Using Theory to Drive Influenza Related Text Messaging Interventions: A Pilot Study to Evaluate the Development of the Theory Based Influenza Related Text Messages Content for Clarity, Internal Consistency, and Content Validity

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ABSTRACT

The Advisory Committee on Immunization Practice recommends all children be vaccinated annually against Influenza. Given the increased use of technology as a strategy to increase immunization coverage, theory-based text messaging may result in higher vaccination rates than traditional vaccine reminders. This article describes the development of theory-based text messages for parents of 5 to 8-year-old children that can be implemented in primary care settings. The development of the text messages was guided by constructs from the Health Belief Model. A pilot study was conducted with community pediatric vaccine health care providers (n = 8), and parents of 5 to 8-year-old children (n = 8) to evaluate the text message content for clarity, internal consistency, and content validity. The evaluation results indicated that our intervention was successful in creating a low cost, theory-based educational intervention that garnered community investment and met the cultural relevance and literacy needs of the priority population.

Keywords: Health Belief Model, Influenza Vaccine Receipt, Intervention, Parental Beliefs, Text Message, Validity

INTRODUCTION

Every year there are 30-60 million individuals infected by Influenza disease and many of these are healthy children (Thompson et al., 2003; Centers for Disease Control and Prevention [CDC], 2011). In an era of increasing complexity of immunization schedules, office logistics (e.g., ordering, scheduling, administration, and billing) and rising expectations for quality of
primary care, it is important to develop and implement efficacious and effective interventions for primary care settings to increase immunization coverage. Influenza vaccination rates in the United States are far below recommended levels and researchers have had limited success using traditional vaccine reminders to increase vaccination rates. The recent use of technology as a strategy to increase immunization coverage may provide opportunities to increase children’s Influenza vaccination rates.

BACKGROUND

Children are almost four times more likely to be infected with Influenza than adults, shed the greatest quantities of Influenza virus, and have been recognized as vectors for spread of disease (Neuzil et al., 2000). During the Influenza season, health care providers see a 20% increase in office visits (Fiore et al., 2012) and are focusing their attention on prevention for healthy children who experience the majority of the 30-60 million infections every year (Thompson et al., 2003; CDC, 2011). In 2010, the Advisory Committee on Immunization Practice (ACIP) expanded its Influenza vaccination recommendation for all children > 6 months who do not have contraindications, to be vaccinated annually. This recommendation also states that vaccine naïve children up to 9 years of age receive two doses of the Influenza vaccine (CDC, 2010).

In spite of these national recommendations, the Influenza immunization rate for school-age children is 50.5% (CDC, 2013). Parents’ misperceptions of Influenza disease and vaccinations are often cited as the reasons for the low vaccination rates (Bhat-Schelbert et al., 2012; MacDonald et al., 2013; Salmon et al., 2005; Taylor et al., 2002). Numerous studies have found that a practitioner’s recommendation has a positive effect on raising immunization rates (Cheffins et al., 2011; Gnanasekaren et al., 2006; Taylor et al., 2002; Soyer et al., 2011; Bhat-Schelbert, et al., 2012). Cost-effective and tailored interventions to enhance the partnership between parents and providers are urgently needed to promote Influenza vaccination in families with children (Cheffins et al., 2011). Promising results have been found when using the Health Belief Model (HBM) (Chen et al., 2011; Coe et al., 2009). The HBM is particularly useful for targeting parents’ misperceptions and enhancing the practitioner-parent relationship by increasing communication thru education (Coe et al., 2009).

Innovative, theory-based solutions that incorporate mobile technology may be used to bridge gaps and reduce disparities in health (Ashers-Schmidt et al., 2010). There are over 200 million cell phone users in the United States. Mobile phone use and ownership is the first technology to reach across demographic and socioeconomic status, creating an opportunity to transform the landscape of healthcare delivery (Ashers-Schmidt et al., 2010). Over 87% of African Americans and Latinos and 80% of Whites own cellular phones and approximately 72% of users send or receive text messages (Ashers-Schmidt et al., 2010). Mobile technology using SMS text messaging may increase vaccination rates to a greater extent than traditional vaccine reminders (Daley et al., 2004; Kharbanda et al., 2011; Stockwell et al., 2012). SMS is the text messaging service component of phone, web, or mobile communication systems. It is the simplest and most common type of mobile data service enabling senders to communicate with short messages (approximately 160 characters or less) between cell phones (CDC, 2011). Key advantages of SMS delivery include dialogue initiation, tailoring of content, and interactivity (Fjeldsoe et al., 2009).

To date, only one randomized controlled trial has tested text messaging in a primary care clinic to increase Influenza vaccination rates in children. This study evaluated text message reminders for low-income, urban parents of children aged 6 months to 18 years (N=9213). Parents in the intervention group received a series of 5 weekly, automated text messages influenza vaccine reminders. The first three text messages provided information on vaccine safety and the seriousness of influenza. The
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