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Attitude towards pulmonary hygiene and socio-demographic factors affecting it among health workers in two government hospitals East Amhara, Ethiopia

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ABSTRACT

Introduction

Pulmonary hygiene is formerly referred to as pulmonary toilet which is a set of methods used to clear mucus and secretions from the airways and it is depends on consistent clearance of airway secretions. Pulmonary hygiene is a technique designed to help clear mucus and secretions from your lungs. It can be used for people who have chronic obstructive pulmonary disease (COPD), pneumonia, cystic fibrosis, or bronchiectasis and others.

Objective

To determine level of attitude towards pulmonary hygiene and socio-demographic factors affecting it among health workers in two government hospitals East Amhara, Ethiopia

Methodology

Institution based cross sectional study design was employed among one hundred twelve health professionals using systematic random sampling technique. The collected data were analyzed using descriptive and inferential statistics.

Results

A total of 112 participants were included in this study. Out of total participants, 69 (61.6%) were females and their mean age was 26.10 (±3.47SD) years. Of 51.8% of respondents were aged greater than 25 years old. The majority of the respondents were Orthodox 53 (47.3%) followed by Muslims 47 (42%). Fifty- five (49.1%) of the participants were single. In this study the majority of participants 91(81.3%) had work experience less than five years. Majority of the respondents (52%) had no recent training on pulmonary hygiene. Around sixty- three percent of participants were nurses. Attitude was computed using 10 questions related to pulmonary hygiene. The mean attitude score of the total sample was 6.53 (+ 3.47 SD). Subjects who scored above the mean value were categorized as having good level of attitude. Forty- five (45%) study participants had poor attitude about pulmonary hygiene.

Conclusion & Recommendation

The present study concluded that only 55% participants had good attitude towards pulmonary hygiene which is much less than the expected value. Further study have to be conducted with large sample size and addressing more factors affecting pulmonary hygiene to design intervention strategies to enhance health professionals attitude towards pulmonary hygiene.

Keywords: Pulmonary Hygiene, Attitude, Health professionals, Socio Demographic Factors

INTRODUCTION

Pulmonary hygiene is formerly referred to as pulmonary toilet which is a set of methods used to clear mucus and secretions from the airways. It is also called as respiratory health, pulmonary rehabilitation and pulmonary health [1]. Pulmonary hygiene is a technique designed to help clear mucus and secretions from your lungs. It can be used for people who have chronic obstructive pulmonary disease (COPD), pneumonia, cystic fibrosis, or bronchiectasis. It depends on consistent clearance of airway secretions. Normal airway clearance is accomplished by 2 important mechanisms: the mucociliary clearance system and the ability to cough. Impaired mucociliary clearance is linked to poor lung function in a broad range of diseases and disabilities. Because at-risk individuals are prone to recurrent episodes of respiratory inflammation, infection, and, eventually, irreversible lung damage, improvement of mucociliary clearance is a vital treatment goal - one that can be accomplished with an individualized bronchial hygiene plan that includes effective airway clearance therapy [2].

The word pulmonary refers to the lungs. The word toilet is related to the French toilette, refers to body care and hygiene; this root is used in words such as toiletry that also relate to cleansing. Pulmonary hygiene prevents the collapse of the alveoli of the lungs and rids the respiratory system of secretions, which could cause respiratory infections. It can also decrease pulmonary shunting, increase the functional reserve capacity of the lungs, and prevent respiratory infection after chest trauma [3].

Methods used for pulmonary hygiene include chest physiotherapy, postural drainage, coughing and breathing exercise, suctioning and tapping, incentive spirometer, bronchoscopy, blow bottles, tracheostomy care and so on. Pulmonary hygiene used to prevent and reduce the life threatening pulmonary complications such as obstruction, hypoventilation, hypoxemia and infections in order to restore muscular and pulmonary function as fast as possible. Globally more than 1.5 million deaths annually from respiratory infections are attributable to the environment, including at least 42% of lower respiratory infections and 24% of upper respiratory infections in developing countries [4]. Both globally and regionally there is a paucity of studies in Africa, South East Asia and the Eastern Mediterranean region. There is a need for governments, policy makers and international organizations to consider strengthening collaborations to address COPD globally [5].

WHO reported that, tuberculosis is accounted for 2.4% of deaths (230,000 deaths) in sub Saharan Africa countries and the environmental burden by the disease category the Respiratory infections stands/ranks 2nd in Ethiopia [6]. Centers for Disease Control and Prevention (CDC) Global Health-Ethiopia 2014, says Lower respiratory infections accounts for 10% of death and it is the leading cause of death in the country [7]. According to The National Center for Biotechnology Information (NCBI) chronic obstructive pulmonary (COPD) account for 2.7% to 4.3% morbidity in Amhara Region, Ethiopia [8]. Thus, the pulmonary hygiene and its associated elements are very essential in preventing and promoting respiratory health, since health professionals are the life savers of the patients based this result interventional strategies could be applied to increase the efficacy on pulmonary hygiene among health professionals.

