Journal of Pediatric Nursing (2012) **27**, 451–459

Using the Teach-Back Method to Increase Maternal Immunization Literacy Among Low-Income Pregnant Women in Jamaica: A Pilot Study

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Key words:
Teach back method;
Immunization;
Maternal health literacy;
Jamaica

The purpose of this pilot study was to assess maternal health literacy of pregnant women in Jamaica and evaluate their ability to communicate the benefits, risks, and safety of the Bacillus Calmette-Guerin (BCG) and Hepatitis B (hep B) vaccines after using the teach back method. REALM scores were moderately, positively correlated with identification of the BCG vaccine risks ($r = .43$, $p = .01$) and with hep B vaccine benefits ($r = .34$, $p = .05$) and risks ($r = .42$, $p = .01$). Women who gave incorrect responses about the benefits or risks of the vaccines had lower REALM scores than women who gave completely correct or partially correct responses.

COMMUNICABLE DISEASES ARE a major source of death among children throughout the developing world (Luman, Worku, Berhane, Martin, & Cairns, 2007). In response to this crisis, in 1977, the World Health Organization (WHO) launched a global immunization project, the Expanded Program on Immunization (EPI; Irons, Smith, Carrasco, & DeQuadros, 1999). The EPI, which originally focused on the Bacillus Calmette-Guerin (BCG); diphtheria, tetanus, pertussis (DTP); and polio vaccines, was created to provide guidance and support around the world in the quest to raise child immunization coverage above rates as low as 5% in some nations (Sandberg & Bjune, 2007). Currently, reported child immunization rates are greater than 90% in parts of Latin America and the Caribbean; however, in many municipalities, coverage remains less than 80% (Andrus, Crouch, Fitzsimmons, Vicari, & Tambini, 2008). Recent studies indicate that the EPI program has had a significant effect on reducing child mortality and morbidity from communicable diseases (Brenzel, Wolfson, Fox-Rushby, Miller, & Halsey, 2006), although more work is clearly needed.

At the same time that health organizations have launched public immunization programs, literacy rates are rising worldwide, but pockets of low literacy remain in the Caribbean nations, and studies have found links between maternal literacy and the overall health of children (Levine & Rowe, 2009; Renkert & Nutbeam, 2001). Health professionals around the world are beginning to recognize that the health and well-being of young children depends on mothers who understand the benefits, risks, and safety of vaccines and demonstrate that understanding by adhering to the recommended immunization schedule (Davis et al., 2004; Renkert & Nutbeam, 2001). Although there is a plethora of information on maternal child health issues, absent from the literature is information on maternal health literacy in Jamaica and the ability of Jamaican women to communicate their knowledge about child immunizations. Jamaicahas participated in the EPI since its initiation (Ministry of Health, 2007). However, there is concern in Jamaica regarding the decline of child immunizations in some areas of the country (UNICEF/WHO, 2007).

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doi:10.1016/j.pedn.2011.05.004

In light of this concern, the primary purpose of this study was to (a) determine the maternal health literacy of pregnant women in Jamaica and (b) evaluate their ability to communicate the benefits, risks, and safety issues of two vaccines, the BCG and hep B, after using the teach-back method as an education strategy. The secondary purpose of this study was to compare literacy and comprehension across select demographic characteristics.

Background

Historically, Jamaica has experienced several outbreaks of communicable disease. For example, in 1982, Jamaica experienced a type 1 poliomyelitis epidemic that resulted in 60 cases of paralytic illness, with 3 fatalities (Ashley & McCaw-Binns, 2008). At the time, less than 20% of the population was immunized against communicable diseases. Between 1982 and 1994, the Jamaican Ministry of Health conducted an aggressive campaign. As a result, by 1985, health officials had administered the polio vaccine to 80% of Jamaican children, and in 1994, the Ministry of Health declared the country polio free (Ashley & McCaw-Binns, 2008). Yet, the danger of an outbreak of communicable disease remains constant. The WHO (2007) has cited an unprecedented number of communicable disease outbreaks in developing countries; epidemiological evidence attributes their cause to factors such as human interconnectedness, climate changes, neglected tropical disease, and globalization (McMichael, Woodruff, & Hales, 2006). In many Caribbean nations, the risk of a future outbreak is ever present because of poor public health infrastructures and the slow growth of literacy in the population.

Global Problems of Low Literacy in Women

Of the world's estimated 960 million illiterate adults, approximately two thirds are women (Kickbusch, 2001). Literacy rates can vary widely from country to country or region to region. As a developing nation, Jamaica has slowly increased government attention to the literacy of its adult population, including women. The latest study occurred in 1992, when the Jamaican Foundation for Lifelong Learning (2001; formerly known as the Jamaican Movement for the Advancement of Literacy), a branch of the Ministry of Education, revealed that only 65% of the workforce were deemed functionally literate, whereas 35% of the population was at basic or below literacy. In a more recent study of the Jamaican education system, Luthy, Beckstrand, and Callister (2010) estimated that approximately two thirds of the adult population of Jamaica has not had the benefit of Grade 11 certification. At stake is the health knowledge of Jamaican mothers, which may be impacted by education and literacy level. This is problematic because research has demonstrated that women's literacy level is a marker of infant/child health (Ferguson, 2008).

Demographics, Low Literacy, and Maternal Health Literacy

Age, education, ethnicity, and income are the most common demographics associated with low literacy, and researchers have found links between one or more of these variables and maternal health literacy (Bennett, Switzer, Aquirre, Evans, & Barg, 2006; Cho, Plunkett, Wolf, Simon, & Grobman, 2007; Endres, Sharp, Haney, & Dooley, 2004; Kickbusch, 2001). The effects of low literacy on maternal health literacy can have serious consequences for both mother and child. Cho et al. (2007) found that low-income women in the United States with low literacy were more likely to misunderstand a prenatal screening test for neural tube defects than women with higher literacy. Bennett et al. (2006) reported that among low-income African Americans in their study, at least half had poor use of prenatal care (late initiation and low number of visits). Endres et al. (2004) investigated English- and Spanish-speaking women in the United States and found that low health literacy can have an adverse effect on a woman's knowledge about her pregnancy, endangering the health of the baby. According to Kickbusch (2001), a mother's level of education correlates closely with a child's risk of dying before the age of 2 years. It is important to continue observing links between demographic variables and health literacy in global populations. Researchers have explored these relationships in the United States, but absent from the literature is research focused on pregnant women in Jamaica.

Literacy and Communication

Many factors encroach on communication between patient and provider, including language, culture, literacy, and education level (Brugge, Edgar, George, Heung, & Laws, 2009). Increasingly, communication experts recognize the need for more evidence-based approaches for developing and testing health communication across modalities (Zarcadoolas, 2010). Even so, our investigation of the literature found gaps in communication and literacy research in developing Caribbean nations such as Jamaica. The lack of communication research in these settings may be due to a language barrier: Many non-Jamaican investigators, for example, have encountered difficulty with the Jamaican creole *Patois* ("patwa"), which is composed of different layers of world languages (Winford, 2008). Although standard English is the accepted language of the Caribbean, Patois is the first language for many Jamaicans, especially among the less educated and those living in low-income communities (Bryan, 2004; Devonish, 2007). To better implement health-related