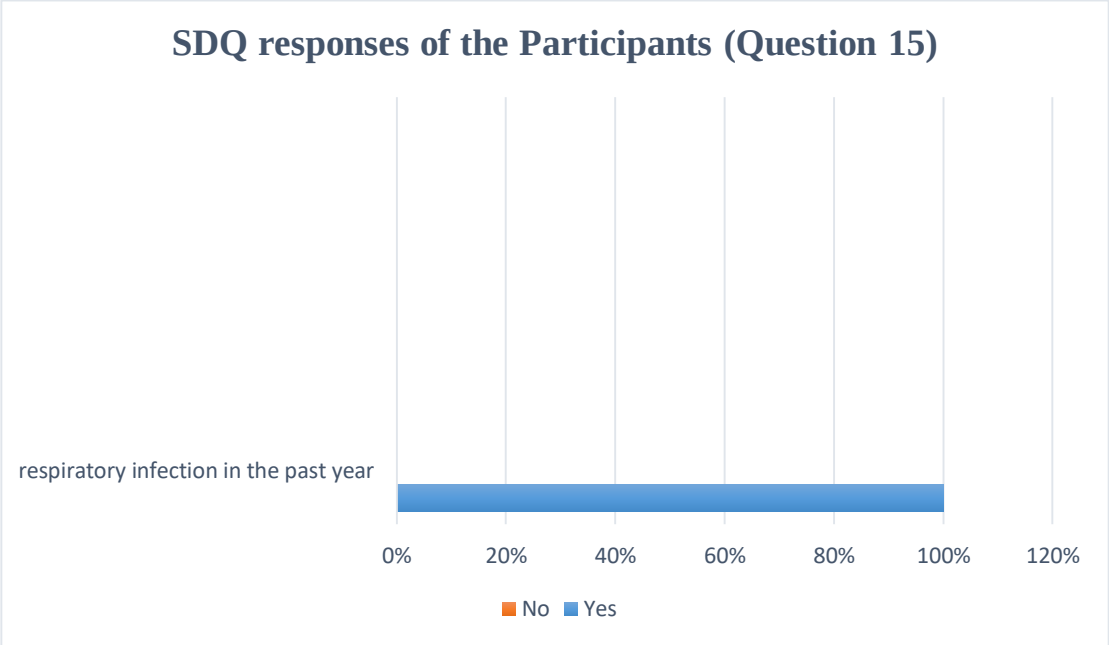

Figure 3.2.2: SDQ responses of the Participants (Question 15)

In the response of question 1-5(Oral phase), 6 (5.30%) participants reported seldom difficulty in chewing solid foods, 5 (4.40 %) participants reported frequent difficulties and 7 (6.20 %) participants reported that they had very frequent chewing difficulties. 3 (2.70 %) participants reported seldom (Once a month or less) presence of food residue, 4 (3.50%) reported participants frequent presence of residue and 2 (1.80 %) participants reported very frequent presence of food residue in mouth, cheek under the tongue and palate.8 (7.10%) participants reported seldom (Once a month or less) , 1 (.90%) participant reported frequent (more than 7 times a week) and 3 participants (2.70%) occurrence of report regurgitation. 1 (.90%) participant reported seldom (Once a month or less) , 2 (1.80%) participants reported frequent (more than 7 times a week) and 1 participant (.90%) occurrence of report dribbling of food. 2 (1.80%) participants reported seldom occurrences of feeling too much saliva in mouth and 2 (1.80%) participants of them reported frequent occurrence.

In terms of questions 6-15, 33 (29.20%) participants reported seldom occurrence (once a month or less), 11(9.70%) participants reported frequent and 7(6.20%) participants reported very frequently occurred once multiple swallowing. 26 (23%)

participants reported seldom difficulty, 11(9.70%) participants had frequent (1-7 times a week) difficulty and 20 (17.70%) participants reported very frequent difficulty (more than 7 times a week) in swallowing solid foods.24 (21.20%) participants reported seldom difficulty, 9 (8.00%) participants had frequent (1-7 times a week) difficulty and 5 (4.40%) participants had very frequent (more than 7 times a week) difficulty swallowing pureed foods. 5(4.40%) participants reported seldom difficulty , 7 (6.20%) participants had frequent (1-7 times a week) and 4 (3.50%) participants reported very frequent (more than times a week) feeling of food stuck in throat. 36 (31.90%) participants had seldom (once a month or less) occurrence, 23 (20.40%) participants frequent (1-7 times a week) occurrences and 9 (8.00%) participants had very frequent (more than 7 times a week) occurrences of coughing while swallowing liquid foods. 27 (23.90%) reported seldom (once a month or less) occurrence, 18 (15.90%) had frequent (1-7 times a week) occurrences and 14 (12.40%) had very frequent (more than 7 times a week) occurrences of coughing while swallowing solid foods.

