



Impact of a brief intervention on cervical health literacy: A waitlist control study with jailed women

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ABSTRACT

Jailed women are four-five times more likely to have had cervical cancer compared to women without criminal justice histories. Previous research has shown that an important contributor to cervical cancer risk, and perhaps lack of follow-up, is incarcerated women's low health literacy about broader reproductive health issues. Little work has been done to address this disparity. Thus, the objective of this study was to test the effectiveness of an intervention to improve incarcerated women's cervical health literacy and ultimately address cervical cancer disparities. Using a waitlist control design, we compared changes in cervical health literacy (knowledge, beliefs, self-efficacy, and confidence for screening and follow-up) among 188 incarcerated women who completed a 10-hour intervention between 2014 and 2016 in three Kansas City jails. We used bivariate tests and multivariate analyses that controlled for baseline cervical health literacy level and key covariates. Women in the intervention group showed significant gains in seven out of eight cervical health literacy domains (all $p < 0.01$), whereas the control group only improved in one domain ($p < 0.01$). When controlling for covariates, the intervention group had less barriers, perceptions of seriousness, susceptibility to disease, and increased self-efficacy for cervical health screening and follow-up, compared to the control group (all $p < 0.05$). A brief intervention is an effective way to improve jailed women's cervical health literacy, but should be provided alongside systemic efforts that expand access to correctional preventive health services, including the human papillomavirus vaccine, community-based cancer screenings, and health insurance after women leave jails and transition back to communities.

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1. Introduction

Over the past 40 years the U.S. has witnessed a significant drop in cervical cancer rates, due to longstanding routine Papanicolaou (Pap) testing, new advances in human papillomavirus (HPV) typing, HPV vaccine, and most recently, expanded coverage for women's health services through the Affordable Care Act (ACA) (Centers for Disease Control and Prevention (CDC), 2016; Koh & Sebelius, 2010). However, the most vulnerable women in the U.S. – the one million American women in jails and prisons, or under community correctional supervision – may have missed the benefits of these interventions altogether (Kaeble et al., 2015; Binswanger et al., 2009). This group of women, particularly in the industrialized countries where research has been conducted over the last four decades, has demonstrably higher rates of cervical cancer, abnormal Pap test histories, and lower rates of Pap screening compared to women without criminal justice histories (Binswanger et al., 2009;

Audet-LaPointe, 1971). To date, there is little data available on incarcerated women's experiences with HPV vaccine, though recent studies indicate that these women are likely under-vaccinated as well (Ramaswamy et al., 2011).

The path to poor cervical health among incarcerated women starts early, as they bear the burden of all the markers of cervical cancer risk: poverty, low education, tobacco use, early sex initiation, a lifetime of exposure to sexual and physical trauma, and other risks like high rates of HPV and histories of sexually transmitted infection (STIs) (Ramaswamy et al., 2011; Herbst et al., 2016). However, most incarcerated women in the U.S. have had exposure to routine cervical health screening as they are of childbearing age and have had, on average, two pregnancies (Ramaswamy et al., 2011; Binswanger et al., 2005). These studies report routine Pap screening rates among incarcerated women in the U.S. as high as 84–90% (Ramaswamy et al., 2011; Binswanger et al., 2005), though others report that less than half of these women gain access to recommended clinical follow-up after an abnormal Pap test (Martin et al., 2008). In probing incarcerated women about their Pap screening and follow-up experiences, we and others have found that they do in fact report low levels of cervical health literacy (Binswanger et al., 2005; Ramaswamy et al., 2015), which may

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partly explain their poor cervical health outcomes relative to the general population.

The Institute of Medicine (IOM) report, *Health Literacy, A Prescription to End Confusion*, says that, “Health literacy level is the product of a complex set of skills and interactions on the part of the individual, the health care system, the education system, and the cultural and societal context” (Nielsen-Bohlman et al., 2004). Incarcerated women have uniquely complicated barriers when it comes to cervical health literacy – specifically, complex risk histories and environments that may affect their ability to act on knowledge about cervical health. For example, one barrier to knowledge stems from frequent STI checks, which inadvertently cause confusion over pelvic and Pap screening (Kelly et al., 2017). Furthermore, these women’s long trauma histories tend to impact on their beliefs about Pap screening – that is, an expectation of fear, discomfort, and questionable safety during gynecological exams (Ramaswamy & Kelly, 2015). Finally, their self-efficacy for Pap screening and follow-up may be compromised by drug use; mental health problems; trading sex for money, drugs, or shelter; and a lifetime of cycling in and out of the criminal justice system (Ramaswamy & Kelly, 2015; Clarke et al., 2007).

