

# Predicting Oral Contraceptive Continuation Using The Transtheoretical Model of Health Behavior Change

**CONTEXT:** Improved continuation of oral contraceptive use may decrease the incidence of unintended pregnancy. Therefore, identifying predictors of continuation is important to informing targeted interventions.

**METHODS:** A survey conducted in 2003–2005 collected data from young women who sought oral contraceptives at three family planning clinics in New York, Dallas and Atlanta. Cluster analysis of data from 1,245 women was used to identify three distinct groups on the basis of baseline responses to items measuring constructs from the transtheoretical model of health behavior change: perceived advantages of pill use, perceived disadvantages and self-confidence in ability to sustain use. Logistic regression was used to assess the likelihood of continuation among the clusters.

**RESULTS:** Participants who were confident in their ability to use the pill and who considered both its advantages and its disadvantages important were more likely to continue use for six months than were those who gave low scores to the method's advantages and their ability to use it (odds ratio, 1.4). The same appeared to be true for those who gave high scores to the pill's advantages and their ability to use it, but a low score to the method's disadvantages (1.3); however, this finding was only marginally significant. Demographic variables were not significant after adjustment for cluster membership.

**CONCLUSIONS:** Cluster membership based on transtheoretical model constructs helps predict oral contraceptive continuation. Women who undervalue the advantages of pill use and have low confidence in their ability to use the method represent a target for interventions and future research.

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Unintended pregnancies account for nearly half of all pregnancies occurring each year in the United States and thus represent a substantial public health concern.<sup>1</sup> Oral contraceptives are the most popular pregnancy prevention method in the United States, used by more than 80% of women during their lifetime.<sup>2</sup> However, within 6–12 months of use, 30–60% of women who adopt oral contraceptives discontinue use.<sup>3–6</sup> Among former users, 61% of unintended pregnancies are attributable to pill discontinuation and subsequent adoption of a less effective method or no method at all.<sup>7</sup> Previous work has found that women who are at greatest risk of discontinuation are those who report side effects, have a low income, lack medical coverage or access to health care, are black or relatively young, or have a partner who did not know of their intention to use the pill.<sup>3–6,8–13</sup> However, findings have not been consistent across studies. Identifying the women who are most likely to discontinue pill use may inform the development of targeted interventions to improve pill continuation.

Few interventions focus on improving oral contraceptive continuation. Immediate initiation of use at a clinic visit, rather than waiting for the Sunday following onset of the next menses, improves continuation in the short term.<sup>6,12,14</sup> In the primary analysis of data from the research on which the present study is based, the rate

of continuation to the second pill pack was 50% higher in a group starting oral contraceptive use on the day of their clinic visit than in a group waiting for the next menstrual period; however, this difference disappeared by six months.<sup>6</sup> A Cochrane review of counseling interventions suggests that even lengthy, advanced counseling does not improve continuation when its content is the same for all women.<sup>15</sup>

Health behavior models that allow for individualized interventions may be more appropriate.<sup>16–18</sup> One such model, the transtheoretical model of health behavior change, integrates principles of several major health behavior theories and seeks to predict health behavior change among individuals on the basis of several theoretical constructs: stage of change, self-efficacy, decisional balance and the processes of change.<sup>19</sup> “Stage of change” refers to individuals’ progression through a series of steps marking readiness to change: no intention to take action in the near future (precontemplation), intention to take action in the next six months (contemplation), intention to take action in the next 30 days (preparation), sustained behavior change for six months or less (action) and behavior change for more than six months (maintenance). Individuals often return to prior stages before achieving sustained behavior change. “Self-efficacy” refers to an individual’s confidence that she can overcome perceived

obstacles and sustain lasting behavior change. “Decisional balance” represents the relative weighting of the pros (advantages) and cons (disadvantages) of making a behavior change. As individuals progress through the stages of change, the pros tend to increase, while the cons decrease; typically, the two balance each other at some point and then the pros outweigh the cons before the action stage is reached. Finally, “processes of change” are activities that individuals engage in or experiences that they have as they attempt to progress through the stages and change their behavior. For example, the abatement of an intense emotion once action is taken is referred to as “dramatic relief.”

