



Published in final edited form as:

*Patient Educ Couns.* 2017 July ; 100(7): 1353–1359. doi:10.1016/j.pec.2017.01.020.

## 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.

### Keywords

Cervical cancer risk; Abnormal Pap smear; Colposcopy; Psychosocial adherence predictors; Initial and follow-up behaviors

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#### Declaration of conflict of interest

The author(s) declare(s) that there is no conflict of interest.

I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

## 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 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 telephone intervention) via a computerized randomization algorithm. Verbally consenting participants were sent a written informed consent document in the mail for them to sign and return in a pre-stamped envelope. Those who returned the written consent form were included in the final sample. Full details of the intervention groups and the trial results are provided elsewhere [15].

Participants in the final sample (N = 210) were followed prospectively to assess their adherence to initial diagnostic colposcopy and 6-month follow-up recommendations as determined by medical chart review. Those who did not present at the colposcopy clinic within 3 months of their original appointment date were tracked for an additional 9 months, thus spanning a 12-month follow-up period for initial colposcopy. Adherence to 6-month follow-up recommendations was assessed by medical chart review at 9-months post-initial colposcopy. Consistent with the clinical guidelines from the American College of Obstetrics and Gynecology [35] for the management of abnormal Pap smear test results and cancer precursors, patients without lesions or with CIN 1 on biopsy at the initial visit were asked to

return for a repeat colposcopy or Pap smear within 6 months. Patients with CIN 2 or 3 on biopsy were scheduled for treatment within 6–8 weeks. Treatment included cryosurgery, laser vaporization, or excision of the cervical transformation zone. After treatment, patients were asked to return for follow-up in 6 months. Women with CIN2 or 3 on biopsy (n = 30) were included in the post-colposcopy follow-ups.

### 2.3. Measures

**2.3.1. Demographics and Cognitive-Affective predictor variables**—At baseline, participants completed a questionnaire assessing sociodemographic and cognitive-affective factors. *Self-efficacy* in managing the risk of cervical cancer (2 items) and *perceived risk* for cervical cancer (1 item) were assessed using two author-constructed cognitive-affective variables. These measures are consistent with measures used in previous research [14,36] and were assessed using a 5-point scale (1 = strongly disagree to 5 = strongly agree). A mean composite score was created for self-efficacy. *Fatalism* was assessed by The Powe Fatalism Inventory [37], consisting of 15 yes/no questions. The 7-item intrusion subscale of the Revised Impact of Events Scale (RIES) [38], was used to assess *affective distress* concerning cervical cancer screening using a 4-point scale (0 = not at all to 3 = it happened often). Finally, *monitoring attentional style* was assessed with the Monitoring-Blunting Style Scale (MBSS) [39]. The monitoring scale is designed to assess individual differences in monitoring attentional style with 8 *yes/no* statements about two stress-evoking situations and a total sum is created. Consistent with the theoretical focus in the present study, only the monitoring score was used.

#### 2.3.2. Adherence outcomes

**2.3.2.1. Adherence to initial diagnostic colposcopy appointment:** Patients were considered *timely adherers* if they attended their initial appointment or an appointment that they rescheduled to another date within 3 months of the original appointment date. Three months was used as the interval for timely follow-up based on clinical guidelines and previous studies [29,30]. Patients who received diagnostic colposcopy between 4 and 12 months from the initially scheduled colposcopy appointment were considered *delayed adherers*. Those who did not attend the initial colposcopy appointment within the 12 month period were considered *non-adherers*.

**2.3.2.2. Adherence to post-colposcopy 6-month follow-up recommendations:** Women who attend their 6 month follow-up appointment within 3 months of the initial follow-up appointment date were considered adherers.

