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Assessing Health Beliefs Associated with Chronic Obstructive Pulmonary Disease among Nepalese College Students

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Assessing Health Beliefs Associated with Chronic Obstructive Pulmonary Disease among Nepalese College Students

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Abstract

Chronic Obstructive Pulmonary Disease (COPD) is a rising global health issue in developing countries, such as Nepal, due to several preventable risk factors such as smoking. In this study, the researcher will assess the perceived risks and susceptibility associated with COPD among the Nepali student population at Mississippi University for Women (MUW). The researcher utilized the Health and Belief Model as an analysis framework and conducted qualitative research in the form of a focus group. As the study population, Nepali students were invited to complete a semi-structured interview in order to explore their health beliefs related to COPD. The interview was conducted using a focus group research design to investigate the effectiveness of the teaching of COPD. Data analysis was evaluated through a recording of the session as well as the researcher's notes and memory. The goal of this project was to use the information obtained to guide future on-campus health education programming. The programming encouraged these students to engage in health behaviors that decrease risk of COPD and increase awareness of risk factors so that they may be able to share this knowledge with their friends and families.

Chapter I

Many factors, such as smoking and environmental pollutants, contribute to the development and exacerbation of Chronic Obstructive Pulmonary Disease (COPD). Chronic Obstructive Pulmonary Disease is a debilitating and potentially life-threatening disease state and is characterized by persistent airflow limitation that is progressive and associated with enhanced chronic inflammatory response in the airways and lungs to noxious particles and gases (Beddoe & Barous, 2016). While the most significant factor is smoking and secondhand smoke, another large factor is using biomass fuel, such as wood and animal waste, for heating and cooking. Another considerable factor is pollutants in the environment. Environment in this project is defined as the aspects of the natural and man-made environment that affected public health. The population at risk for the development of COPD are individuals with long-term exposure to tobacco smoke, whether active or passive, and long-term exposure to environmental pollutants. Other risk factors included occupational exposure to smoke (e.g. firefighters, cooks), advancing age (> 40), living alone, a familial history of COPD, and a personal history of lung diseases such as pneumonia. The disease is completely irreversible and treatment is used to alleviate symptoms. The populace must understand the underlying causes of COPD before any decrease in the development of the disease can be brought into effect.

Origin and Statement of the Problem

The problem of COPD in developing countries can be explained through several common factors shared by developing countries. The low socioeconomic level of Nepal created risk factors associated with poverty such as consistent exposure to biomass fuel, cigarette smoking, poor access to healthcare, poor living conditions, and lack of clean water and sanitation. The use of biomass fuel as a heating and cooking source was an important health factor among rural

families. The families were also exposed to a variety of other risk factors during the entirety of their lives such as perinatal exposure (maternal exposure to biomass fuel or tobacco smoke), childhood exposure (pneumonia, exposure to biomass smoke and secondhand smoke), and adult exposure (exposure to biomass smoke, cigarette smoking, secondhand smoking, occupational exposure). The multiple exposure risks were related to low socio-economic circumstances, which were common in a developing country (Chavannes et al., 2016).

In the researcher's opinion, increasing the awareness of the younger population of Nepal was the best method of improving prevention rates of COPD. The younger population must have a complete understanding of the implications of smoking and the associated risks involved to successfully reach the older, more at risk population. A study conducted by Baby, Rammurthy, Bennadi, & Konakeri (2016) to determine the prevalence and determinants of tobacco use among pre- university college students in Bangalore, India, found that the most common introduction to smoking was peer pressure in social settings. Out of 124 males, 40% stated they began smoking because of influence from their friends. This result was confirmed in similar studies in Delhi (38%) and Mumbai (46%).

A social setting was the most common risk factor for young individuals to smoke due to the social pressure and desire to conform to the behaviors of their peers. The age of onset for smoking in developing countries was consistent with the onset in developed countries such as the United States. The mean age for initiation into smoking was 12 years old. Smoking at such a young age drastically increased the risk of developing cancer, COPD, and other morbidities (Baby et al., 2016).