The transtheoretical model has been applied successfully to individualize interventions designed to promote, for example, smoking cessation and adherence to medication regimens.<sup>20–23</sup> The only study to evaluate the association of its constructs with oral contraceptive-related behavior reported that the model’s constructs accounted for a larger proportion of the variance in nonadherence (missed or off-schedule pill-taking) than did static demographic and sexual history variables.<sup>24</sup> More recently, Peipert et al. reported that women receiving tailored feedback based on the model were more likely to report use of dual contraceptive methods than were controls, who received general contraceptive information.<sup>25</sup> Our analysis evaluates whether membership in clusters defined by the model’s constructs predicts oral contraceptive continuation at six months.

## METHODS

### Study Design

Data for this analysis were collected between March 2003 and February 2005 at three Title X–supported family planning clinics in Atlanta, Dallas and New York as part of a randomized, controlled trial evaluating the impact of immediate initiation of pill use on continuation at six months. Women attending participating clinics received standard counseling on birth control options. Those choosing the pill were referred to the research staff by their provider. Women were eligible for the study if they were younger than 25 and sexually active, were not pregnant, did not desire pregnancy in the next six months and had not used oral contraceptives within seven days or injectable contraceptives within six months.

At enrollment, each participant completed an interview, in English or Spanish, in which she provided information on her demographic characteristics, her contraceptive and reproductive history, and measures related to constructs of the transtheoretical model. The questionnaire was developed on the basis of focus groups conducted in English and Spanish at each site, and was piloted among 300 women representative of the study population. Participants received standardized pill-taking instructions and at least one pack of pills at enrollment. Clinician preference dictated the brand of oral contraceptive and the provision of additional packs or prescriptions. Telephone interviews at three and six months assessed pill continuation.

Further details about the study’s methods have been reported elsewhere.<sup>6</sup> The study was approved by the institutional review boards of Columbia University, Emory University, Mount Sinai Medical Center in New York and the University of Texas Southwestern in Dallas.

### Model Construct Variables

Participants were categorized as being in the preparation stage if they answered yes when asked if they were “planning to take the pill in the next 30 days,” in the contemplation stage if they answered yes when asked if they were “seriously considering taking the pill in the next six months” and in the precontemplation stage if they answered no to both of the above. Since participants were referred to study staff after choosing oral contraceptives, we anticipated that nearly all of them would be in the preparation stage.

The self-efficacy measure was based on a series of eight questions asking participants how sure they were that they would take the pills in a variety of difficult situations—for example, “if your daily routine changes,” “if it is a hassle to get a refill,” “if you break up with your partner” and “if your partner doesn’t want you to take them.” Responses were scored on a five-point Likert scale (1=“not at all sure” to 5=“extremely sure”) and were summed to create a raw score with a possible range of 8–40 (Cronbach’s alpha, 0.89); the lower the score, the lower the participant’s confidence.

Decisional balance was measured with questions about the importance of five particular pros and five cons of taking the pill. Pro items included “I am setting a good example for other women by taking the pill” and “Taking the pill puts me in charge of my birth control.” Cons included “The pill can have side effects” and “It is a hassle to take the pill.” Responses were scored on a five-point Likert scale (1=“not at all important” to 5=“extremely important”). On the basis of confirmatory factor analysis, four items were retained for pros and four items for cons. A raw score for each was created by summing the responses to these four questions. Possible scores ranged from 4 to 20 (Cronbach’s alpha, 0.77 for pros and 0.71 for cons); the lower the score, the less important an item was to an individual.

We included 11 processes of change: consciousness-raising, environmental reevaluation, social liberation, self-reevaluation, dramatic relief, stimulus control, helping relationships, reinforcement management, self-liberation, counterconditioning and provider helping relationship. Each was measured with three questions assessing how often participants engaged in particular activities or had particular experiences. For example, dramatic relief was measured with a question asking how often women felt that “hearing stories about women who got pregnant because they weren’t taking the pill upsets me.” Responses to each item were given on a five-point Likert scale (1=“never” to 5=“very often”). Each process of change raw score had a possible range of 3–15 (Cronbach’s alphas,

0.65–0.85); the lower the scores, the less frequent the activity or experience.

To create variables with a common metric, we standardized the raw scores for the transtheoretical model constructs into *t* scores with a mean of 50 and standard deviation of 10. We deleted cases missing data on more than 10% of the variables of any particular construct and replaced missing values with the mean when data on 10% or fewer of the variables of a construct were missing.