Thus, we operationalize cervical health literacy broadly as knowledge, beliefs, self-efficacy, and confidence for navigating health systems, in part as a reflection of the IOM report and our own need to tailor an intervention to the high-risk group of women we work with given the unique risk histories and environments in which they interact (Ramaswamy et al., 2015). We developed the Sexual Health Empowerment (SHE) Project (Ramaswamy et al., 2015), an intervention focused on “interactive health literacy” (Nutbeam, 2000), where we impart both knowledge and skills to increase women’s cervical health literacy. Our objective was to test the effectiveness of an empirically-based, theory-informed, and pilot-tested cervical health literacy intervention designed to reduce the persistent cervical health disparities faced by incarcerated women.

2. Methods

2.1. Study site

Participant recruitment occurred at three county jails that straddle both sides of the Kansas City, Kansas and Missouri state line. The two urban jails had capacity for 800 and 300 inmates each; the third jail in a suburban location had capacity for 1000 inmates. Fifteen percent of the total population was female. The two urban jails were within five miles from a major medical center, and the third was about 10 miles from the nearest hospital. Health departments, low-cost clinics, and community-based behavioral health clinics serve the area. Inmates in all three facilities undergo a medical intake process and can request medical treatment and medicines for a fee through jail health services (indigent patients accrue debt), which were contracted out to correctional health care corporations at each of the facilities. Preventive health care services, for example Pap tests and STI screening, were not available unless medically necessary.

We recruited participants on a rolling basis at minimum and medium security housing units in 26 intervention cohort groups across the three facilities from September 2014 to March 2016. Fig. 1 describes average daily census, recruitment, and intervention participation.

2.2. Intervention

The SHE Project was a cervical health literacy intervention designed to improve incarcerated women’s knowledge about cervical health, reduce barriers to screening and treatment that stem from beliefs about cervical cancer, improve self-efficacy for cervical cancer screening and follow-up, and increase women’s confidence for navigating interactions with health care providers and systems (Ramaswamy et al., 2015 and see Fig. 2). The content of these individual sessions was driven by our

own data collection on the cervical health literacy of incarcerated women (Ramaswamy & Kelly, 2015), as well as the general literature on cancer health literacy and unique barriers that incarcerated women might face (Hunter, 2005; Eggleston et al., 2007; Binswanger et al., 2011; Lindau et al., 2006; Magee et al., 2005). But the overall flavor of the intervention was rooted in social and feminist theory. We sought to understand women’s experiences within their social and political contexts, emphasizing: the role of romantic and sexual partnerships, family, and community in women’s lives; the impact of race, class, and gender on specific health outcomes; and a rejection of status quo values and assumptions about women in general (Bourdieu, 1984; Andrist & MacPherson, 2001).

The intervention was delivered in small-group format on five sequential days, each for a two-hour period, resulting in 10 total hours of contact. The group format was selected to allow women to leverage the social capital in the room, and sort through the strengths and weaknesses brought to the group, given women’s insider knowledge of communities, correctional facilities, and the streets. Finally, we developed the intervention for short-term correctional facilities with lower security housing units so we could track for a subsequent study the long-term cervical health screening and follow-up outcomes for women as they transition back to their communities.

2.3. Study design, sample, and procedures

We employed a waitlist control design to evaluate the effectiveness of the intervention. We chose this design to address the ethical dilemma of using an untreated control group, since we felt strongly that all participants would benefit from a reproductive health intervention beyond just providing pamphlets or some other form of basic self-directed health education. Thus, in each cohort we systematically assigned half the participants to receive the intervention in week one, and the other half to receive the intervention in week two (see Fig. 1), with the latter group comprising the waitlist control group for each recruitment cohort.

Systematic intervention group assignment occurred according to seating during consent: every other person went to the week one group (intervention group), while the rest went to the week two group (waitlist control group). There were no exceptions to this, unless ≤ 5 participants were recruited during a cohort, in which case all participants were assigned to the intervention group, resulting in a slightly imbalanced sample (54.4% intervention cases and 45.6% control cases). The intervention and waitlist control groups were similar on all sociodemographic and health history characteristics (see Table 1), except more women in the control group had an abnormal Pap test history or HPV diagnosis (61.8% vs. 44.6% and 18.4% vs. 11.7%, respectively, $p < 0.05$). We have no information about what accounted for these differences.

Participants were eligible for the study if they were sentenced to a minimum or medium security housing unit in the adult facility, which held women age 18 or older. Though we know routine Pap screening is not recommended for women under age 21, we did not want to exclude younger women from the anticipated benefits of a cervical health literacy program. There were no medical exclusions barring eligibility, since our endpoint was to assess the effectiveness of a cervical health literacy program regardless of past medical experiences. Though we did not formally screen for psychological distress, we did not enroll women if they exhibited distress that would impede our ability to obtain written consent (only one person met this exclusion criteria).

We recruited participants several ways: by posting flyers in the housing units advertising the availability of a sexual health educational program; through word-of-mouth recruitment from special programs staff, correctional officers, jail case managers, and other participants; and via direct discussion of the program by study staff in the women’s housing units. Interested individuals signed up and were brought to the special programs room at each jail, or to the common area of the

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