Parental Access to Technology and Its Relation to Childhood Vaccine Adherence

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RESEARCH PROBLEM

- Despite advancement in vaccinations, adherence to vaccinations is not 100% (Center for Disease Control, 2016).
- Reasons for this nonadherence include parental knowledge of vaccines, parental religious preferences, parental perception of vaccines, and parental access to health-related information regarding vaccines (Omer et al., 2009).
- One method to try to improve access to health-related information includes electronic Health or eHealth interventions, defined as the use of mobile phones and other wireless devices to disseminate health information.
- Recent research found that 95% of the population owns a mobile phone, and of those over half have accessed health information from their phones (PEW Research Center, 2013).
- Royston et al. (2015) concluded many if not all low income and middle-income families have access or own a mobile phone but at times the "as-needed health-care information" is either not appropriate, lacking, or cause for confusion for those with low health literacy and low literacy in general (p.356).
- Despite the increase in technological advances, some parents still seem skeptical about these new methods to access health related information.

RESEARCH PURPOSE

The aim of this integrative review is to explore if parental access to technology affects vaccine adherence for children less than 18 years of age; primarily parental hesitancy regarding vaccinations even amid new technological advances that facilitate access.

RESEARCH QUESTION

"How does parental access to technology affect childhood vaccine adherence?"

THEORETICAL FRAMEWORK

- Polly Ryan's (2009) integrated theory of health behavior change was used as the framework.
  - Suggests that health behavior change can be enhanced "by fostering knowledge and beliefs, increasing self-regulation skills and abilities, and enhancing social facilitation" (p.1).
  - Social facilitation includes social influence and social support.
  - Social influence is experienced when a knowledgeable person in a position of perceived authority sways another's thinking and motivation leading to engagement in behavior.
  - Knowledgeable people range from healthcare providers to individuals involved in printed and electronic communication.
  - Social support consists of emotional, instrumental, or informational support which helps to engage in health behavior (Ryan, 2009).

METHODOLOGY

- Integrative Literature Review
- Identified works by searching CINAHL and Google Scholar for articles published in English within the last five years.
- The search strategies focused on finding keywords: *technology, vaccines, mobile health, vaccine adherence, adolescents, and childhood*.
- Inclusion criteria were: 1) written in English, 2) completion of a technological related intervention 3) parents of children and adolescents and 4) vaccine related.
- The studies included varied regions including the United States, Germany, Bangladesh, and Canada which speaks to the globality of the research topic.
- The studies also looked at various technological methods including mobile applications, cell phone reminders, and online educational seminars, highlighting the vast variety of applications.
- Identified were qualitative, quantitative, and mixed methods studies

SYNTHESIS of the LITERATURE

Parental access to technology affects vaccine adherence due to the delivery of information, the quality of information, and the involved parties.

Delivery of Information

- Awadh et al., (2014) implemented an educational animated movie and PowerPoint presentation to increase parental knowledge about childhood immunizations.
- Peck, Stanton, and Reynold (2016) coined the term smartphone preventive health care and concluded that parents were in fact interested in using newer forms of technology for receiving communication from their providers about vaccination. Similarly, when parents were exposed to a mobile application to aid in keeping track of their children's vaccine records and understanding the vaccine status of their children, vaccine adherence improved.
- In addition, parents felt more knowledgeable about vaccines to ask pertinent questions regarding these vaccines at their child's office visits (Seeber et al., 2017).
- Delivery of information becomes most crucial when the population is in a remote or underserved area. Another mobile phone application was implemented to send reminder text messages to mothers who lived in rural parts of Bangladesh and was successful in increasing vaccination coverage among children in rural hard to reach areas (Uddin et al., 2016).
- Gowda and Dempsey (2013) concluded that the delivery of information is also heightened by the deliverer and agreed that media has played a role in enforcing and disseminating views related to vaccine hesitancy and refusal and further concluded that parents were more likely to heed the instruction of an influential figure, such as a celebrity when yielding one way or the other.

Quality of Information

- Gowda and Dempsey (2013) reported that vaccine hesitant parents were more open to altering their misconceptions when they received tailored information specific to their attitudinal barriers.
- Likewise, culturally competent information can impact quality of information (Lee et al., 2014).
- Quality of information was parent specific as many parents, although open to mobile phone applications, were specific in what information they wanted delivered.
- Most requested were the date immunizations were due, why vaccines were being given, and other non-vaccine information regarding next physical due date and what to bring to vaccine appointments (Ahlers-Schmidt et al., 2014).

Involved Parties

- The primary influence in parental access to technology are providers.
- Ventola (2016) confirmed that absent or weak recommendations from health care providers are primary drivers for poor vaccine uptake.
- Hofstetter et al. (2013) affirmed that providers must be supportive of technological methods available by ensuring that parental cell phone numbers are updated and current, parents are properly instructed in how to use either the mobile phone application or online application correctly, and parents are given proper support to fully execute these technological methods.

IMPLICATIONS for NURSING PRACTICE

- Providers need to know how to integrate these new technologies into their practice, so that these new modalities will not hinder patient-provider relationships but rather strengthen them.
- Although, the mobile applications studied included some text reminders, vaccine information, and vaccine reminders; they still were a tool to engage the patient and their caregivers in their care.
- When technological methods are grouped into a broader term: information and communication technologies, their implications for nursing become clearer.
- These technologies create connections between patients, healthcare providers, and even healthcare organizations.
- The advancement of technology allows more opportunity for the practitioner to further develop their knowledge and so become that reference point for their patients.

RECOMMENDATIONS for FUTURE RESEARCH

- Further research must explore vaccine adherence regarding specific vaccines, specific age groups, specific populations and in specific geographic regions.
- Longitudinal studies would be beneficial to evaluate health behavior changes over time.
  - The expanding field of eHealth allows for many outlets and interventions to be researched.
- Important to research all barriers parents faced even with mobile phone interventions.

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