Long-term exposure to air pollution is a large risk factor in the development of COPD. Due to the high levels of fine particles in the air, such as black carbon, and the level of motor

vehicle emissions, COPD exacerbations have increased. Many epidemiologic studies on the association have linked air pollution to increased rates of COPD exacerbations and emergency hospital admissions. A study by Gan, Fitzgerald, Carlsten, Sadatssafavi, & Brauer (2013) involving the association of ambient air pollution to COPD hospitalization and mortality rates concluded a positive exposure-response trend for the observed associations. The study used provincial hospitalization and death registration databases to gather data for the research. The findings were that an elevation of black carbon concentrations were associated with a 6% increase in COPD hospitalizations and a 7% increase in COPD mortality. Exposure to higher levels of wood smoke was associated with a 15% increase in COPD among the populace. The overall conclusion of the study was that ambient air pollution, which includes traffic-related fine particles and wood smoke pollution, is strongly associated with an increased risk of COPD (Gan, Fitzgerald, Carlsten, Sadatssafavi, & Brauer, 2013).

While tobacco smoking, air pollution, and the use of biomass fuel cause the development of COPD, the real problem that developing countries, such as Nepal, were faced with was a lack of knowledge of the risk factors. In a study performed by Engelke (2016) on patient education of COPD concluded that the most effective teaching/learning strategies involved combining individualized instruction and some level of personal involvement by the healthcare provider.

Receiving and understanding important educational information and learning to perform appropriate self-care can promote relief of signs and symptoms of COPD, increase quality of life, and reduce physiological stress that can lead to other factors. The disease was currently the fourth leading cause of mortality worldwide and is likely to be the third leading cause by 2020. Since the population did not understand the problem and the risk factors involved, there was little

reason for the individuals to cease smoking or participating in activities that they view as normal (Engelke, 2016).

Significance of Problem

Chronic Obstructive Pulmonary disease is not one single disease but an umbrella term used to describe several different chronic lung diseases that cause limitations in airflow (World Health Organization, 2016). COPD patients often complain about breathlessness or a need for air as well as the development of a persistent cough. COPD is commonly under-diagnosed, but, if left untreated, the disease can be life threatening. The diagnosis of COPD is a serious matter due to the permanent nature of the disease as well as how common the disease is in Nepal. The disease currently has a 7% mortality rate in the country. The chronic inflammation and increasingly obstructed airflow that occur in COPD are not reversible with the use of medication and lead to permanent alterations in the structure of the small airways. Chronic bronchitis and emphysema are both common factors that compose COPD. Both diseases cause progressive, permanent distension and subsequent destruction of the alveoli, which results in impaired gas exchange for the rest of the patient's life (World Health Organization, 2016).

Because COPD is not infectious, the World Health Organization defines the disease as a non-communicable disease (NCD). Non-communicable refers to chronic diseases or conditions that occur in, or were known to affect individuals over an extensive period of time. There were typically no known causative agents from one affected individual to another to cause the disease (Beddoe & Piglrim, 2016).

The rising geriatric population is also facing significant health problems, such as COPD, that are impacting their quality of life. A study conducted by Gupta et al. (2016) evaluated the geriatric population in Nepal and the rate of COPD and other morbidities. The study used a

descriptive cross-sectional study to target individuals 60-69 years of age in Nepal. The sample size of the study was 189 participants. Over 60% of the subjects had reported a history of smoking, and the relation between smoking and chronic respiratory diseases had a statistical association (P= <0.0001). The proportion of the subjects who were diagnosed with COPD were 38% with 25% having asthma (Gupta et al. 2016).

