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Community Health Nursing in Ghana: Respiratory Illnesses

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Community Health Nursing in Ghana: Respiratory Illnesses

Introduction

There is no doubt that the health problems facing developing countries are different in nature than the health problems most prevalent in the United States. There are certainly some similarities in the disease processes that affect both populations, but the source of the illnesses often vary due to each country's individual ways of living. A prime example of this can be found when looking at Ghana, Africa and the health issues their population commonly encounters.

Respiratory illnesses are recognized worldwide as a major health problem. In the United States, most people associate cigarette smoking with the development of respiratory illnesses, as it is a frequent practice of many Americans that is known to be harmful to the lungs. However, there are unique risk factors present in Ghana that contribute to the development of respiratory illnesses that should not be overlooked. One of the most important risk factors in Ghana is exposure to "indoor air pollution from biomass fuels used for cooking and heating in poorly ventilated rooms" (Woldeamanuel et al., 2019). As a developing country, Ghana relies predominantly on biomass fuels to carry out many of their daily activities and meet many of their daily needs. When solid fuels are constantly utilized in household settings, it leads to long-term exposure to air pollution and is not good for the health of those involved. It is estimated that there are approximately "two million people a year dying prematurely from illness attributable to indoor air pollution from solid fuels" (Mbatchou Ngahane et al., 2015). Even if untimely death is not the consequence for those impacted by indoor air pollution, chronic respiratory illnesses are likely to develop and cause difficulties for the rest of their lives. Indoor air pollution has been found to contribute to the development of several respiratory diseases as well, including nonfatal

chronic obstructive pulmonary disease, pulmonary tuberculosis, pneumonia, and lung cancer (Hystad et al., 2019).

Needs Assessment

Although most people in Ghana are likely exposed to indoor air pollution at some point during their lifetime, women are especially impacted by the effects of it since they are the members of the family doing most of the cooking and other household activities. In addition, many times young children are present in the household with their mothers and are therefore exposed to a considerable amount of air pollution as well. One study focusing on childhood respiratory morbidity found that “at least one respiratory symptom (cough, blocked nose, fast breathing, or chest in drawing) was reported in 34.4% of children <5 years of age” in a predominantly rural area of Ghana (Asante et al., 2016). Therefore, we determined that women and children were more at risk for the development of respiratory illnesses due to their increased exposure to indoor air pollution and smoke. When given the opportunity to teach several groups of people in Ghana about this topic, we focused our teaching presentations on the women of the household, as they are the family members who are most likely to take charge, provide guidance and protection to their children, and help prevent long-term health problems from developing in themselves and their loved ones.

Goals

In order to address the specific needs of the women of Ghana, we came up with four goals related to respiratory illnesses to work towards achieving through our teaching presentation. These goals had the health and safety of the community in mind, as our ultimate priority was to improve the health and safety of the families we were teaching. Our first goal was that “participants will be able to recognize the health hazards associated with the populations’

current cooking situation using wood stoves.” The first step in fixing or preventing a problem is self-awareness, so we desired to educate the women about the negative effects that air pollution exposure may have on their health. Our second goal was that “participants will be able to verbalize the benefits of utilizing ceramic coal pots for cooking.” We emphasized a solution to this problem that focused on using an alternative method of cooking that would decrease air pollution. Our third goal was that “participants will be able to explain a simple way to protect their family members from smoke exposure and developing respiratory illnesses.” We also decided to teach the women other preventative measures that they could all implement in their daily lives, whether or not they had access to alternative methods of cooking. Our fourth goal was that “participants will be able to verbalize and/or demonstrate how to use the new ceramic coal cooking pots.” After introducing this alternative method of cooking, we needed to ensure that the women would be able to properly utilize the new cooking pots in their households in order to benefit the most from them.

Planning

In order to give an effective presentation that resulted in true understanding from the women, we desired to use visual aids. Therefore, we printed off colorful pictures showing the anatomy of the respiratory system to utilize in our presentation. These pictures showed the main parts of the respiratory tract and allowed for a visualization of how air travels from the mouth and nose, through the trachea, and into the lungs. This allowed us to better describe how air pollution and smoke affects different parts of the respiratory system in a negative way. We were able to point out the negative effects on the pictures, showing the women exactly what might happen in their own respiratory tract with long-term exposure.