### 2.4. Statistical analysis

SPSS version 21.0 was used for all analyses. Descriptive statistics were completed for all sociodemographic, cognitive-affective, and adherence outcome variables. A series of preliminary ANOVA and chi-square analyses with demographic and cognitive-affective variables of interest were conducted to compare women who were timely, delayed, and non-adherent to their initial diagnostic colposcopy. The variables that showed significant univariate association with adherence at  $p < 0.05$  level were included as predictors in a multinomial logistic regression analysis. The multinomial logistic regression analysis used a

3-category adherence status (i.e., timely, delayed, and non-adherent) as the dependent variable in the model. A binary logistic regression analysis was conducted to compare those who adhered and those who did not adhere to the 6 month follow-up. For the multinomial and binary logistic regression analyses, the variables were considered significant at  $p < 0.05$ . The intervention condition (enhanced standard care, print, telephone) was treated as a covariate in all regression analyses and entered into the model first to control for its effect on the adherence outcome variable.

### 3. Results

#### 3.1. Descriptive statistics

The majority of study participants were non-Hispanic Black ( $n = 166, 82.2\%$ ) and single, divorced, or widowed ( $n = 151, 75.5\%$ ; Table 1). Less than half of the participants had completed more than a high school diploma ( $n = 86, 41.3\%$ ) and less than half were employed ( $n = 87, 41.6\%$ ). The mean age was 30.11 years ( $SD = 10.67$ ). Among the 210 women who participated in the baseline assessment, 141 (67.1%) adhered to their initial diagnostic colposcopy in a timely manner (i.e., within 3 months). Fifty women (23.8%) delayed attending their initial colposcopy appointment, and 19 women (9.0%) never attended their appointment. Of the 191 women who received an initial colposcopy (timely or delayed), 165 women were recommended for follow-up appointments—eight women were not provided with any follow-up recommendations due to no detection of an abnormality and the records of 18 women were not documented. Approximately one-third of the women who received follow-up recommendations (33.9%) adhered to 6-month follow-up recommendations.

#### 3.2. Bivariate analyses

Preliminary analyses revealed that employment status [ $\chi^2(4, N = 207) = 10.674, p = 0.030$ ] and self-efficacy [ $F(2, 206) = 3.119, p = 0.046$ ] were significantly different among the timely, delayed, and non-adherent women to their initial diagnostic colposcopy (Table 2). Preliminary  $t$ -test analyses of 6-month follow-up visit adherence revealed that monitoring style [ $t(162) = 2.711, p = 0.007$ ] was significantly different between women who adhered and those who did not adhere to their appointment. Risk perception, fatalism, and distress had  $p$ -values greater than 0.05 in the bivariate analyses and were therefore withheld from the regression analyses.

#### 3.3. Multinomial logistic regression on adherence to initial diagnostic colposcopy

Variables with  $p$ -values less than 0.05 in the bivariate analyses (i.e., employment status, self-efficacy) were used as predictors in the multinomial logistic regression analysis (Table 3). Multinomial logistic regression modeling found a significant association between self-efficacy and timely adherence (versus delayed). Women with greater levels of self-efficacy were 1.5 times as likely to show timely adherence to their initial diagnostic colposcopy [OR = 1.504, 95% CI (0.021–2.216),  $p = 0.039$ ].

Additionally, employed women were significantly more likely to be adherent (either timely or delayed) than women who were unemployed or students. Unemployed women were less

likely to have timely adherence [OR = 0.133, 95% CI (0.028–0.621,  $p = 0.010$ )] or delayed adherence [OR = 0.181, 95% CI (0.036–0.908,  $p = 0.038$ )] than employed women. Similarly, women who were students were less likely to have timely adherence [OR = 0.121, 95% CI (0.020–0.732),  $p = 0.021$ ] or delayed adherence [OR = 0.070, 95% CI (0.008–0.573,  $p = 0.013$ )] than employed women. Lastly, women in the telephone condition were significantly more likely to have timely (versus delayed) adherence compared to women in the standard condition [OR = 2.652, 95% CI (1.056–6.655,  $p = 0.038$ ).

