Virtual Patient Advocate Delivers Preconception Care to Improve Pregnancy Outcomes

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Results of a pilot study suggest that a virtual patient advocate (VPA) could help influence positive changes and help women have healthier pregnancies. Developed at Boston University School of Medicine (BUSM), Boston Medical Center (BMC) and Northeastern University, "Gabby" is an innovative tool developed to deliver preconception care (PCC) to African-American women through interactive conversations online.

The study results, which are published online in the American Journal of Health Promotion, suggest that Gabby could help identify risk factors and influence positive changes in women before they conceive and decrease the risk for adverse birth outcomes. Paula Gardiner, MD, MPH, assistant professor at BUSM and family medicine physician at BMC, is the paper's first author. Brian Jack, MD, chief and chair of family medicine at BMC and BUSM, respectively, is the paper's senior author. Timothy Bickmore, PhD, associate professor in the College of Computer and Information Science at Northeastern, collaborated on this study and led the development of the software on which Gabby is based.

PCC addresses family planning, medical conditions and preventive behaviors in a primary care setting. The Centers for Disease Control and Prevention (CDC) developed evidence-based best practice guidelines for PCC, but there is a need for more comprehensive PCC implementation. Statistics show that approximately half of pregnancies in the U.S. are unplanned. According to the CDC, the fetal mortality rate for non-Hispanic African-American women in 2005 was 2.3 times the rate for non-Hispanic white women.

"Because approximately half of pregnancies in the United States are unplanned, delivering preconception care during general wellness visits could help reduce infant and maternal mortality rates," said Gardiner.

In order to develop a VPA that participants could identify with and trust, researchers conducted usability studies to gather recommendations from participants about the name, gender and physical appearance of the VPA. Previous research has shown that African-Americans prefer a VPA who is their same race and gender, and the results of these studies also indicated that participants would feel comfortable discussing PCC health topics with a VPA who was a young, female health care provider. These results helped the researchers create Gabby.

Women between the ages of 15 and 25 interact and engage with Gabby online by answering her questions about current health habits and conditions. Through this interactive dialogue, where participants can pick from answers or write in their own, Gabby screens for PCC risks, educates the participants about their risks and

assesses whether they are ready to make lifestyle changes to decrease their risks. Based on participant's responses, Gabby helps create a custom "My Health To-Do List," which users can review and share with their providers.

Participants reported an average of 23 preconception risks. In the two-month pilot study, 83 percent of the risks added to the "My Health To-Do List" were either addressed or resolved by the users by the end of the pilot. For example, if a woman identified that she was not taking folic acid at the beginning of the pilot but had bought a folic acid supplement, she had addressed the risk. If she started taking it by the end of the pilot, she had resolved the risk. Therefore, Gabby was effective in helping those who were contemplating behavior change to move forward and take action.

The participants indicated that the Gabby system is a valuable addition to their health care routine and could be used either to prepare for an appointment with a provider or to reinforce information discussed during an appointment. They found Gabby trustworthy and reliable and found that she provided helpful information in an appropriate amount of time. The results also show that Gabby addressed some barriers to translating PCC best practices to clinical care, such as ease of delivery and patient acceptability.

"These results suggest that using Gabby as a PCC tool could be effective in helping deliver PCC to African-American women," said Jack. The researchers are working to expand on these results and have been recruiting for a randomized control trial to test whether participants who receive PCC with Gabby will have fewer preconception risk factors after six months than participants in a control group. They will enroll 100 young African-American women from across the country.

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