7 (6.20%) participants reported seldom, 3 (2.70%) participants had frequent (1-7 times a week) and 1 (.90%) participants very frequent changes in voice after swallowing. 5 (4.40%) participants reported seldom (once a month or less) difficulty, 6 (5.30%) participants reported frequent (1-7 times a week) difficulty and 3 (2.70%) participants reported that they experienced very frequent (more than 7 times a week) coughing or difficulty breathing as a result of saliva entering into windpipe.30 (26.50%) participants reported seldom occurrence (once a month or less) of breathing difficulty and 23 (20.40%) participants reported frequent and 12 (10.60%) very frequent (more than 7 times a week). Among 113 participants, responses to Respiratory infection during past year, 100% (113) participants said they suffer from that.

3.3 Association between Variables

3.3.1 Association between Age and Presence of Dysphagia

Age vs Presence of Dysphagia		Presence of Dysphagia according to SDQ score		
		Absent (<12.5)	Present (≥12.5)	Total
Age	18-27 year	0	1	1
	28-37 year	3	2	5
	38-47 year	16	5	21
	48-57 year	22	8	30
	58-67 year	27	9	36
	≥68-77 year	13	7	20
Total		81	32	113

Table 3.3.1: Association between Age and Presence of Dysphagia

In this study among 113 participants, dysphagia occurrences are found highest in 9 participants in the age range of 58-67 years and also 8 participants were found dysphagia which age range in 48-57 years.

3.3.2 Association between Onset of COPD and Presence of Dysphagia

Onset of COPD vs Presence of dysphagia		Presence of Dysphagia according to SDQ score		
		Absent (<12.5)	Present (≥12.5)	Total
Onset Of COPD	1-3 years	32	18	50
	4-6 years	27	8	35
	7-9 years	11	3	14
	More than 9 years	11	3	14
Total		81	32	113

Table 3.3.2: Association between Onset of COPD and Presence of Dysphagia

Among the 113 participants, the highest dysphagia was found in 18 participants 1-3 years earlier and also dysphagia was found in 8 participants in 4-6 years earlier.

3.3.3 Association between Educational Level and Presence of Dysphagia

Educational level vs Presence of Dysphagia		Presence of Dysphagia according to SDQ score		Total
		<12.5	≥12.5	
Educational Level	Illiterate	32	8	40
	Signature Only	2	1	3
	Primary	39	17	56
	S.S.C	5	6	11
	H.S.C	3	0	3
Total		81	32	113

Table 3.3.3: Association between Educational Level and Presence of Dysphagia

The following table shows association between educational level and presence of dysphagia. From this table it is found that 56 respondents was primary level education but among them 17 participants had dysphagia which is maximum frequency.

3.3.4 Association between Habitual Status and Presence of Dysphagia

Habitual Status vs Presence of Dysphagia		Presence of Dysphagia according to SDQ score		Total
		<12.5	≥12.5	
Personal History	Smoker	63	29	92
	Non Smoker	18	3	21
Total		81	32	113

Figure 3.3.4 Association between Habitual Status and Presence of Dysphagia

The following table shows association between habitual status (smoker & non-smoker) and presence of dysphagia. Among 113 participants, 29 participants had dysphagia who are taking cigarette.

Chapter 04 Discussion

In this study out of the 113 participants, majority of participants 89.40% (101) were male and 10.60% (12) were female. Tanvir et al., (2016), in their study found medical records from 583 COPD patients that were enrolled in National Institute of Disease of the Chest and Hospital. Most of the COPD patients were within the age of 46-75 years and 98.0% of them were male. This study shows that the participants 26.5 % (30) were in the 48-57 years, 31.9% (36) were in the 58-67 years, 17.7 % (20) were in the more than 68-77 years. The association between age and presence of dysphagia is not significant (X^2=3.753, p>0.05).