In addition to the pictures, we also had ceramic coal cooking pots to distribute at the end of the presentation after explaining how to use this alternative cooking method. Around 70 of these cooking pots were purchased from donations, and it was our hope that each family unit that attended our presentation would receive one cooking pot to begin using in their daily lives. These cooking pots produce less smoke than other methods of cooking, and the outsides of the pots do not get as hot. At the end of the presentations, we decided to bring out the cooking pots and educate the families about their benefits in hopes that they would desire to utilize them for cooking. If they had any questions about how to use the cooking pots, we answered them and provided them with an abundance of information.

Content

We decided to begin each presentation by asking the audience several questions about their own health, as well as the health of their family members, and seeking their responses and opinions to the questions. This would help us gauge their current health status and also make them more self-aware. We asked if any of them noticed a constant cough or had trouble breathing when performing simple tasks, such as walking. We also asked if any of them noticed that their children were having trouble breathing as well. Then we introduced the topic of our teaching more clearly, stating that these respiratory symptoms may be due to long-term smoke exposure from the wood stoves they are using to cook with.

Next, we explained some of the negative effects of long-term exposure to the smoke produced from commonly used wood cooking stoves or biomass fuel sources. We talked about how the function of the immune system is diminished, so the body can't fight off sickness as well as it used to. This occurs because the defense mechanisms the body has in place are no longer working properly. For example, a healthy respiratory tract is lined with properly working

cilia. The cilia is responsible for preventing foreign particles that we accidentally breathe in from making their way into the lungs and causing an infection. With long-term smoke exposure, the cilia lining the respiratory tract become paralyzed due to the inhaled smoke. Therefore, foreign particles from the environment are able to enter the respiratory tract without hardly any resistance. This may lead to frequent respiratory infections because foreign bodies and bacteria are now able to make their way to the lungs with ease. In addition, as the smoke breathed in passes through the respiratory tract to reach the lungs, it travels through the bronchioles. The bronchioles aren't used to being exposed to so much smoke, so these pathways become irritated and inflamed. This leads to a narrowing of the bronchioles, so the pathways that air flows through are decreased in size. Therefore, the amount of air that is able to be exchanged through inhalation and exhalation is reduced. This causes overall lung function to diminish. As a result, chronic respiratory illnesses, such as pneumonia, chronic obstructive pulmonary disorder (COPD), asthma, and bronchitis, may eventually develop.

To tie our teaching back to the questions we asked the audience at the beginning of the presentation, we then listed off and explained several signs and symptoms of respiratory illnesses. These included coughing, shortness of breath, wheezing, hoarseness, and chest pain. We also explained that long-term smoke exposure and respiratory illnesses may lead to more serious, chronic effects that will affect them for the rest of their lives. These included lung failure, lung cancer, and cardiovascular disease. We wanted to inform the audience that smoke exposure and respiratory illnesses should not be taken lightly, as they can eventually progress to respiratory failure and even death in the most extreme cases. This is why precautions need to be taken to limit smoke exposure and prevent respiratory illnesses from occurring in the first place.

To focus on prevention, we taught the audience several measures they can begin implementing in their daily lives to limit smoke exposure and stay healthy. To begin, we emphasized that all cooking should be done outside or in a properly ventilated home whenever possible. Cooking in a small home with no windows or escape routes for the smoke produced results in smoke being trapped inside of a small area for a prolonged period of time. Therefore, anyone inside the home would continue breathing in smoke and being surrounded by indoor air pollution until it eventually cleared out over time. We also encouraged the women to keep their family members, children especially, away from the smoke-producing cooking pots while they were using them. The women should also not hold their young children while tending to the cooking pots, as this increases their children's exposure to smoke. In order to decrease the women's own exposure to smoke, we taught them to hold or tie a scarf or bandana around their nose and mouth while cooking. This would hopefully reduce the amount of smoke that made it into their respiratory system in the first place.

We anticipated that some of the women might be a little skeptical of the new ceramic coal cooking pots we were introducing to them. When you do something one way your whole life, it is hard to begin implementing a new way of doing things suddenly just because someone else tells you to. Therefore, we made sure to educate the women about some of the many benefits of the new cooking pots. The main advantage was that the new cooking pots produced less smoke than wood cooking stoves. They did still produce some smoke, but smoke exposure would be significantly less, especially if the women utilized some of the methods mentioned above to reduce smoke exposure as well. The cooking pots also did not get as hot as other methods of cooking. The lower outside temperature of the cooking pots would make it less likely for the women or their children to accidentally get burned if they were to touch the outside of the

cooking pot. Also, it was found that these specific cooking pots were thought to cook food faster which is surely a benefit to the busy, working women who have to take time out of each day to make meals for their families.