A previous study, conducted by BMC public health, compared the prevalence of four NCD's in Nepal. The four diseases were cancer, cardiovascular disease (CVD), diabetes mellitus (DM), and COPD. To calculate the hospital-based prevalence of the disease, thirty-one hospitals were chosen. Twenty-five were chosen outside of the Kathmandu valley (which is the capital city of Nepal), three specialist hospitals in Kathmandu, and three non-specialist hospitals in Kathmandu. In all hospitals selected, NCD's accounted for 31% of all admitted cases. The majority of cases were COPD (43%), CVD (40%), DM (12%), and cancer (5%). The variety of the hospitals, geographical distance between the majorities of locations, and different age groups indicated that COPD is a major disease that is widespread among the population of Nepal (Bhandarai, Angdembe, Dhimal, Neupane, & Bhusal, 2014).

Statements

Problem Statement.

Knowledge and understanding of COPD and how it is contracted is essential for the Nepali population to begin decreasing the amount of individuals who have COPD. Will education of the population of Nepali students at MUW have a positive effect on COPD understanding?

Purpose Statement.

To spread awareness of COPD among the college-age Nepali population at MUW in an attempt to have the students share the information with their family and friends, subsequently decreasing the amount of the Nepali population who will contract COPD.

Definitions

For the purpose of this research study the following terms are defined:

Nepali students. Students who are born in Nepal and attend MUW as full-time students.

Younger Nepal population. Individuals from Nepal who are 45 years of age or younger.

Older Nepal Population. Individuals from Nepal who are over 45 years old.

Assumptions

For purposes of this study the following assumptions were made:

1. Students from Nepal attend MUW.
2. A statistically significant number of students will participate in the focus group.
3. Nepali students will respond truthfully to questions.

Chapter II

Research Design

The researcher used the Health Belief Model as an analysis framework. Nepali students were invited to participate in a focus group in order to gather specific data from a smaller group of students. The design utilized three different methods. The first method was the assistant moderator's and moderator's notes. The second method was through the moderator's memory. The third source was the audio digital-recording of the session which would be reviewed and examined at a later date. The different methods allowed the researcher to determine the effectiveness of the educational session on COPD (Nieswiadomy, 2012).

Variables

The independent variable of this research was the education that was provided to the Nepali students during the focus group. The dependent variable was the knowledge of the Nepali students as evidenced by their verbal responses recorded by the digital-tape. The control variables were the location of the study and the method of research. The researcher planned to control the variables by applying a consistent method of data collection, controlling outside distractions, and employing the same method of research for each series of the study. The researcher used convenience sampling due to time constraints and availability of participants. Extraneous variables included the potential for participants to be made aware of the study's content prior to data collection, participant's knowledge of subject, and possible overlap of participants for survey and testing. Prior knowledge of the study's content could skew the data by allowing the participants to research the topic beforehand and prepare for the testing. A participant's knowledge and an overlap of subject could skew results and shift results of the test

and survey. The researcher was unable to control these variables due to limited knowledge of participants and their actions (Nieswiadomy, 2012).

Setting and Subjects

Nepali students from MUW served as the accessible population for the study. The target population was the Nepali student population. The accessible population may not have provided a representative sample of the target population because a non-probability convenience sampling method was used (Nieswiadomy, 2012). The researcher tested only Nepali students at the university that were readily accessible to the researcher. This method of sampling was implemented due to time constraints and the availability of the population. The sampling method may have been impacted due to the participant's awareness of the study and the content, participant's knowledge of the subject, and possible overlap of the survey and testing groups. The researcher planned on having three to five groups of 10-15 Nepali students per testing group. This was an adequate sample size, because 30 samples meet the requirements for the data to be statistically significant. However, the sample size might have impacted the testing of the hypothesis because of the variability of student participation and the size not being reflective of the target population. The rights of the subjects were protected given that subjects' names were not documented in the study by name or initials.