### **Creation of a Cluster Variable**

Cluster analysis has been used to describe meaningful differences in groups that are within the same stage of change.<sup>26–28</sup> We planned a priori to identify clusters of women within the preparation stage who share patterns of decisional balance and self-efficacy, and to assess cluster membership as a predictive variable. The cluster variable was created using squared Euclidean distance and Ward's method to minimize variance within clusters.<sup>29–33</sup> The decision on the number of clusters to retain was based on the pseudo *F* and pseudo *t* statistics; the cubic clustering criterion; the hierarchical dendrogram; and the interpretability of the profiles on the basis of the shape, levels and scatter of the profiles.<sup>31,34–35</sup> The total baseline sample was randomly split, and a cluster analysis was performed in each subsample. A three-cluster solution was the most interpretable.

The three clusters resemble those in other analyses.<sup>26–28,36</sup> One had relatively high standardized scores on pros and self-efficacy, but the lowest scores on cons, and is called “high pros and confidence/low cons.” Another had relatively high pros and self-efficacy scores, but also the highest scores on cons, and is called “high pros and confidence/high cons.” The third had the lowest scores on pros and self-efficacy, along with negative decisional balance (i.e., the cons outweighed the pros), and is called “low pros and confidence.” We hypothesized that women in the cluster reflecting high pros and confidence/low cons would be the most likely to continue pill use at six months, and those in the cluster representing low pros and confidence would be the least likely to.

### **Outcome and Confounding Variables**

During the six-month interview, pill continuation was determined. On the basis of the primary findings from this research,<sup>6</sup> age, race, education, clinical site, intention to use pills for six months or more, partner knowledge of intention to use pills, participant certainty about method choice at enrollment and intervention group (i.e., immediate initiation of pill use or conventional start) were selected a priori as possible confounders. All of the method-related variables were measured dichotomously.

### **Analysis**

The final questionnaire, including measures based on the model constructs, was not yet available when the first 55 participants enrolled; thus, of the 1,716 women

who participated, 97% provided information on those measures at enrollment. Data on pill continuation at six months was available for 81% of these participants. Of participants with data on both model constructs and pill continuation, 93% had sufficient data to allow assignment of cluster membership. Model construct scores, cluster distribution, mean *t* scores for model constructs within clusters and selected characteristics were similar between the 1,661 women with baseline data on the model constructs and the 1,245 who also had data on oral contraceptive continuation at six months (and who made up the analytic sample).

Descriptive analysis was performed using chi-square tests for comparison of categorical variables and Student *t* tests for comparison of means. Unadjusted and adjusted odds ratios and 95% confidence intervals were generated using the maximum likelihood estimate from logistic regression. Any variable with a *p* value of less than .10 in univariate logistic regression was considered for inclusion in the multiple logistic regression model. Several of the processes of change met criteria for inclusion in the final model. Because of high correlation between individual processes, the 11 processes of change were treated as a set of variables in model building—i.e., they were added or subtracted together. The final model was constructed using the likelihood ratio test (analogous to the *F* test in linear multiple regression<sup>37</sup>) to compare models as variables were added or subtracted in a stepwise fashion, both forward and backward. Because of missing responses for two questions, the sample size for the final adjusted logistic regression model decreased from 1,245 to 1,216. We tested the goodness of fit of the final model using the Hosmer-Lemeshow statistic. All statistical analyses were performed using SAS 9.2.

### **RESULTS**

At the time they enrolled in the study, more than half of participants were older than 18, identified themselves as Hispanic and reported less than a high school education (Table 1, page 26). Seventy-one percent reported that they were very sure that oral contraceptives were the method they wanted, and 72% reported that their partner knew of their intention to use the pill. Nearly all (97%) intended to use the pill for six months or more. Women who discontinued use within six months were more likely than others to be black (44% vs. 27%), to have been 18 or younger at baseline (55% vs. 34% and to have reported smoking at enrollment (16% vs. 7%). They were less likely than other women to have been certain of their method choice (67% vs. 77%), to have said that their partner knew of their intention to use the pill (65% vs. 80%) and to have intended to use the method for at least six months (95% vs. 99%). The two groups did not differ with respect to level of education or intervention group.

