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Predictors of adherence to follow-up recommendations after an abnormal Pap smear among underserved inner-city women

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ABSTRACT

Objectives: This study aimed to identify cognitive-affective predictors of adherence to initial diagnostic colposcopy and 6-month follow-up recommendations among underserved women.
Methods: A secondary data analysis was completed of a randomized clinical trial assessing tailored telephone counseling for colposcopy adherence after an abnormal screening Pap smear among 210 underserved inner-city women.
Results: Adherence to initial diagnostic colposcopy was significantly associated with greater self-efficacy (OR = 1.504, 95% CI 1.021–2.216). Women with lower monitoring attentional style had significantly greater adherence to 6-month follow-up recommendations compared to women with higher monitoring scores (OR = 0.785, 95% CI 0.659–0.935).
Conclusion: Increasing cervical cancer-related self-efficacy and tailoring cervical cancer risk communication to monitoring attentional style may help improve adherence to follow-up recommendations after an abnormal Pap smear test result.
Practice implications: Future research is needed to develop and implement psychosocial approaches to improving adherence to diagnostic colposcopy and follow-up recommendations adherence among underserved women.

1. Introduction

An estimated 12,990 women will be diagnosed with cervical cancer in 2016 and while overall incidence rates have decreased in the U.S., racial and ethnic minorities experience greater incidence and mortality rates [1]. The reduction of invasive cervical cancer incidence can be attributed to the Pap smear, a well-established screening test that allows for appropriate and timely evaluation of abnormal test results and treatment of precursor lesions [2]. However, rates of adherence to diagnostic colposcopy and follow-up recommendations continue to be less than optimal, with the lowest adherence rates occurring among low-income [3,4], less educated [3,5,6], and minority women [4–8], with reported rates as low as 20%, more typically ranging from 50 to 70% [4,7–9]. The lower adherence rates among underserved women may contribute to the disproportionately higher incidence of and mortality from cervical cancer among underserved minority women [10,11]. Thus, it is important to delineate the psychosocial factors, as well as sociodemographic characteristics, associated with non-adherence to follow-up care after an abnormal screening result [9,12].

The Cognitive-Social Health Information Processing (C-SHIP) model has been utilized as a general theoretical model of health behaviors that specifies key cognitive-affective constructs that interact dynamically to facilitate or undermine health protective behaviors [13]. The C-SHIP model has been previously used to conceptualize five cognitive-affective constructs associated with cancer prevention and control for cervical cancer [6,14,15]. Risk perception of developing cancer [16,17], perceived confidence (i.e., self-efficacy) about returning to the clinic for the recommended follow-up [18], and cancer fatalism [19] (i.e., the belief that having cancer is predetermined and death is inevitable when cancer is present [20]) are cognitive-affective factors that have been shown to contribute to non-adherence to diagnostic follow-up after

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receiving an abnormal Pap smear test result. At the affective level, abnormal Pap smear test results and referral for diagnostic colposcopy often activate fear or distress about having cancer [21]. However, the association between distress and adherence to follow-up for an abnormal Pap smear test result is unclear and inconsistent [7,18,22].

The C-SHIP model also delineates a distinctive concept of monitoring attentional style [13]—the extent to which the individual searches for health relevant information [21]. Cognitively, high monitors generally scan for, and magnify disease-related cues, whereas low monitors tend to distract from, and psychologically "blunt" threatening medical feedback [21]. Emotionally, because high monitors perceive themselves to be at greater personal risk for disease, they exhibit greater levels of intrusive risk related distress and use avoidant coping style, especially when the risk is more intense or prolonged [21]. Under conditions of low threat, such as routine screening (e.g., adherence to Pap screening), high monitors' attentiveness to threat promotes adherence [21,23]. However, when the threat level rises, such as when an abnormality is detected after a Pap smear and uncertainty is raised, high monitors become overly anxious and preoccupied with threat [23–26]. This preoccupation, in turn, may undermine sustained adherence to follow-up over time [27], in an effort to manage and reduce distress. However, there is no currently published literature that has explored the relationship between monitoring style and adherence to follow-up after an abnormal Pap smear test result.