### 3.4. Binary logistic regression on adherence to 6-month follow-up recommendations

The factors that showed differences with a  $p$ -value less than 0.05 in the bivariate analyses (monitoring style) were entered into the binary logistic regression analysis with adherence to the 6-month follow-up recommendation as the dependent variable (Table 4). The regression model found that a low monitoring style was a significant predictor of greater adherence to 6-month follow-up recommendations [OR = 0.785, 95% CI (0.659–0.935),  $p = 0.007$ ].

## 4. Discussion and conclusion

### 4.1. Discussion

This study was conducted to determine the cognitive-affective factors associated with timely adherence to initial diagnostic colposcopy and 6-month follow-up recommendations after an abnormal Pap smear test result among high risk inner-city, underserved women. As hypothesized, greater levels of self-efficacy were associated with adherence to initial colposcopy after an abnormal Pap smear test result. This finding is consistent with previous research linking self-efficacy to improved follow-up to an abnormal Pap smear test result [18]. However, previous research simply classified women as adherent if they attended their follow-up appointment on the day it was scheduled. The current study was able to examine attendance in a more fine-grained fashion, by classifying adherence into three categories: timely adherence (within 3 months), delayed adherence (4–12 months), or non-adherence (more than 12 months or never). From this perspective, self-efficacy is most directly related to both timely initial and delayed follow-up.

Low monitoring style was the only psychosocial variable to be associated with adherence to 6-month follow-up recommendations. This finding is consistent with previous research on dispositional monitoring indicating that an abnormal Pap smear test result has a greater negative impact on patients with a high monitoring style compared to individuals with a low monitoring style [25]. When faced with a chronic and intense stressor, such as an unresolved cervical abnormality for 6 months, high monitors appear to experience prolonged elevated threat, distress [21,23], and uncertainty [40]. Although this study only used baseline assessment, results in other health contexts [41] suggest that chronically elevated risk perceptions and emotional distress among high monitors can prevent women from engaging in their goal to adhere to 6-month follow-up recommendations.

Among the sociodemographic variables, employment status was significantly related to initial colposcopy non-adherence. These results are consistent with previous studies that found lack of financial resources has been reported by patients as a barrier to follow-up

adherence after an abnormal Pap smear test result [4,42]. Despite insurance resources such as medicaid, unemployment, or lower income as a student and the resulting financial limitations in achieving access may be a particularly influential barrier in this low-income study population. Furthermore, study condition was significantly related to timely versus delayed adherence. Women who received the telephone counseling were significantly more likely to have timely adherence to their initial diagnostic colposcopy, consistent with findings from the parent study [15].

The study findings did not identify any significant relationships between adherence and fatalism, distress, or risk perception. While previous research has identified significant associations between fatalism and follow-up for an abnormal Pap smear test result [19], the studies were completed among a primarily Hispanic population. On the other hand, the lack of a significant association between distress and adherence to both initial colposcopy and long-term follow-up in the present research coincides with the previous literature [18,24]. These findings highlight the need for more research on the dynamic interaction patterns between cognitive-affective factors that influence follow-up behavior after an abnormal screening test result. In the present study, the overall mean distress score indicated that the majority of participants “rarely” experienced intrusive thoughts, suggesting that this may not be a sensitive measure in this context. Further, emotional reactions are not a simple function of either the person’s dispositions or situation. Thus, the use of a single measure may not capture the dynamic interplay of cognitive and emotional factors [43].

Other limitations of this research include the somewhat modest sample size and a relatively low rate (9.0%) of non-adherence to initial diagnostic colposcopy. These rates might have contributed to lack of statistical power to detect the full demographic and cognitive-affective characteristics of those who do not adhere to the initial colposcopy. Lastly, the participants were predominately non-Hispanic Black (82.2%), and while this racial/ethnic composition is similar to related studies [15,25,42,43], the racial/ethnic composition is not precisely consistent with previous studies with similar findings [7,13,24,44,51]. The results on non-Hispanic Black women are informative and novel, but the study population may limit the generalizability of the findings to other cultural groups.