As anticipated, 98% of participants reported intention to use oral contraceptives within 30 days—i.e., were in

**TABLE 1. Selected baseline characteristics of participants in a study of predictors of oral contraceptive continuation, by six-month continuation status, 2003–2005**

Characteristic	Total (N=1,245)	Continued (N=567)	Discontinued (N=678)
<b>PERCENTAGES</b>			
<b>Site</b>			
Atlanta	18	14	21***
Dallas	45	61	31
New York	37	25	48
<b>Age</b>			
≤18	45	34	55***
>18	55	66	45
<b>Race</b>			
Black	36	27	44***
Hispanic	58	67	50
Other	6	6	5
<b>Education</b>			
<high school/GED	63	60	65
≥high school/GED	37	40	35
<b>Certainty of method choice</b>			
Very sure	71	77	67***
Less sure	29	23	33
<b>Partner knows of intention to use the pill</b>			
Yes	72	80	65***
No	28	20	35
<b>Intend to use for ≥6 months</b>			
Yes	97	99	95***
No	3	1	5
<b>Smoke</b>			
Yes	12	7	16***
No	88	93	84
<b>Intervention group</b>			
Start pill use at the clinic	50	50	49
Conventional start	50	50	51
<b>Cluster†</b>			
Low pros and confidence	56	53	59*
High pros and confidence/ low cons	29	29	28
High pros and confidence/ high cons	16	18	13
Total	100	100	100
<b>MEANS</b>			
<b>Process of change (range, 3–15)</b>			
Dramatic relief	10.1 (3.4)	9.8 (3.5)	10.4 (3.3)**
Self-liberation	13.1 (2.8)	12.9 (3.2)	13.4 (2.5)**
Environmental reevaluation	11.5 (3.2)	11.4 (3.3)	11.6 (3.1)
Consciousness-raising	12.2 (2.9)	11.9 (3.2)	12.4 (2.7)**
Self-reevaluation	12.7 (3.0)	12.3 (3.3)	13.0 (2.6)***
Social liberation	12.0 (2.9)	11.7 (3.1)	12.2 (2.7)***
Helping relationships	12.3 (3.1)	11.9 (3.3)	12.6 (2.9)***
Stimulus control	11.9 (3.3)	11.5 (3.6)	12.2 (3.1)***
Counterconditioning	11.6 (3.0)	11.4 (3.3)	11.8 (2.7)*
Reinforcement management	11.9 (3.1)	11.6 (3.3)	12.1 (2.8)**
Provider helping relationship	11.9 (2.9)	11.4 (3.2)	12.3 (2.7)***

\*p<.05. \*\*p<.01. \*\*\*p<.001. †The clusters were developed from t scores for the individual measures and are based on the 98% of participants who were in the preparation stage. Notes: Because of missing values, N=1,233 for the item on intention to use, 1,197 for smoking and 1,203–1,226 for the processes of change. Chi-square tests were used to compare categorical variables, and Student t tests were used to compare means. Percentages may not add to 100 because of rounding. Figures in parentheses are standard deviations.

the preparation stage (not shown). More than half of these participants (56%) were in the cluster representing low pros and confidence. The remainder exhibited similarly high scores on pros and self-efficacy, but differed in their weighting of the cons; 29% had a low score for cons, and 16% a high score. Women with low scores for pros and confidence made up the greatest proportion of those who discontinued oral contraceptive use (59%).

Participants engaged in or experienced processes of change relatively frequently: Mean raw scores ranged from 10.1, for dramatic relief, to 13.1, for self-liberation. Discontinuers gave higher scores than continuers to every process of change except environmental reevaluation. Multivariate analysis of variance demonstrated that process use differed significantly among clusters ( $F_{(22, 3018)}=8.72, p<.001, \eta^2=0.06$ ). Follow-up analysis of variance revealed significant differences between clusters on every process of change (all  $p<.001, \eta^2=0.03-0.07$ ). Post hoc tests demonstrated that in all cases, the cluster reflecting low pros and confidence had the lowest mean score on the processes of change and that this cluster's mean scores were significantly lower than those for the other two clusters (all  $p<.001$ ).

According to the unadjusted logistic regression model, women who reported high pros and confidence but high cons had nearly 50% higher odds of reporting continued pill use at six months than those in the cluster reflecting low pros and confidence (Table 2). The odds also appeared to be elevated for women in the cluster representing high pros and confidence but low cons; this difference, however, did not reach statistical significance. The results were essentially the same in analyses adjusting for partner knowledge of intent to use pills, participant intention to use pills for at least six months, clinical site and the processes of change: The likelihood of oral contraceptive continuation was significantly elevated for women in the cluster reporting high pros and confidence but high cons (odds ratio, 1.4), and was marginally raised among women reporting high pros and confidence but low cons (1.3). Method choice at enrollment, race, age and education did not meet statistical criteria for inclusion in the multivariate model.