In order to more accurately identify predictors of adherence, there is a need to define these behaviors more finely, distinguishing between timely and delayed adherence, as well as between initial adherence and adherence over time. Initial adherence to abnormal Pap smear follow-up is inconsistently defined among published studies. Adherence has been defined as diagnostic colposcopy 3 months post-notification of an abnormal Pap smear test result [28,29], consistent with existing follow-up guidelines [30]. However, many studies do not differentiate timely versus delayed adherence [5,31] and define adherence broadly within a time frame ranging from 4 weeks to 18 months after receipt of an abnormal Pap smear test result [4]. As timely adherence to treatment and follow-up care reduces the risk of progression to invasive cervical cancer and delays are associated with more aggressive treatment at a later date [19], the adherence timeframe used within a study should be consistent with current medical guidelines to better understand the implications of predictors associated with delayed or no adherence. Furthermore, current guidelines for the management of cervical abnormality include 6- to 12-month follow-up after the initial colposcopy procedure [32], however, while some studies have examined follow-up beyond initial colposcopy [8,31,33], no published studies have examined potential associations between cognitive-affective factors and adherence to longer-term follow-up recommendations.

The purpose of present study was to examine whether cognitive-affective and sociodemographic factors are associated with timely adherence to diagnostic colposcopy and long-term follow-up recommendations, particularly among a less well-studied urban group: non-Hispanic Black women. In our previous work, we have shown that the C-SHIP-based cognitive-affective factors are significant self-reported barriers to follow-up adherence after an abnormal Pap smear test result [6]. Hui and colleagues [6], however, only assessed perceived barriers to adherence and not actual adherence behavior at the time of initial colposcopy or with respect to follow-up recommendations. Therefore, this study examined key cognitive-affective factors following the C-SHIP model (i.e., risk perceptions, self-efficacy, fatalism, distress, monitoring style), as well as sociodemographic factors (e.g., age, ethnicity, employment status) to identify: (1) predictors of timely adherence, delayed adherence, and non-adherence to initial diagnostic colposcopy and (2) predictors of timely adherence to 6-month follow-up recommendations after the initial colposcopy. Based on evidence and theory, we hypothesize that timely adherence to initial colposcopy and 6-month follow-up recommendations is positively associated with higher levels of risk perception and self-efficacy, and negatively associated with fatalism. We also examine the role of distress in a more exploratory fashion given the inconsistencies in the literature [7,18,22]. In addition, since past research demonstrates high monitors ultimately experience greater concerns, more prolonged distress, and greater sensitivity to and side effects from diagnostic regimens, they tend to increasingly avoid cues that trigger such effects, i.e., dealing with abnormal Pap smear test results [23,25,27,34]. Hence, we hypothesize high monitors have poorer adherence over long-term follow-up compared to low monitors.

2. Methods

This is an ancillary study to a randomized clinical trial (clinicaltrials.gov registration number NCT01561326) assessing tailored telephone counseling for colposcopy adherence [15]. Participants in the parent study were randomized into three conditions: (a) enhanced standard care (written notification of abnormal Pap smear test result, a telephone appointment reminder, and a telephone barriers assessment); (b) enhanced standard care and mailed print brochure tailored to barriers assessed; and (c) enhanced standard care and telephone counseling tailored to barriers assessed [15]. The parent study found participants that received telephone counseling had significantly greater adherence to follow-up recommendations than participants in the enhanced standard care or mailed print brochure conditions [15]. The relationships assessed are those that were independent of the effects of the three conditions evaluated in the parent study.

2.1. Participants

A total of 210 women who were scheduled for diagnostic colposcopy due to an abnormal Pap smear test result were recruited between May 2006 and June 2010 from Temple University School of Medicine Women's Care Center Colposcopy Clinic in North Philadelphia, Pennsylvania, which serves a predominantly low-income non-Hispanic Black population. Patients were excluded from the study if they were younger than 18 years old, unable to communicate readily in English, had a history of malignancy, had current evidence of invasive carcinoma of the cervix or another life-threatening medical condition, or displayed symptoms of severe cognitive confusion.

2.2. Procedure

Patients with an abnormal Pap smear test result were notified via mail about their results and a scheduled appointment date for a follow-up diagnostic colposcopy, along with phone numbers for the colposcopy clinic. Approximately 2–4 weeks prior to the initial colposcopy appointment, a research nurse contacted the patients to confirm the upcoming colposcopy appointment and to inform the patient about the study opportunity and invited the patient to be transferred to research study staff to learn more. Patients who were transferred to a research study staff member and provided verbal consent were administered the baseline assessment, which included socio-demographic and cognitive-affective measures. They were then randomized to one of the three study conditions (enhanced standard care, tailored print intervention, and tailored

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