## 4.2. Conclusion

This study is one of the few prospective studies to investigate the impact of theory-based cognitive-affective and sociodemographic variables on adherence to diagnostic colposcopy and follow-up recommendations after an abnormal Pap smear test result over time. Further, the assessment of multiple adherence outcomes, including timely versus delayed attendance to initial colposcopy, as well as continued adherence to the 6-month follow-up, are informative and innovative. Differentiating timely vs. delayed adherence and identifying specific factors associated with different adherence time-frames should enable researchers to obtain greater depth of understanding about adherence behavior. The findings also inform health care providers about the cognitive-affective and sociodemographic indicators that facilitate or inhibit adherence behaviors and provide evidence-based data as to how to increase adherence rates through more tailored provider-patient communication protocols.



### 4.3. Practice implications

The present study suggests that psychosocial approaches for improving adherence to initial colposcopy among underserved women should focus on communication strategies that facilitate perceptions of their own self-efficacy within the medical care system. In addition, given that a high monitoring style is associated with non-adherence to longer-term follow-up, special efforts to screen for monitoring attentional style and support high monitors, including provision of more detailed risk and procedural communications to decrease uncertainty and distress, should be a priority [44]. Integration of patient navigation efforts with psychosocial counseling may enable better tailoring of interventions to the specific needs of underserved populations [45,46].

Finally, with the increasing prevalence of mobile phone and text messaging use in underserved inner city populations in the US [47], texting-based communication channels may facilitate access of underserved women to effective delivery of evidence-based interventions. These integrated approaches may have the potential to improve adherence to follow-up among underserved inner city women and help to further reduce cervical cancer disparities in the US.

### Acknowledgments

This study was supported by the National Institutes of Health Grants R01 CA104979; P30 CA06927; and R01 CA076644. The authors would like to thank Mary Anne Ryan and Peter Wikoff for their technical assistance.

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**Table 1**Characteristics of participants ( $N = 210$ ).

Characteristic	<i>n</i> (%) or <i>M</i> (SD)
Age (years), mean (SD)	30.11 (10.67)
Race/ethnicity	
Non-Hispanic White	9 (4.5)
Non-Hispanic Black	166 (82.2)
Hispanic	25 (12.4)
Other	2 (1.0)
Education	
High school diploma or below	122 (58.7)
Greater than high school diploma	86 (41.3)
Marital status	
Single/divorced/widow	151 (75.5)
Married/living with partner	49 (24.5)
Employment	
Employed	87 (41.6)
Unemployed	98 (46.9)
Student	24 (11.5)
Number of children, mean (SD)	1.26 (1.10)
Self-efficacy, mean (SD)	4.13 (0.84)
Risk perception, mean (SD)	3.29 (0.86)
RIES – Intrusion, mean (SD)	1.78 (1.34)
POWE Fatalism Inventory, mean (SD)	4.63 (3.15)
MBSS – Monitoring, mean (SD)	5.27 (1.94)
Initial diagnostic colposcopy adherence	
Timely adherence	141 (67.1)
Delayed adherence	50 (23.8)
Non-adherent	19 (9.0)
Provider recommended follow-up	165 (95.4)
Follow-up adherence at 6-mo	
Adherent	56 (33.9)
Non-adherent	109 (66.1)