We made sure to include these main points in each of our presentations, although the content varied a little based on the direction that the women's questions during the presentations led us. Some of the women brought up ideas that we hadn't even thought of, so we were able to add to our presentation each time based on suggestions about other preventative measures.

Implementation

We taught our presentation about respiratory illnesses three different times throughout our stay in Ghana, each time to a group of women who fit the description of the audience we were trying to reach and educate. Most of these women were uneducated and lived in poorer parts of the community, making their living as basket weavers or bakers. As women of the household, they were providers for their families, doing most of the cooking and therefore being exposed to smoke daily. Many times, their children were present with them when we arrived to teach them. Before beginning our presentations, some of our peers gathered the children nearby to play games with them so they would not be a distraction to the women while they were trying to listen to us. We wanted the women to be focused on all that we were teaching them, so we made sure their children were still within their sight so they would not be worried about them.

Since many of these women were not well educated, most of them did not speak any English. Instead, they mainly spoke the local dialect. Luckily, we had one or two interpreters at each of our presentations with us. They spoke both English and the language of the locals and therefore were able to interpret our teaching line by line for the women to understand. They were also able to inform us about certain words we had incorporated into our presentation that didn't

translate well into the local language. Therefore, we were able to make adjustments to the wording of our presentation so that all of our teaching was able to be translated and understood better. By our last presentation, we had all of our phrasing down so that everything went smoothly. There were no pauses in our teaching to try and think of a similar word to use instead.

For the most part, the women were attentive while we were talking to them and seemed like they wanted to hear what we had to say. We utilized the pictures we had printed out of the respiratory system, holding them up to our chest so the women would understand where the structures were located in their own bodies. The women appeared interested and curious and asked intelligent questions that were relative to the topics we were discussing at the time. They were also excited that we had brought something to give them after the presentation. Since we only had a limited number of ceramic coal cooking pots, the leaders of each community were asked to help distribute the cooking pots so that each family unit received only one cooking pot to share amongst themselves.

Evaluation

At the end of each presentation we gave, we evaluated the audience's understanding to ensure that they learned valuable information from our presentation that they would then be able to implement in their own lives. It was our hope that they would take away several key points from our presentation, as well as hopefully share the information with others who were not able to attend. Therefore, we came up with a list of basic questions beforehand to ask the audience after the presentation to ensure that we met our goals. To evaluate whether our first goal was met, we asked "what are the negative effects of smoke on our lungs and our breathing?" To evaluate whether we met our second goal, we asked "why is it important to begin utilizing this new cooking method?" To evaluate whether our third goal was met, we asked "how can you help

protect yourself, your children, and your family members from developing respiratory problems?” To evaluate whether we met our fourth goal, we asked a participant from the group to either verbalize or demonstrate how to use the new ceramic coal cooking pots we were giving them. The answers to these questions all came from the information that we had just presented to them. When members of the audience were able to answer these questions correctly, we knew that they had understood and retained some of the information from the presentation.

Conclusion

If we can reduce the amount of exposure to indoor air pollution and smoke in the first place, then hopefully a reduction in the development of respiratory illnesses will follow. It was recommended that this be done “either by a change of fuel or by improved stove technology” (Fullerton et al., 2011). In a developing country like Ghana, it is less likely to implement a change in fuel, as biomass fuels are their main source of energy, and there is not an abundance of other resources to choose from. Therefore, we effectively introduced improved stove technology to many women that make up different communities in Ghana. We supplied them with ceramic coal cooking pots that would produce less smoke and therefore limit their exposure. We taught the women other ways to improve their own respiratory health, as well as the respiratory health of their family members. We also provided them with education about long-term effects of chronic exposure to air pollution and smoke in hopes that they would take all of this information seriously and actually implement suggested changes and ways of doing things into their daily routines. We hope that the women continue to utilize the ceramic coal cooking pots we provided them with. Cooking is something that the women of Ghana do daily in order to provide for their families. Although Ghana is a developing country with limited resources, the air pollution that is produced from cooking should not be something that ultimately contributes to their early death.

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