Objectives

1. To determine level of attitude towards pulmonary hygiene among Health Professionals working in two government hospitals East Amhara. Ethiopia
2. To assess socio-demographic factors affecting level of attitude towards pulmonary hygiene among Health Professionals working in two government hospitals East Amhara, Ethiopia

METHODOLOGY

Research Design

Institution based cross sectional study design was employed.

Setting and Sampling

The study was conducted in Dessie Referral Hospital and Kemissie General Hospital East Amhara, Ethiopia, 2017. Systematic sampling technique was used to select total of 112 health professionals 32 General Practitioners and 75 Nurses.

Description of the Tool

The tool is divided into mainly two parts,
Part-A: Demographic pro-forma of the Health professionals.
Part-B: Structured attitude questionnaire

Content Validity

Validity of the tool was ascertained in consultation with prepared by emergency and critical care and adult health specialty professionals. The experts were requested to judge the items for accuracy, relevance, appropriateness and degree of agreement. The suggestions of the experts were incorporated into the tool and the tool was modified accordingly.

Pilot Study

Pilot study was conducted in Woldia General Hospital with 10% of the sample size before the main study to identify potential problems in the proposed study such as data collection tools and to check the performance of the data collectors and questionnaires used in the pre-test did not included in the analysis as part of the main study. English version of questionnaire was used to assess the attitude and socio demographic factors on pulmonary hygiene among health professionals.

Data Collection Procedure

Prior permission was obtained from the concerned authority. Informed consent obtained from the subjects. Once all necessary data obtained, data was checked for completeness edited, cleaned, coded and entered in to and analyzed by SPSS version 20 for windows. Bivariate and multivariable regressions used to identify the independent predictor on pulmonary hygiene.

Statistical Analysis

The collected data were analyzed by using descriptive (frequency, distribution, percentage, mean and standard deviation) and inferential statistics (Logistic regression). This was done by entering each independent variable separately into bivariate analysis. Then, variables that showed statistical significant association with p-value of less than 0.25 on bivariate analysis were entered into multivariate logistic regression. Then, variables which showed statistical significant association with p-value less than 0.05 on multivariable regression were considered as predictors of the attitude and socio demographic factors affecting on pulmonary hygiene.

RESULTS

Socio-Demographic Characteristics

A total of 112 participants were included in this out of total participants, 69 (61.6%) were females and their mean age was 26.10 (±3.47SD) years. Fifty eight (51.8%) of respondents were more than 25 years old. The majority of the respondents were Orthodox 53 (47.3%) followed by Muslims 47 (42%). Fifty- five (49.1%) of the participants were single. In this study the majority of participants 91(81.3%) had work experience less than five years. Majority of the respondents (52%) had no recent training on pulmonary hygiene. Around sixty- three percent of participants were nurses.

Table I. Socio-demographic characteristics of the study participants (n =112) in Dessie Referral & Kemissie Hospitals, Ethiopia, 2017

Participants characteristics		Frequency	Percent (%)
Sex	M	69	61.6
	F	43	38.4
Age category (in years)	< 25	54	48.2
	25^+	58	51.8

Ethnicity	Amhara	17	15.2
	Oromo	79	70.5
	Gurage/Tigray/	16	14.3
	Orthodox	53	42.0
Religion	Muslims	47	47.3
	Protestant/Catholic	12	10.7
Marital status	Single	55	49.1
	Married	57	50.9
Profession	Doctors	37	33
	Nurses	75	67
Work experience(yrs)	< 5 years	91	81.3
	5^+ years	21	18.8
Recent training in Pulmonary hygiene	Yes	18	16.1
	No	94	83.9

Level of attitude on pulmonary hygiene

Attitude was computed using 10 questions related to pulmonary hygiene. The mean attitude score of the total sample was 6.53 (+ 3.47 SD).

Subjects who scored above the mean value were categorized as having good level of attitude. Forty-five (40 %) study participants had poor attitude about pulmonary hygiene (**Fig 1**). n=112
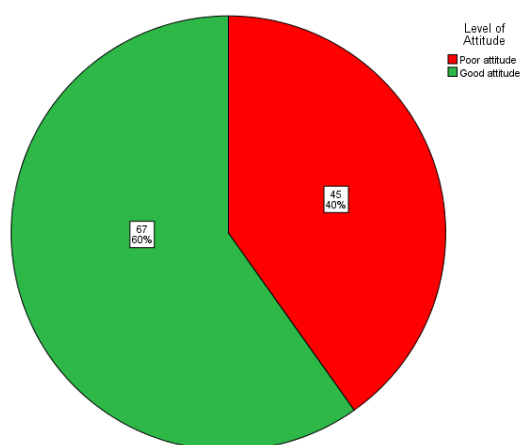

Fig I. Participants level of attitude on pulmonary hygiene in Dessie Referal & Kemissie Hospitals, Ethiopia,2017

Socio-demographic factors related to level of attitude

Among variables entered in the bi-variate analysis, Sex and recent training showed significant associations with the level of attitude on pulmonary hygiene. Variables with P-value < 0.25 were entered in the multivariate logistic analysis. But only marital status & recent training were significantly associated with the level of attitude on pulmonary hygiene. In the multivariable logistic analysis, single subjects were 2.8 times (AOR = 2.8, CI=1.2, 6.5) more likely to have poor level of attitude as compared to married individuals. Participants who had no recent training on pulmonary hygiene were 0.25 times (AOR = 0.3, CI = 0.1, 0.8) more likely to have good level of attitude than subjects who had recent training on pulmonary hygiene.