**Table 2** Bivariate analyses of predictors adherence to initial colonoscopy and 6-month follow-up recommendations.

	Initial colonoscopy adherence			6-month follow-up recommendation adherence		
	Timely n(%) or M (SD)	Delayed n(%) or M (SD)	Non-adherent n(%) or M (SD)	Adherent n(%) or M (SD)	Non-adherent n(%) or M (SD)	P
Age	30.9 (10.8)	28.9 (10.7)	27.8 (9.8)	32.2 (12.1)	29.7 (10.4)	0.17
Race/ethnicity						0.07
Non-Hispanic White	5 (3.7)	4 (8.2)	0 (0.0)	1 (1.9)	7 (6.7)	
Non-Hispanic Black	118 (86.8)	34 (69.4)	14 (82.4)	43 (79.6)	89 (84.8)	
Hispanic	12 (8.8)	10 (20.4)	2 (17.6)	8 (14.8)	9 (8.6)	
Other	1 (0.7)	1 (2.0)	0 (0.0)	2 (3.7)	0 (0.0)	
Education						0.87
High school diploma or below	76 (55.5)	32 (64.0)	12 (63.2)	31 (58.5)	61 (56.5)	
Greater than high school diploma	61 (44.5)	18 (36.0)	7 (36.8)	22 (41.5)	47 (43.5)	
Marital status						0.16
Single/divorced/widow	100 (76.3)	38 (76.0)	13 (68.4)	42 (84.0)	77 (73.3)	
Married/living with partner	31 (23.7)	12 (24.0)	6 (31.6)	8 (16.0)	28 (26.7)	
Employment						0.34
Employed	64 (46.0)	21 (42.9)	2 (10.5)	26 (47.3)	49 (45.8)	
Unemployed	58 (41.7)	25 (51.0)	13 (68.4)	20 (36.4)	48 (44.9)	
Student	17 (12.2)	3 (6.1)	4 (21.1)	9 (16.4)	10 (9.3)	
Number of children	1.2 (1.0)	1.3 (1.2)	1.8 (1.3)	1.0 (1.1)	1.3 (1.1)	0.11
Self-efficacy	4.2 (0.8)	3.9 (0.9)	4.1 (0.8)	4.3 (0.7)	4.1 (0.9)	0.11
Risk perception	3.4 (0.9)	3.1 (0.9)	3.2 (0.5)	3.5 (0.8)	3.0 (1.4)	0.28
RIES – Intrusion	1.8 (1.4)	1.7 (1.3)	1.7 (1.1)	1.8 (1.5)	1.7 (1.3)	0.60
POWE Fatalism Inventory	4.4 (3.2)	4.6 (2.9)	6.2 (2.9)	4.9 (3.3)	4.3 (3.1)	0.22
MBSS – Monitoring	5.3 (1.9)	5.2 (2.1)	5.4 (2.0)	4.6 (2.1)	5.5 (1.8)	0.01

**Table 3**

Multinomial logistic regression analyses of predictors to initial colposcopy adherence.

	Timely adherence <sup>a</sup>		Delayed adherence <sup>a</sup>		Timely adherence <sup>b</sup>	
	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Intervention condition						
Standard	1.00		1.00		1.00	
Print	1.001 (0.301–3.327)	.999	0.80 (0.22–2.92)	.74	1.195 (0.556–2.570)	.648
Telephone	0.933 (0.268–3.246)	.913	0.34 (0.08–1.42)	.14	2.652 (1.056–6.655)	.038
Employment						
Employed	1.00		1.00		1.00	
Unemployed	0.133 (0.028–0.621)	.010	0.181 (0.036–0.908)	.038	0.753 (0.371–1.526)	.431
Student	0.121 (0.020–0.732)	.021	0.070 (0.008–0.573)	.013	1.645 (0.425–6.372)	.471
Self-efficacy	1.344 (0.750–2.411)	.321	0.861 (0.466–1.588)	.631	1.504 (1.021–2.216)	.039

<sup>a</sup>Reference category: non-adherence.

<sup>b</sup>Reference category: delayed adherence.

**Table 4**

Logistic regression analysis of predictors for 6-month adherence to follow-up recommendations.

	<b>OR (95% CI)</b>	<b><i>p</i></b>
Intervention condition		
Standard	1.00	
Print	1.430 (0.639–3.199)	.384
Telephone	1.467 (0.639–3.370)	.366
Monitoring Attentional Style	0.785 (0.659–0.935)	.007

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