INCREASING WOMEN'S PRECONCEPTION HEALTHCARE KNOWLEDGE AND SELF-EFFICACY: A QUASI-EXPERIMENTAL COMMUNITY-BASED STUDY IN AN UPPER GREAT PLAINS STATE

C. Lammers MD, MPH, M. Jenson PhD, S. Stluka MS, RD, K. Wilson-Sweebe MS, M. Zastrow MS.
SDSU College of Nursing; Psychology Depart.; and Extension- Family – Rural Health Research Center Collaborative Seed Grant- SDSU/RHRCFY13

Background: Preconception healthcare (PCHC) addresses the health of reproductive–aged women and men before pregnancy, recognizing the impact that pre-pregnancy health has on birth outcomes and infant mortality [1,2]. In the U.S., adverse birth outcomes continue to challenge health providers and researchers and are the main contributors to the national infant mortality rate (IMR) [3]. The Select Panel on Preconception Care convened by the Center for Disease Control and Prevention (CDC) defines preconception health care "…as a set of interventions that aim to identify and modify biomedical, behavioral, and social risks to a woman's health or pregnancy outcome through prevention and management" (p. 3-4) [4]. For over a decade, the CDC and professional health organizations have lauded the importance of preconception healthcare, encouraging health providers to provide these evidence based services [2,4,5]. A recent assessment of 1,426 reproductive-aged women in South Dakota showed that although 89% saw a health provider within twelve months of the survey, one-half were not aware of PCHC, and 56% received three or fewer of the recommended PCHC services. Although most thought women's health before pregnancy was important, 1/3 were not interested in receiving PCHC, suggesting women are not well informed about the importance of PCHC [Lammers -Unpublished data].

The Health Belief Model (HBM) is one of several behavioral change models shown to be effective to provide knowledge and to increase individuals self-efficacy to adopt healthier behaviors [6,7]. The purpose of this study was to determine if a woman-centered educational program that uses the Health Belief Model as a framework, will increase PCHC awareness, and empower reproductive-aged women to seek PCHC services and adopt healthier behaviors before conception.

Objectives: (1) Develop and implement a community based, learner-centered educational program to increase women's PCHC knowledge; (2) Demonstrate an increase in women's self-efficacy to access PCHC services and adopt healthier behaviors before conception.

Methods: A quasi-experimental, two-group, pre-posttest design was used to evaluate a community-based intervention. Recruitment of women ages 18 to 45 took place from the community at large and at Women, Infant, Children programs from Feb. 2013 to Nov. 2014. Approval was obtained from the IRB at South Dakota State University. Eighty five women from four small towns in four rural SD counties participated in the study; 44 women in the comparison group and 41 in the study group completed pre and posttest validated questionnaires that measured PCHC knowledge and the six HBM constructs (perceived susceptibility; benefits; severity; barriers; self-efficacy; cues for action). The study group received two interactive educational sessions a week apart. The intervention protocol, developed and implemented by the investigator, focused on the HBM constructs to provide information about PCHC and to identify concrete actions to help participants develop self-efficacy to obtain PCHC before conception.

A 2(group) X 2(pre/post) mixed-model ANOVA was used to assess the effect of the intervention on PCHC knowledge and HBM scores. A dependent t-test compared HBM subscales scores. An alpha value of .05 was considered statistically significant. SPSS® software, version 22 (SPSS Inc., Chicago, IL) was used for statistical analysis.

Results: There were no statistically significant differences in age, education, marital status, health insurance, income, and history of unintended pregnancy between groups. Mean age was 28.6 (SD 7.0) years, most had a primary health care provider, and were White,10% were American Indian. **Results within the study group subjects demonstrated a significant increase in PCHC knowledge (p=.021), and in the HBM summary score (p= .009)) after the intervention. Results between groups also demonstrated a significant increase in PCHC knowledge (p<.001) and in the HBM summary score (p=.015) in the study group. HBM subscale analysis showed a significant increase in the perception of risk (p=0.010), severity (p=0.041), self-efficacy (p=.015), and cues for action (p=.007) in the study group.**

Preconception Healthcare (PCHC) QUIZ (USDHHS) (5 points Likert scale)
PCHC only matters if you have health problems
A reproductive life plan (a woman's plans of pregnancy) is an agreement a woman makes with her doctor
Unplanned pregnancies are at greater risk of preterm birth and low birth weight
Only pregnant women need to take folic acid
About one in eight babies is born too early
Men don't need preconception healthcare
Women should make an appointment with their doctors to discuss their PCHC at least one month before becoming pregnant
It's OK to drink alcohol when you're trying to become pregnant
Men can improve their own reproductive health by limiting alcohol and quitting smoking and illegal drug use
Health Belief Model Measurement (6,7) (5 points Likert scale)
If I plan when to get pregnant I could avoid tobacco and other things that can hurt me and the baby (Benefit) (.529)
If I eat more fruits, green vegetables, beans, and cereal, or take folic acid in case I get pregnant, I' feel better (B)
If I am in better health it will benefit me and the baby (B)
Pregnancy is a normal event, I don't need to change what I do or eat (Risk) (.297)
I could get pregnant and not know it right away (R)
I don't know enough about the methods to prevent a pregnancy (Barrier) (.730)
I can't pay for a visit to a clinic to get a PAP smear, vaccines, or ask about health risks (B)
It would cost too much to eat well, take vitamins and use the best method to avoid pregnancy (B)
I could get pregnant and my baby could get sick if my vaccines are not up to date, I take medicines, or use other substances (Severity) (.662)
If I have a baby with a birth defect, or too early, or too small it can cause his or her death (S)
I can talk to a doctor or a nurse about how not to get pregnant if I want to (S-Efficacy) (.542)
I know what can harm the baby early, while I don't know I am pregnant and I can avoid the risks (SE)
TV ads could remind me what to do to be healthy in case I get pregnant (Cue) (.810)
The clinic could call or send a card to remind me what to do to stay healthy (C)
Posters or text messages, will remind me to get folic acid every day (C)

Discussion & Conclusions: Interventions to improve pregnancy outcomes in the United States have produced variable results [3,5,8,9]. Mass media campaigns increase health awareness, but interpersonal communication and education are more effective to change behaviors [9]. Misra & Grason (2006) posited the need to consider an integrated reproductive health framework, which includes the health of a woman throughout her lifespan. Within this timeline, we can identify preconception and inter-conception periods starting after menarche, as periods to provide PCHC [10]. However, preconception healthcare is an underutilized intervention.

Despite the limitations of this study (convenience sample, sample size, external validity), the findings support that providing preconception healthcare education to reproductive-aged women using the HBM as a framework to promote behavioral change, not only increases women's knowledge, but also empowers them to take action to obtain PCHC services. Further research should identify strategies to make women PCHC education available, and to assess the need to also increase PCHC awareness among healthcare providers.

These findings are also important for the development of new healthcare delivery systems, implementation of the Affordable Health Care Act prevention and health promotion services, and to develop preconception health policy to improve birth outcomes and infant mortality.

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