Education level is important while considering socio-demographic characteristics. Out of the 113 respondents, majority numbers of participants 47.60% (56) whose education was primary education level. Of the participants 35.40% (40) were illiterate. So the study has found that the incidence of COPD is higher among those who are in primary level education. The association between education level and presence of dysphagia is not significant (X^2=.169, p>0.05).

Among 113 participants, majority number of people that 32.70% (37) worked in farmer and then second highest respondents 20.40% (23) found those were businessman. Then third majority of participants 17.70% (20) were day laborer (Driver, rickshaw puller, mason). 9.70% (11) respondents found as housewife .According to the Tanvir et al., (2016) 38% of the patients were found retired from their jobs, 31% of them were involved with agriculture and only 1% of the COPD patients were housewives.

Among 113 participants, majority 81% participants are taking cigarette or tobacco. According to Alam et al. (2015) the major risk factor for COPD is tobacco smoking which is a common addiction in Bangladesh. In this study, the association between taking cigarette and presence of dysphagia is not significant (X^2=.114, p>0.05). In this study nearly half of the participants 44.20% (50) had diagnosis COPD in 1-3 years earlier. Among the 113 participants, the highest dysphagia was found in 18 participants 1-3 years earlier. In this study it was found that association between onset

of COPD and presence of dysphagia (X^2=3.162, p>0.05). So, from the study it can be inferred that dysphagia not dependent on the onset of COPD.

In this study, 23.00% (26) participants had maximum phonation time is 4-6 second. 22.10% (25) had MPT is 7-9 second. Cassiani, Santos, Martinez & Dantas, (2013) cited that the median was 1.3 second in the COPD group. There the minimum range was 0.7 second and maximum range was 2.3 seconds. They also found that the decrease in MPT for patients in this study indicates problems in the areas of respiration, phonation and articulation coordination. This can directly influence the performance of oral communication and speech intelligibility of individuals with COPD.

McKinstry, Tranter & Sweeney (2010), have also showed characteristics of dysphagia in people with COPD including oral and pharyngeal stasis, delay in swallow reflex, and increased frequency of compensatory protective swallow maneuvers, laryngeal penetration and aspiration. This study showed that 7(6.20%) participants reported very frequently occurred once multiple swallowing,5 (4.40%) participants had very frequent (more than 7 times a week) difficulty swallowing pureed foods, 4 (3.50%) participants reported very frequent (more than times a week) feeling of food stuck in throat., 9 (8.00%) participants had very frequent (more than 7 times a week) occurrences of coughing while swallowing liquid foods,14 (12.40%) had very frequent (more than 7 times a week) occurrences of coughing while swallowing solid foods. A study conducted in the united states found that mild dysphagia occurred in 20% of cases and 13.4% had mild to moderate or moderate dysphagia (Steidl, Ribeiro ,Gonçalves, Fernandes, Antunes & Mancopes , 2015). It was concluded that the population of the study, in spite of not having swallowing complaints, had high risk of aspiration. This was due to alteration in breathing patterns which led to poor coordination between swallowing and breathing.

In the result of this research, it was found that 100% had respiratory infection like bronchitis and pneumonia. Steidl et. al., (2015), conducted a research where it has been reported that up to 70% of elderly patients with acute pneumonia.

Chapter 05 Conclusion

Dysphagia or swallowing difficulty is a common problem in people with Chronic Obstructive Pulmonary Disease (COPD) patient. Investigator explored the prevalence of dysphagia among COPD patient. From this study, among the 113 participants more than half of participants 89.40% (101) were male and 10.60% (12) were female. Dysphagia occurrences are found highest in 9 participants in the age range of 58-67 years. The highest dysphagia was found 1-3 years earlier. 7 (6.20%) participants reported very frequently occurred once multiple swallowing, 5 (4.40%) participants had very frequent (more than 7 times a week) difficulty swallowing pureed foods, 4 (3.50%) participants reported very frequent (more than times a week) feeling of food stuck in throat., 9 (8.00%) participants had very frequent (more than 7 times a week) occurrences of coughing while swallowing liquid foods,14 (12.40%) had very frequent (more than 7 times a week) occurrences of coughing while swallowing solid foods. So, the symptoms of swallowing difficulties were present in burn patient. Swallowing difficulty is common after Chronic Obstructive Pulmonary Disease patients associated with other condition of swallowing. Among the 113 participants, 28.35% (32) had dysphagia according to SDQ scoring. So, COPD patients are vulnerable for presence of dysphagia.