Table II. Bivariate and multivariate logistic regression predicting the level of attitude of participants towards pulmonary hygiene among study participants of Dessie Referral& Kemissie Hospitals, Ethiopia, 2017. (n =112).

Factors		Level of attitude				COR (95% CI)	P-value	AOR (95% CI)	P-value
		Good		Poor					
		n	(%)	n	(%)				
Sex	Males	24	48	26	52	0.41 (0.19,0.89)	0.023*	1.9(0.8,4.4)	0.2
	Females (Ref)	43	69.4	19	30.6				
Age category	<25(Ref)	36	66.7	18	33.3				
	25+	31	52.4	27	46.6	0.6(0.3,1.2)	0.2	0.4(0.2,1.0)	0.06
Marital status	Single	28	50.9	27	49.1	2(0.9,4.5)	0.1	2.8(1.2,6.5)	0.02*
	Married (R)	39	68.4	18	31.6				
Profession	Doctors(Ref)	26	70.3	11	29.7				
	Nurses	41	54.7	34	45.3	0.5(0.2,1.2)	0.1	0.6(0.21.4)	0.2
Work experience(yrs)									
	< 5 years (Ref)	52	57.8	38	42.2				
	5+ years	15	68.2	7	31.8	0.6(0.2,1.7)	0.4		
Recent training on Pulmonary hygiene									
	Yes (Ref)	6	33.3	12	66.7			0.3(0.1,0.8)	0.02*
	No	61	64.9	33	35.1	0.3(0.1,0.8)	0.02*		

*(p < 0.05)

DISCUSSION

This study is the first study to report on attitude and socio-demographic factors related to pulmonary hygiene among health workers. Forty five (40 %) study participants had poor attitude about pulmonary hygiene in this study where as a research done in indicated that 87 (78) % health professionals have good attitude towards pulmonary hygiene. Single subjects were 2.8 times (AOR = 2.8, CI=1.2, 6.5) more likely to have poor level of attitude as compared to married individuals ,(4) Participants who had no recent training on pulmonary hygiene were 0.25 times (AOR = 0.3, CI = 0.1, 0.8) more likely to have good level of attitude than subjects who had recent training on pulmonary hygiene,(5) Male participants were 6 times (AOR = 6, CI=2.3, 17.9) more likely to have poor level of practice on pulmonary hygiene as compared to female subjects and (6) Married subjects were 0.3 times (AOR = 0.3, CI=1.2, 6.5) more likely to have good level of practice as compared to single individuals. A prospective cohort study was conducted to assess the attitude of staff nurses about the decision made by critical care nurses during Mechanical ventilator and weaning.

The investigator reported that critical care nurses have high level of responsible for autonomy and positive attitude by health team in the management of mechanical ventilator and weaning [9].

CONCLUSIONS

Hence the study concluded to only 55% participants had good attitude towards pulmonary hygiene which is much less than the expected value. Further study have to be conducted with large sample size and addressing more factors affecting pulmonary hygiene to design intervention strategies to enhance health professionals attitude towards pulmonary hygiene.

Acknowledgement

REFERENCES

[1]. Pulmonary Hygiene; Wikipedia; https://en.wikipedia.org/wiki/Pulmonary_hygiene

[2]. Braverman J. Maintaining healthy lungs: the role of airway clearance therapy. Exceptional Parent Magazine. 2001.

[3]. Lambert M, Surhone; Pulmonary Toilet; betascript publishing; 2011, 01.22. Available on URL: https://www.morebooks.de/store/gb/book/pulmonary-toilet/isbn/978-613-4-84509-0

[4]. WHO Library Cataloguing-in-Publication Data; Preventing disease through healthy environment; Analysis Of Estimates Of The Environmental Attributable Fraction, By Disease. Available on

[5]. URL: http://www.who.int/quantifying_ehimpacts/publications/preventingdisease.pdf

[6]. Davies Adeloye, Stephen Chua, Chinwei Lee, Catriona Basquill,;Global and regional estimates of COPD prevalence: Systematic review and meta–analysis; J Glob Health. 5(2), 2015, 020415.

[7]. World Health Organization Global Health Report – 2012.

[8]. Centers for Disease Control and Prevention (CDC) Global Health- Ethiopia 2014.

[9]. The National Center for Biotechnology Information (NCBI); journal of health, population and nutrition Report, Ethiopia.

[10]. Presneill. JJ – etal, Decisions made by critical care nurses during mechanical ventilation and weaning in an Australian intensive care unit, "American Journal of critical care", 16(5), 2007, 433 – 434.