Data Collection Instruments and Procedure

The data collection was done through the assistant researcher and researcher's notes as well as the digital tape recordings of the sessions. The moderator of the focus group was the researcher. The assistant moderator was an instructor of Mississippi University for Women. The focus group would begin with the researcher asking opening questions about the participant's basic background information (i.e. name, major, age, and place of birth). Later, open-ended

questions would involve participant's knowledge of COPD. Open-ended questions would be used to encourage students to elaborate and discuss their answers. The participant's responses were recorded and analyzed at a later date. After each COPD knowledge question, the researcher would then give an explanatory answer to the question to provide the students with education on COPD. These methods were appropriate for the study because it allowed the researcher to collect pertinent data that could be easily analyzed and tested in relation to the hypothesis. Although these methods were the most appropriate for the study, it is possible the validity and reliability of the study could be lessened by other factors (Nieswiadomy, 2012).

Limitations

Possible limitations of the study included convenience sampling, sample size, extraneous variables, time constraints, and limited location. Convenience sampling was the weakest form of sampling for data gathering due to the limited number of samples available to the researcher. The sample size depended on multiple factors such as student's schedule, consent of the students, and participation of the students. The extraneous variables included knowledge, overlapping of students, and awareness of the study. These variables could have limited the study because prior knowledge of the study, overlapping groups of students, and awareness of the study could skew the results of the testing as well as the survey. Time constraints were a large factor in the effectiveness of the study and affected the researcher's ability to enlarge the sample size. For the experimental study, the location was needed to be reserved in advance which could have limited the study due to possible oversight of the location forcing the researcher to reschedule (Nieswiadomy, 2012)

Chapter III

The purpose of the study conducted was to determine the understanding of Nepalese college students concerning COPD. The researcher asked one background question and nine open-ended questions during the course of the 35 minute focus groups. The first focus group consisted of 12 males and 2 females with the second focus group consisting of 5 males and 1 female, all between the ages of 19-22. All participants were Nepalese students enrolled at Mississippi University for Women. Out of the 20 participants, 10 were from the capital city of Kathmandu, with the remaining ten coming from different regions of Nepal. All participants came from heavily urban areas and identified themselves as privileged. The term "privileged" in this sense being that their families were upper class. Their families were all educated and were wealthy enough to send their children to study in the United States. The researcher utilized open-ended questions to give a better understanding of the subject's knowledge, as well as give the researcher a chance to educate the subjects on COPD (see Appendix A). The focus groups' subjects were also given consent forms (see Appendix B), as well as supplemental information in the form of statistically pertinent pamphlets (see Appendix C). T he focus group questions were modified from the Bristol COPD knowledge questionnaire. In order to retain validity, questions were only omitted from the survey with no questions added (White, Walker, Roberts, Kalisky, & White, 2016).

Results

The researcher was able to collect a significant amount of data from both groups of subjects interviewed. Focus Group I was much larger with a total of 14 participants while Focus Group II had only 6 participants. Despite the vast size difference between the two focus groups,

there were several common patterns that both groups discussed such as the effects of smoking, biomass fuel, and pollution on the population of Nepal.

Both Focus Groups I and II responded similarly when asked about their families and their own overall health. No student admitted to having a family member with COPD or knowing anyone with COPD. However, seven participants admitted to members of their family or their friends having asthma, but did not admit to any family members having COPD. COPD is easy to misdiagnose and classify as asthma to medical professionals not able to tell the difference between the two diseases (Rothe, 2012). Only two participants in Focus Group I admitted to being active smokers, but all participants admitted to having a close relative or friend who smoked on a frequent basis. All participants agreed there was no legal age to smoke in Nepal, and it was a common practice for adults to send children to buy cigarettes. A participant in Focus Group II stated, "My grandparents would often send me to get cigarettes for them. One time when I went to pay for the cigarettes, I snuck one out and tried one because I was curious." The high rate of smoking in Nepal is one of the main contributing factors to the increasing prevalence of COPD. The cultural attitude is extremely acceptable and, as a result, it is not unusual to see children at the age of 10 smoking a cigarette.