Chapter 06 Limitation and Recommendation

6.1 Limitation

This is the first study of dysphagia among the people with COPD in Bangladesh. So, there were some situational limitations and barriers while considering the results of the study in different aspects. Those are as follows:

- The investigator only questioned a small number of subjects (113 in total) that was very small to generalize the result.
- A purposive sampling was used that was not reflective of the wider population under study.
- Time and resources were limited that have a great deal of impact of the study.

6.2 Recommendation

This is the first primary study on prevalence of dysphagia among COPD patient in Bangladesh. So there were some limitations and barriers during conducting the study. These are-

- The study was done within a short period of time with only 113 participants for the whole study. It was a small number of participants to conduct a survey to find out dysphagia among COPD. So the external validity of the study decreased and further study can be conducted with a wide range and large participant size.
- Data was collected using a self –reported questionnaire in this study to determine dysphagia. More objective assessment of dysphagia (e.g. using videofluroscopy and FEES) is required for further study as self-report may result in under recognition or overestimation of other symptoms.
- Purposive sampling was used to select participants and study place. So further study can be conducted by simple random sampling.
- Further research should investigate-
    - ✓ Phonatory function of COPD patient
    - ✓ Glottal competence in chronic obstructive pulmonary disease

Chapter 03 References

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Annexure-1 (A)

Demographic Information

Name: Age:

Sex:

Occupation: Study level: Living status:

Smoking habits:

Onset of COPD:

Maximum Phonation Time:

Annexure-1 (A)

Swallowing disturbances questionnaire (SDQ) (English)

Questions	**0 = Never** **1 = Seldom (once a month or less)** **2 = Frequently (1-7 times a week)** **3 = Very Frequently (> 7 times a week)**			
1. Do you experience difficulty chewing solid food like an apple, cookie, or cracker?	0	1	2	3
2. Are there any food residues in your mouth, cheeks, under your tongue, or stuck to the roof of your mouth after Swallowing?	0	1	2	3
3. Does food or liquid come out of your nose when you eat or drink?	0	1	2	3
4. Does chewed up food dribble from your mouth?	0	1	2	3
5. Do you feel you have too much saliva in your mouth (do you drool or have difficulty swallowing your saliva)?	0	1	2	3
6. Do you swallow chewed up food several times before itgoes down your throat?	0	1	2	3
7. Do you experience difficulty in swallowing solid food (do apples or crackers get stuck in your throat)?	0	1	2	3
8. Do you experience difficulty in swallowing pureed food?	0	1	2	3
9. While eating, do you feel as if a lump of food is stuck in your throat?	0	1	2	3
10. Do you cough while swallowing liquids?	0	1	2	3

11. Do you cough while swallowing solid food?	0	1	2	3
12. Immediately after eating or drinking, do you experiences change in your voice, such as hoarseness or wetness?	0	1	2	3
13. Other than during meals, do you experience coughing or difficulty breathing as a result of saliva entering your windpipe?	0	1	2	3
14. Do you experience difficulty breathing during meals?	0	1	2	3
15. Have you suffered from a respiratory infection (such as pneumonia, bronchitis) in the past year? (Circle one)	Yes		No	

Annexure-1 (B)

নামঃবয়সঃ লিঙ্গঃ

শিক্ষাগত যোগ্যতাঃ পেশাঃ

ব্যাক্তিগত তথ্যঃ

সিওপিডিরসময়কালঃ

সর্বচ্চফনেশনেরসময়ঃ

Annexure-1 (B)

Swallowing disturbances questionnaire (SDQ) (Bangla)