Adjusting for the frequency with which participants engaged in the various processes of change as they adopted pill use contributed to the explanation of continuation in the final model (likelihood ratio chi-square=46.18<sub>(11)</sub>,  $p<.001$ —not shown). Four processes of change were significant in the adjusted model. The odds of continued pill use at six months declined by 2% for every unit increase in the score for dramatic relief (odds ratio, 0.98) and for stimulus control (0.98); they rose by 3% with every unit increase in environmental reevaluation (1.03) and by 2% for every unit increase in counterconditioning (1.02).

The final model demonstrated a good fit for the data (Hosmer-Lemeshow chi-square=4.24<sub>(8)</sub>,  $p=.83$ ).

**TABLE 2. Odds ratios (and 95% confidence intervals) from unadjusted and adjusted logistic regression analysis assessing the likelihood of oral contraceptive continuation at six months, by selected characteristics**

Characteristic	Unadjusted (N=1,245)	Adjusted (N=1,216)
<b>Cluster</b>		
High pros and confidence/ low cons	1.19 (0.92–1.53)	1.32 (0.99–1.76)
High pros and confidence/ high cons	1.48 (1.08–2.04)*	1.44 (1.01–2.06)*
Low pros and confidence (ref)	1.00	1.00
<b>Partner knows of intention to use the pill</b>		
Yes (ref)	na	1.00
No	na	0.57 (0.43–0.76)***
<b>Intend to use for ≥6 months</b>		
Yes (ref)	na	1.00
No	na	0.44 (0.19–1.04)
<b>Clinic site</b>		
New York	na	0.32 (0.24–0.42)***
Atlanta	na	0.46 (0.33–0.66)***
Dallas (ref)	na	1.00
<b>Processes of change</b>		
Dramatic relief	na	0.98 (0.96–1.00)*
Self-liberation	na	1.00 (0.98–1.03)
Environmental reevaluation	na	1.03 (1.01–1.05)**
Consciousness raising	na	1.01 (0.99–1.03)
Self-reevaluation	na	0.99 (0.96–1.01)
Social liberation	na	1.00 (0.98–1.02)
Helping relationships	na	0.98 (0.96–1.01)
Stimulus control	na	0.98 (0.96–1.00)*
Counterconditioning	na	1.02 (1.00–1.05)*
Reinforcement management	na	1.01 (0.98–1.03)
Provider helping relationships	na	0.99 (0.97–1.01)

\*p<.05. \*\*p<.01. \*\*\*p<.001. Notes: ref=reference group. na=not applicable.

## DISCUSSION

The transtheoretical model of behavior change contributes to our understanding of oral contraceptive continuation in this population. As in other studies that used cluster analysis to predict behavior change,<sup>26–28</sup> we found that cluster membership based on this model's constructs is a meaningful predictor of the risk for oral contraceptive discontinuation. Despite modest effect sizes and lower confidence limits of 0.99 and 1.0, the results of this analysis are noteworthy and have potential to improve targeted interventions to increase pill continuation. In accord with our hypothesis, those women who rated the pros of pill use relatively low and had little confidence in their ability to use the method in difficult situations were at elevated risk for discontinuation by six months.

These results did not fully support our hypothesis that women who considered the advantages of pill use important, expressed high levels of self-confidence and attached relatively little importance to the disadvantages of pill use would be most likely to continue. Increased continuation among such women approached, but did not reach, statistical significance. Furthermore, despite differences in their scoring of the cons of pill use, the two clusters who gave high scores to the pros and to self-confidence demonstrated similar odds of continuation at six months relative to the

cluster with low scores on pros and confidence. This finding suggests that perceptions of disadvantages of pill use are not as strongly linked to oral contraceptive continuation as are perceptions of advantages and self-confidence. It agrees with findings from prior work using the transtheoretical model, which established that pros are twice as important as cons during progression through the stages of change.<sup>19,38</sup> It also agrees with findings from prior studies that have shown that cons did not decrease significantly as individuals moved toward sustained adoption of contraception.<sup>39–40</sup> Our baseline questionnaire may not have measured all pertinent cons, but we are confident that it captured important concerns, as the items measuring cons were developed on the basis of focus group discussions among women representative of this study population.