Individuals in both focus groups also discussed the widespread knowledge of the negative effects of smoking. In Nepal, all tobacco products are required to have a warning as to the effects of smoking, as well as a picture of an actual pair of smoke-damaged lungs on the containers of cigarettes. A participant in Focus Group I stated, "Many people know the dangers of smoking and how it can hurt you. They don't like seeing the labels on the cartons so they just throw them away and put the cigarettes in plastic bags to avoid looking at them." All participants in Focus Group II agreed that learning the harmful effects of smoking was taught in

a health course required at their schools. This information is possibly skewed due to the privileged lifestyle of the participants. Many Nepali children in the lower class might have not been offered the same level of education as the participants.

Several conclusions can be drawn from the participants' answers. Smoking in Nepal is commonplace and often starts at a young age, whether due to cultural pressure or peer pressure. Several participants had seen children smoking as young as 8-10 years old. This early introduction to smoking largely increases the risk of these children developing lung diseases, such as COPD, further into adulthood. By smoking around children, the adults are continuing the cycle of cultural pressure that led themselves to smoke at a young age. The knowledge of the harmful effects of smoking is commonplace in the country but is largely ignored by the populace. With middle to upper class individuals understanding the harmful effects of smoking, the main issue would not be educational but cultural.

Another factor involving smoke is the use of biomass fuel, mainly wood, in the home. The participants all admitted that their families had all frequently used wood to cook. One participant in Focus Group II stated, "We mostly cook with gas stoves, but there are often gas shortages in the country. When this happens, everyone switches to their wood stoves because wood is so abundant and free." With the participants' houses having good ventilation, this would more than likely not have as large of a negative impact on their health. There would be a significant impact on the lower class individual who would not have good ventilation and would use wood for fuel every day. The lower class individual would likely have no knowledge of the harmful effects of using wood in an enclosed area, and, even if they did, the lower class would have no alternative.

The researcher evaluated participants on their view of pollution in their country and found that both groups were largely in agreement. The participants from Kathmandu, the capital city of Nepal, stated that unfinished construction projects around the city as well as unpaved dirt roads and air pollution are causing respiratory problems due to increased dust and debris in the air. Many residents of Kathmandu are forced to wear masks due to the high dust levels. There are little to no restrictions on placement of factories and the output of pollution, leading to increased production of smoke and pollution. In addition to the factories' pollution, many residents of Nepal are contributing to the pollution themselves. One participant in Focus Group II stated, "It isn't really unusual to see people burning plastic and tires in their yards. We don't really have a trash service and it's a lot easier to get rid of the trash by burning it." The addition of the pollutants of burned trash add to the high air pollution that is already in Nepal. Burning is one of the few ways that the lower-class citizens can dispose of their trash.

Chapter IV

Conclusions

The purpose of this study was to determine the health beliefs of Nepali students towards COPD. The overall goal of the research was to increase Nepali students' knowledge of the disease, modify their lifestyles to avoid risk factors of COPD, and to aid future on-campus health programming. This was determined through the use of two focus groups. In each focus group, the researcher asked a series of open-ended questions. Each open-ended question explored the participants' own health behaviors or their family and friends' health behaviors. After every question, the researcher would give information about COPD and how it has impacted their country as well as their families. The data gathered gave insight of the Nepali culture, laws, customs, and economic status. Through the study, the researcher was able to encourage these students to engage in health behaviors that decrease risk of COPD and increase awareness of risk factors so that they may be able to share this knowledge with their friends and families.

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Appendix A

Questions for COPD Focus Group

1. Tell us your name, your major, classification (freshman, sophomore, junior, senior, etc), what area of Nepal you are from, and what you know about Chronic Obstructive Pulmonary Disease (COPD).

   -After sufficient participation, the researcher will then conduct a brief 5 minute explanation as to what COPD is.