প্রশ্নাবলী	০= কখনইনয় ১= মাঝেমাঝে(মাসে ১ বারবাতার কম) ২= প্রায়ই (সপ্তাহে ১-৭ বার) ৩= অনেক বেশিহয় (সপ্তাহে ৭ বারবাতার বেশি)			
১। আপনারকি শক্ত খাবারচাবাতেসমস্যাহয়?	০	১	২	৩
২।খাবার গেলারপওেকীআপনারমুখে, তালুতে, বাজিভএরনিচেখাবারের অংশ বিশেষ লেগে থাকে?	০	১	২	৩
৩।আপনি যখনখাবারখানবাপানকরেন, খাবারবাপানীয়কিনাকদিয়ে বেরহয়েআসে?	০	১	২	৩
৪। চাবানোখাবারকিআপনারমুখ থেকে গড়িয়েপড়ে?	০	১	২	৩
৫। আপনারকিমনেহয়আপনারমুখে অতিরিক্ত লালাআসে; আপনারকিমুখদিয়েলালাগড়িয়েপড়েঅথবালালাগিলতেসমস্যা বোধকরেন?	০	১	২	৩
৬। আপনারকিচাবানোখাবার খেতে একাধিকবারগিলতেহয়?	০	১	২	৩
৭।আপনার কি শক্ত খাবারগিলতেসমস্যাহয়?	০	১	২	৩
৮। আপনারকিঘনখাবারগিলতেসমস্যাহয়?	০	১	২	৩
৯। খাবারসময়কিআপনারগলায়খাবারের অংশ বিশেষ লেগে থাকে?	০	১	২	৩
১০। তরলপানকরারসময়কিআপনারকাশিহয়?	০	১	২	৩
১১।শক্ত খাবারখাওয়ারসময়কিআপনারকাশিহয়?	০	১	২	৩
১২। খাবারখাওয়ারপরপরআপনারকিআপনার কণ্ঠস্বরে কোনপরিবর্তনঅনুভবকরেন? যেমনঃ স্বও	০	১	২	৩

কর্কশবানিচুহইয়েযায়?				
১৩। আপনারকিখাওয়ারসময়বাদে শ্বাসনালীতেলালাঢুকেযাওয়ারকাশিবাশ্বাসনিতেকষ্টহয়?	০	১	২	৩
১৪।আপনারকিখাবারখাওয়ারসময়শ্বাসপ্রশ্বাসের কোনসমস্যাহয়?	০	১	২	৩
১৫। আপনিকি গত বছর থেকে এখনপর্যন্ত কোনশ্বাসতন্ত্রের রোগেভুগেছেন (নিউমোনিয়া , ব্রঙ্কাইটিস ইত্যাদি) ?	হ্যাঁ		না	

Annexure 2

Results (Chi square tests)

2.1 Association between Age and Presence of Dysphagia

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.753[a]	5	.585
Likelihood Ratio	3.718	5	.591
Linear-by-Linear Association	.026	1	.872
N of Valid Cases	113		

Association between age and presence of dysphagia was examined using chi square tests. The association was not significant (p>0.05).

2.2 Association between Onset of COPD and Presence of Dysphagia

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.162	3	.367
Likelihood Ratio	3.108	3	.375
Linear-by-Linear Association	2.023	1	.155
N of Valid Cases	113		

Association between onset of COPD and presence of dysphagia was examined using chi square tests. The association was not significant (p>0.05).

2.3 Association between Education Level and Presence of Dysphagia

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.428[a]	4	.169
Likelihood Ratio	6.920	4	.140
Linear-by-Linear Association	1.958	1	.162
N of Valid Cases	113		

Association between education level and presence of dysphagia was examined using chi square tests. The association was not significant (p>0.05).

2.4 Association between Habitual Status and Presence of Dysphagia

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.502[a]	1	.114
Likelihood Ratio	2.786	1	.095
Linear-by-Linear Association	2.480	1	.115
N of Valid Cases	113		

Association between habitual status and presence of dysphagia was examined using chi square tests. The association was not significant (p>0.05).

Annexure 3(A)

Consent form

Assalamualaikum/Namaskar, My name is *AbulkashemShihab*, I am conducting this study for a Bachelor project study titled "Prevalence of Dysphagia in Chronic Obstructive Pulmonary Disease Patient in Bangladesh" from Bangladesh Health Professions Institute (BHPI), University of Dhaka. I would like to know about some questions about dysphagia management for your patient. This will take approximately 10-12 minutes.

I would like to inform you that this is a purely academic study and will not be used for any other purpose. The researcher is not directly related to Centre for the Rehabilitation of the Paralyzed (CRP), so your participation in the research will have no impact on your present or future treatment in this area. All information provided by you will be treated as confidential and in the event of any report or publication it will be ensured that the source of information remains anonymous.

Your participation in this study is voluntary and you may withdraw yourself at any time during this study without any negative consequences. You also have the right not to answer a particular question that you don't like or do not want to answer during the interview.

