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Efficacy of sleep education in a Dominican Republic neighborhood through training of community health promoters☆☆☆☆



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ABSTRACT

Introduction: The Children's Hospital of Philadelphia (CHOP) Global Health Allies program in the Dominican Republic trains nine health promoters (HPs) in various health subjects with the goal to educate the community. This time we evaluated our teaching session on sleep and sleep disorders.

Methods: Questionnaires were randomly administered to HPs, and community members in the Dominican Republic before and after the HP educational intervention. Nine HPs already enrolled in the CHOP program, received a 4-hour training session in sleep and sleep disorders. HPs were then instructed to educate the community as they usually do during their supervised weekly home visits.

Results: The nine HP demonstrated knowledge of sleep disorders in their post-training assessment. In the community, 93 adults responded to the initial questionnaire. Although 92 (99%) stated that sleep is important, very few knew about obstructive sleep apnea ($n = 17$; 18%) and narcolepsy ($n = 11$; 12%). The post-education questionnaire revealed no statistically significant change in the knowledge about sleep and sleep disorders in the community.

Conclusion: The HP knowledge about sleep disorders improved after a 4-hour training session. The community knowledge did not change after education by HPs. Barriers to community education must be explored and the need for other forms of community education about sleep and sleep disorders should be addressed.

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Introduction

The Children's Hospital of Philadelphia (CHOP) Global Health Allies program is a hospital-sponsored program designed to enable CHOP employees to provide health education to its partner site in the Dominican Republic (DR). Allies work in partnership with local

health professionals in the town of Consuelo, San Pedro de Macoris, a semi-urban town in the Southeastern part of the country. Although there are government-provided health services available to the population, access to healthcare resources and health education are both limited, particularly for the Haitian population, which tends to be poorer and undocumented.¹ To address some of these issues in the community, CHOP opened a pediatric clinic in partnership with a local health center, the Centro de Salud Divina Providencia in 2009. The clinic is staffed with a local pediatrician, a CHOP global health fellow, a local community health nurse and a group of community health workers called "health promoters" (HP).

Sleep is a topic of growing importance in the developing world. Sleep disorders are ubiquitous and affect people of all ages all over the world. It is estimated that up to 49% of the population in the United States and Europe are affected by obstructive sleep apnea.² Excessive daytime sleepiness affects up to 40% of the United States population and 20% are affected by insomnia.³ Sleep disorders can be debilitating and can affect daytime performance in school and at work. Furthermore, sleepiness has been implicated in fatal car accidents and devastating environmental disasters such as the Chernobyl nuclear plant and the Exxon Valdez oil tanker.³

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Sleep deprivation also causes behavioral problems and increased morbidity.⁴ Adequate sleep promotes healthy growth, consolidation of learning and alertness during the day.⁵

Limited research has been done to understand the prevalence of sleep disorders in Latin America or to assess the knowledge about sleep and sleep disorders in the population. A survey of 1776 adults in urban Latin American neighborhoods revealed that two thirds reported some sleep complaint in the last year and up to 25% were severely or moderately affected by the sleep problem.⁶ In another study in four Latin American cities, 60% of those surveyed reported snoring, 16% reported excessive daytime sleepiness and 10% were diagnosed with obstructive sleep apnea.⁷ However in a survey of 634 primary care physicians in three Latin American countries, only 34% felt confident managing obstructive sleep apnea.⁸

Latin America faces enormous health disparities and is the world's region with the highest income inequity.⁹ Disease prevention via education of health promoters is an appealing intervention in Latin American communities where access to healthcare workers is limited. In its publication "Healthy People 2010," the Centers for Disease Control and Prevention (CDC) included a roadmap to help promote a nation's health through health workers or HP who can help build bridges between healthcare providers and community members.¹⁰ In Mexico, the "train the trainer" program has demonstrated increased knowledge on breast cancer among community health promoters 6 months after receiving training by a professional health promoter (public clinic employees with some nursing training).¹¹ In another study, education on breast cancer screening taught by health promoters at Hispanic community homes showed an increase in breast cancer screening intention among the participants, although there was no change in the belief that a tumor was always cancer and that a tumor that had not spread had a good chance to be cured.¹² A study on diabetes education on 1413 Hispanic community members and 103 health promoters demonstrated increase knowledge of diabetes in both diabetic and non-diabetic community members.¹³