2. How would you describe your overall health and how would you describe your family's health?

3. How would you describe your personal health behaviors and how would you describe your family's health behaviors?

4. Describe any experiences you may have with COPD. Do you have any family members with COPD?

5. How serious of a disease do you think COPD is? Do you think it could be prevented?

   -After sufficient participation, the researcher will then conduct a brief 3 minute lesson on the prevalence of COPD both worldwide and in Nepal, specifically.

6. Can you describe the risk factors for COPD? Do you believe you are at risk for COPD?

-After sufficient participation, the researcher will then conduct a brief 3 minute explanation as to the risk factors of COPD.

7. Can you describe why cigarette smoke, biomass fuel, and air pollution are related to COPD?

-After sufficient participation, the researcher will then conduct a brief 3 minute lesson on how these risk factors are associated with COPD.

8. Do you feel it is important to know about COPD and how to prevent it?

9. Do you feel that it is important to share information about COPD with your family? If so, how would you stress the importance of the information to them?

10. How informative and helpful do you think this session has been?

Appendix B

Assessing Health Beliefs of COPD Consent Form

You are being asked to take part in a research study of how Nepali college students view and feel towards Chronic Obstructive Pulmonary Disease. We are asking you to take part because you signed up with the researcher, Tyler Cutrer, for this study. Please read this form carefully and ask any questions you may have before agreeing to take part in the study.

What the study is about: The purpose of this study is to assess the perceived risks and susceptibility associated with chronic obstructive pulmonary disorder (COPD) among Nepalese student population at Mississippi University for Women (MUW). You must be a student at Mississippi University for Women, born in Nepal, and be over the age of 18.

What we will ask you to do: If you agree to be in this study, we will conduct a focus group interview with you and 10-12 others. We will be asking you questions such as to the extent of your knowledge of COPD, if you or your family have any history of COPD, how you feel about changing your habits to lower your chances of developing COPD, etc. The interview will take about 45 minutes to an hour to complete. With your permission, we would also like to tape-record the interview.

Risks and benefits:

There is the risk that you may find some of the questions about your health conditions to be sensitive.

There are no benefits to you. The health of the student and their families are to the utmost importance to the researcher.

Your answers will be confidential. The records of this study will be kept private. In any sort of report we make public we will not include any information that will make it possible to identify you. Research records will be kept in a locked file; only the researchers will have access to the records. If we tape-record the interview, we will destroy the tape after it has been transcribed, which we anticipate will be within two months of its taping.

Taking part is voluntary: Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. If you decide not to take part or to skip some of the questions, it will not affect your current or future relationship with Mississippi University for Women. If you decide to take part, you are free to withdraw at any time.

If you have questions: The researchers conducting this study are Tyler Cutrer and Prof. Katie Cranston. Please ask any questions you have now. If you have questions later, you may contact

Tyler Cutrer at wtcutrer@myapps.muw.edu or at 985-517-5777. You can reach Prof. Katie Cranston at klcranston@muw.edu. If you have any questions as to your rights as a subject please review these Additional Resources for IRB Federal & University Guidelines

1. Mississippi University for Women Faculty Council, March 25, 1980.
2. United States Department of Health, Education, and Welfare: Policy on Protection of Human Subjects, 1971.
3. Human Subjects Research (45 CFR 46), Protection of Human Subjects, Effective July 14, 2009. http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html

You will be given a copy of this form to keep for your records.

Statement of Consent: I have read the above information, and have received answers to any questions I asked. I consent to take part in the study.

Your Signature _____ Date _____

Your Name (printed) _____

In addition to agreeing to participate, I also consent to having the interview tape-recorded.

Your Signature _____ Date _____

Signature of person obtaining consent _____ Date _____

Printed name of person obtaining consent _____Date _____

This consent form will be kept by the researcher for at least three years beyond the end of the study.

Appendix C

COPD Factual Sheet