If you have any query about the study or your right as a participant, you may contact with AbulKashemShihab, researcher and/ Md. Sazzad Hossain Head of Speech & Language Therapy department, Bangladesh Health Professions Institute (BHPI).

Do you have any questions before I start?

So may I have your consent to proceed with the interview?

YES/ NO

Signature/Fingerprint of the Participant: Date:

Signature of the Investigator: Date:

Signature/Fingerprint of the witness: Date:

Annexure 3(B) Translated

সম্মতিপত্র

আসসালামুয়ালাইকুম/নমস্কার, আমারনামআবুলকাশেমসিহাব ।আমিএকটা ব্যচেলর প্রোজেক্টেও জন্য, একটাসংশি-ষ্টহাস্পাতালে, "বাংলাদেশে সিওপিডি রোগীদেও খাবারগলধকরনসমস্যারহার" এই বিষয়েরউপরগবেষনাকরছি, বাংলাদেশ হেলথ প্রফেশনসইন্সটিটিউট, ঢাকাবিশ্ববিদ্যালয়হইতে। আমিকিছু ব্যক্তিগত এবংঅন্যান্য বিষয়সম্পর্কে জানতেচাই এই বিষয়েরউপর। এই আলোচনারসর্বোচ্চসময়সীমা১০মিনিট। আমিআপনাকেজানাচ্ছি যে, এই গবেষনাসম্পূর্ণ ভাবে কোর্সেওকাজছাড়াঅন্য কোনউদ্দেশ্যে ব্যবহারকরাহবেনা। এই গবেষনা, বাংলাদেশ হেলথ প্রফেশনইন্সস্টিটিউটের সাথে সরাসরিভাবেজরিতনা, তাইআপনারঅংশগ্রহণেআপনারবর্তমানওপরবর্তীচিকিৎসার কোনপ্রকার ক্ষতিসাধিতহবেনা। গবেষক, অংশগ্রহনকারীদেও কাছ থেকে গৃহীতসকল তথ্যের গোপনীয়তারক্ষাকরবেনএবংপ্রকাশের ক্ষেত্রে নামবাদ দিয়েপ্রকাশকরাহবে। এই গবেষণায়আপনারঅংশগ্রহণহবেঐ"ছকএবংআপনি যে কোনসময়ে এই গবেষনা থেকে নিজেকেপ্রত্যাহারকরতেপারবেন। এখানেউলে-খ্যযে, এই সাক্ষাৎকারগ্রহনকালেঅংশগ্রহণকারীসকলপ্রশ্নেরজবাবদিতেবাধ্য থাকবেননা। আপনারযদি কোন তথ্য জানার থাকেবাঅংশগ্রহনকারীহিসেবেআপনারঅধিকার যে, আপনি যোগাযোগকরতেপারেনগবেষকঅথবাসুপারভাইজারএবং স্পীচএবংল্যাংগুয়েজ থেরাপিবিভাগেরপ্রধান মোঃসাজ্জাদ হোসেন , স্পীচঅ্যান্ড ল্যঙ্গুয়েজ থেরাপিবিভাগ, বাংলাদেশ হেলথ প্রফেশনসইন্সটিটিউট । আলোচনাকরারআগে,

আপনারকিকিছুজানারআছে?

আলোচনারজন্য আমিকিঅনুমতি পেতেপারি?