Since 2011, a group of CHOP employees travel to the Dominican Republic to educate HPs about various health related issues. After the sessions the HPs are responsible to educate the community visiting homes in their assigned neighborhoods supervised by a nurse from Centro de Salud Divina Providencia. In November of 2014, the CHOP Global Health Allies program for the first time introduced the topic of "sleep and sleep disorders." The current quality improvement study aims are to evaluate the effectiveness of health promoter training by our 4-hour workshop, the effectiveness of community education on sleep disorders by HPs, and to identify areas of improvement in our program.

Methods

Participants

1. Health Promoters: The HPs are all adult women from the Dominican Republic community of Consuelo, selected by the community health nurse based on her assessment of their capability, interest, and dedication to the education of their barrios. There are 2 health promoters per barrio. HPs are trained by CHOP healthcare volunteers (nurses and physicians) and are responsible to educate approximately 50 families in their barrios during weekly home visits. They are paid RD\$1000 pesos (\$25 USD) per month and are required to attend a monthly meeting and to submit quarterly reports to the community health nurse.
2. The community: Consuelo, Dominican Republic consists of 24 barrios, five of which are enrolled in the CHOP program since 2011. The population is predominantly Dominican with some migrant workers from Haiti. The economy is based

on commerce and informal trades (moto-transport, street vendors). The community has direct contact with CHOP employees during health fairs only but receives weekly visits from the HPs in their homes. A convenience sample of adult community members who attended a health fair was selected to fill out a pre-training questionnaire (n=93). Forty-three community members who were visited by a health promoter completed the same questionnaire (post-training).

Measures

Two board-certified sleep physicians designed a questionnaire aiming to evaluate the basic sleep knowledge covered in the learning practice (Table 1). The majority of questions were written as a statement. The answers were "yes" or "no" to establish agreement or disagreement with the statement. The yes/no format was chosen for simplicity. The questionnaire aimed to evaluate 3 main areas:

1. The importance of sleep: To assess the HPs and community perception about sleep, we decided to ask directly whether they believed sleep was important. To emphasize the importance of sleep and health, we included the statement "sleepiness can be caused by a medical condition."
2. The consequences of sleep deprivation: two common consequences of sleep deprivation are driving accidents and behavioral problems. We included both statements.
3. Knowledge of basic sleep disorders. Four representative sleep disorders were chosen: obstructive sleep apnea (representing breathing disorders), restless legs syndrome (representing sleep-related movement disorders), narcolepsy (representing hypersomnias) and insomnia. These disorders were chosen based on their distinct presentations and based on the videos available for instruction.

The questions were designed in basic Spanish. The questionnaire was proofread by the local Dominican nurse and a local Dominican community member for language comprehension.

Procedure

1. *HP training:* A board-certified sleep physician, in collaboration with a group of students from the University of Pennsylvania Master's in Medical Education program lead by a doctor in education, designed a 4-hour training session on sleep and sleep disorders. The topics were chosen to illustrate the importance of sleep, to educate about the consequences of sleep deprivation and to bring awareness about four basic sleep disorders: obstructive sleep apnea, insomnia, restless legs syndrome, and narcolepsy. Technology used during the session included overhead projector and video. A Spanish

Table 1
Answers from HP to questionnaire about sleep (total N = 9).

Question	Before training Affirmative answers; N (%)	After training Affirmative answers; N (%)
Is sleep important?	9 (1)	9 (1)
Sleepiness may be due to a medical condition	1 (0.11)	9 (1)
Sleepiness may cause car accidents	4 (0.44)	9 (1)
Sleepiness may cause behavioral problems	3 (0.33)	9 (1)
Have you heard about any of the following?		
Apnea	0 (0)	9 (1)
Insomnia	6 (0.67)	9 (1)
Restless leg syndrome	1 (0.11)	9 (1)
Narcolepsy	0 (0)	9 (1)
Do you want to learn more about sleep?	8 (0.89)	9 (1)

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