For interventions designed to increase oral contraceptive continuation, our findings imply that counseling, particularly in the context of limited time with patients, should emphasize the advantages of pill use and explore situations in which women may be tempted to discontinue it, rather than focus on countering concerns about the disadvantages of use. The questions that made up the self-efficacy scale captured the impact of contextual factors such as relationship changes and breakups, difficulties incorporating pill use into a busy routine and the logistical difficulty of obtaining refills. Targeted counseling to help a woman address situations that she perceives as problematic may increase her confidence that she can continue use even when she encounters those situations. A complementary approach might be targeted counseling about other long-acting contraceptive methods.

Prior studies suggested that age, race and education predict oral contraceptive continuation,<sup>4,6,10,12</sup> but our analysis found no such associations after transtheoretical model constructs, partner knowledge of intention to use pills and participant intention to use pills for at least six months were taken into account. A prior cross-sectional study also reported that the model's constructs were more useful in explaining adherence to a pill regimen than were static demographic variables such as age, race, income and education.<sup>24</sup> This finding is promising, because static demographic variables cannot be modified by a tailored intervention, but an individual's perceptions of the advantages of pill use and self-confidence are potentially modifiable.

When treated as a set of variables, the 11 processes of change improved the final model, suggesting that these processes influenced oral contraceptive continuation. This finding is consistent with the results of a meta-analysis conducted by Noar et al., which suggested that studies tailoring interventions aimed at processes of change had significantly larger effects than those that did not.<sup>41</sup> In our study, even when the analyses controlled for cluster membership, the likelihood of continuation at six months was slightly negatively associated with use of dramatic relief and stimulus control. In contrast, frequency of environmental reevaluation was positively associated with the likelihood of continuation. Multivariate analysis of

variance demonstrated that the scores for the processes of change differed among the clusters. Perhaps the intercorrelations of the processes hampered our ability to tease apart their individual effects. Additionally, because the processes were entered as a set of variables, we cannot determine whether one or more acted as a suppressor variable. Further research is needed on the effect of tailoring on specific processes of change, but their inclusion as an intervention target seems promising.

Strengths of this study include the prospective collection of data and the large sample available for analysis. To our knowledge, only one prior study, with a cross-sectional design and 306 participants, has examined the association between transtheoretical model constructs and oral contraceptive behavior.<sup>24</sup> Another strength of our study was the use of focus groups conducted at the recruitment sites to develop questionnaire items measuring the model's constructs at baseline.

Our study likely includes some misclassification of continuation status. Contraceptive method switching, gaps in use and nonuse are common, and 65–82% of women who discontinue pill use begin use of some method—though frequently a less effective one—within one month.<sup>3–4,8,42</sup> We are confident that participants in our study who were classified as continuers were indeed using the pill at six months. Some participants who discontinued were not sexually active or had switched to another effective method by the end of the follow-up period. Our interview was not sufficiently detailed to determine the duration of intervals of sexual inactivity or whether method switching occurred without a gap in use. We did not exclude such participants from the discontinuation group, and this differential misclassification would bias our results toward the null. Thus, had we been able to exclude women who deliberately abstained from sex and classify method switchers without gaps in use as continuers, the effect of cluster membership on method continuation would likely have been larger than we have reported here.

Our findings may not be applicable to the general population. Our sample consisted of young women, primarily Hispanics and blacks, who were attending federally subsidized clinics and were seeking the pill. However, this population represents a group who are disproportionately affected by unintended pregnancy. Though we cannot discount that participants in a controlled trial may have different continuation behavior than the general population, this trial was clinic-based and recruited only women presenting to the clinic to initiate oral contraceptive use.

This analysis provides preliminary evidence that transtheoretical model constructs—specifically, cluster membership—are predictive of pill continuation at six months. Women who underappreciate the advantages of pill use and have low confidence in their ability to continue despite barriers represent a target for future study and interventions. Further research needs to address the role of the processes of change in predicting oral contraceptive use, test a targeted intervention to increase perceived advan-

tages of pill use and self-confidence, examine whether such an intervention is effective in increasing continuation and assess whether transtheoretical model constructs predict continuation of other contraceptive methods and among other populations.

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