হ্যা/না

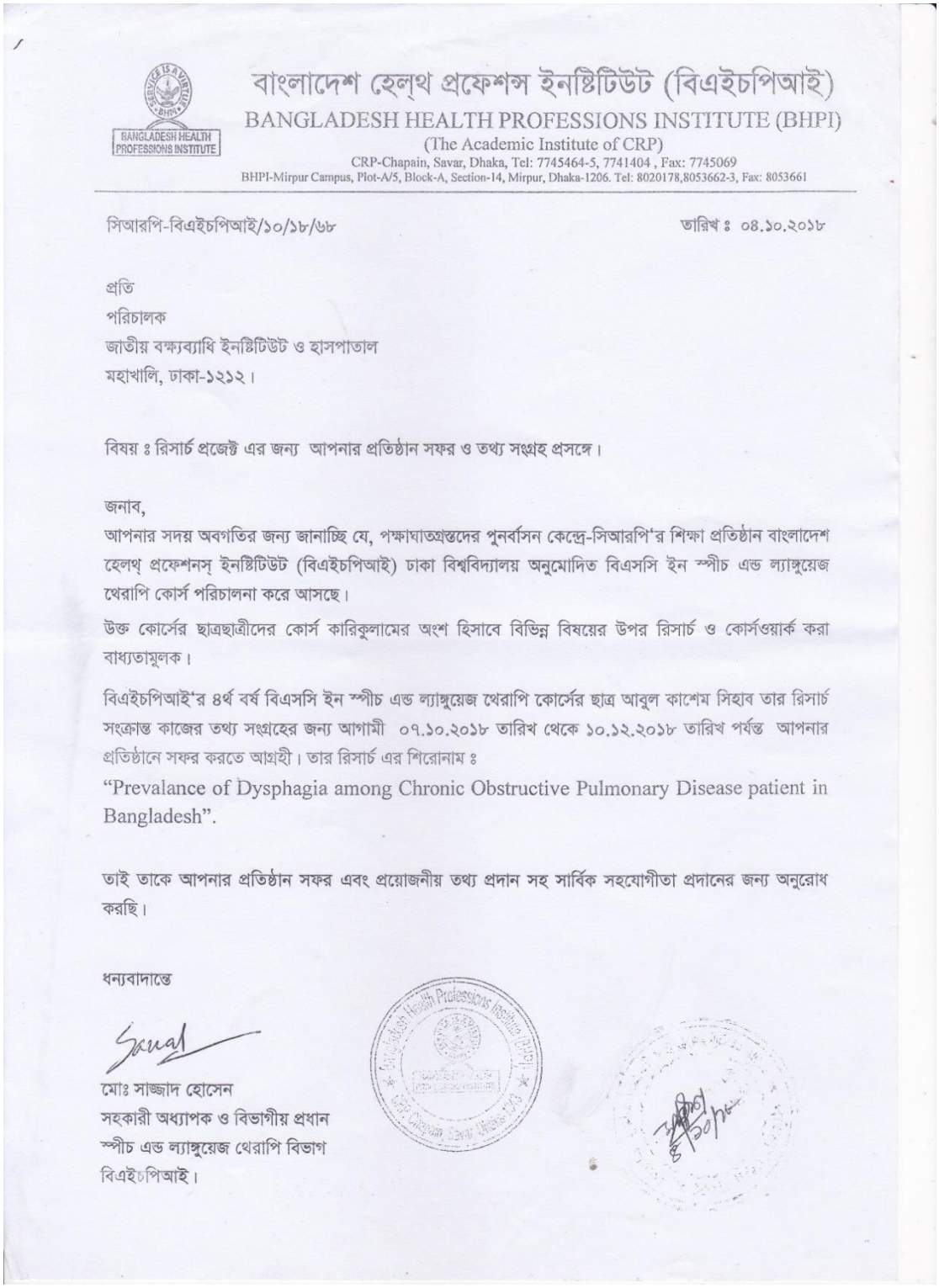
অংশগ্রহনকারীর স্বাক্ষর / টিপসইঃতারিখঃ

গবেষকেরস্বাক্ষরঃতারিখঃ

সাক্ষপ্রদানকারীর স্বাক্ষর/ টিপসইঃতারিখঃ

Annexure 4

Permission from BHPI



বাংলাদেশ হেল্‌থ প্রফেশন্স ইনষ্টিটিউট (বিএইচপিআই)
BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)
(The Academic Institute of CRP)
CRP-Chapain, Savar, Dhaka, Tel: 7745464-5, 7741404 , Fax: 7745069
BHPI-Mirpur Campus, Plot-A/5, Block-A, Section-14, Mirpur, Dhaka-1206. Tel: 8020178,8053662-3, Fax: 8053661

সিআরপি-বিএইচপিআই/১০/১৮/৬৮ তারিখ ঃ ০৪.১০.২০১৮

প্রতি
পরিচালক
জাতীয় বক্ষ্যব্যাধি ইনষ্টিটিউট ও হাসপাতাল
মহাখালি, ঢাকা-১২১২।

বিষয় ঃ রিসার্চ প্রজেক্ট এর জন্য আপনার প্রতিষ্ঠান সফর ও তথ্য সংগ্রহ প্রসঙ্গে।

জনাব,
আপনার সদয় অবগতির জন্য জানাচ্ছি যে, পক্ষাঘাতগ্রস্তদের পুনর্বাসন কেন্দ্রে-সিআরপি'র শিক্ষা প্রতিষ্ঠান বাংলাদেশ হেলথ্ প্রফেশনস্ ইনষ্টিটিউট (বিএইচপিআই) ঢাকা বিশ্ববিদ্যালয় অনুমোদিত বিএসসি ইন স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি কোর্স পরিচালনা করে আসছে।

উক্ত কোর্সের ছাত্রছাত্রীদের কোর্স কারিকুলামের অংশ হিসাবে বিভিন্ন বিষয়ের উপর রিসার্চ ও কোর্সওয়ার্ক করা বাধ্যতামূলক।

বিএইচপিআই'র ৪র্থ বর্ষ বিএসসি ইন স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি কোর্সের ছাত্র আবুল কাশেম সিহাব তার রিসার্চ সংক্রান্ত কাজের তথ্য সংগ্রহের জন্য আগামী ০৭.১০.২০১৮ তারিখ থেকে ১০.১২.২০১৮ তারিখ পর্যন্ত আপনার প্রতিষ্ঠানে সফর করতে আগ্রহী। তার রিসার্চ এর শিরোনাম ঃ
"Prevalance of Dysphagia among Chronic Obstructive Pulmonary Disease patient in Bangladesh".

তাই তাকে আপনার প্রতিষ্ঠান সফর এবং প্রয়োজনীয় তথ্য প্রদান সহ সার্বিক সহযোগীতা প্রদানের জন্য অনুরোধ করছি।

ধন্যবাদান্তে

মোঃ সাজ্জাদ হোসেন
সহকারী অধ্যাপক ও বিভাগীয় প্রধান
স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি বিভাগ
বিএইচপিআই।

Permission from NICDH

বাংলাদেশ হেল্‌থ প্রফেশন্স ইনষ্টিটিউট (বিএইচপিআই)

BANGLADESH HEALTH PROFESSIONS INSTITUTE (BHPI)

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সিআরপি-বিএইচপি-[illegible]/১৮/৬৮

তারিখ ঃ ০৪.১০.২০১৮

প্রতি

পরিচালক

জাতীয় বক্ষব্যাধি ইনষ্টিটিউট ও হাসপাতাল

মহাখালি, ঢাকা-১২১২।

বিষয় ঃ রিসার্চ প্রজেক্ট এর জন্য আপনার প্রতিষ্ঠান সফর ও তথ্য সংগ্রহ প্রসঙ্গে।

জনাব,

আপনার সদয় অবগতির জন্য জানাচ্ছি যে, পক্ষাঘাতগ্রস্তদের পুনর্বাসন কেন্দ্রে-সিআরপি'র শিক্ষা প্রতিষ্ঠান বাংলাদেশ হেলথ্ প্রফেশনস্ ইনষ্টিটিউট (বিএইচপিআই) ঢাকা বিশ্ববিদ্যালয় অনুমোদিত বিএসসি ইন স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি কোর্স পরিচালনা করে আসছে।

উক্ত কোর্সের ছাত্রছাত্রীদের কোর্স কারিকুলামের অংশ হিসাবে বিভিন্ন বিষয়ের উপর রিসার্চ ও কোর্সওয়ার্ক করা বাধ্যতামুলক।

বিএইচপিআই'র ৪র্থ বর্ষ বিএসসি ইন স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি কোর্সের ছাত্র আবুল কাশেম সিহাব তার রিসার্চ সংক্রান্ত কাজের তথ্য সংগ্রহের জন্য আগামী ০৭.১০.২০১৮ তারিখ থেকে ১০.১২.২০১৮ তারিখ পর্যন্ত আপনার প্রতিষ্ঠানে সফর করতে আগ্রহী। তার রিসার্চ এর শিরোনাম ঃ

"Prevalance of Dysphagia among Chronic Obstructive Pulmonary Disease patient in Bangladesh".

তাই তাকে আপনার প্রতিষ্ঠান সফর এবং প্রয়োজনীয় তথ্য প্রদান সহ সার্বিক সহযোগীতা প্রদানের জন্য অনুরোধ করছি।

ধন্যবাদান্তে

মোঃ সাজ্জাদ হোসেন

সহকারী অধ্যাপক ও বিভাগীয় প্রধান

স্পীচ এন্ড ল্যাঙ্গুয়েজ থেরাপি বিভাগ