HHS Public Access

Author manuscript

Patient Educ Couns. Author manuscript; available in PMC 2016 November 01.

Published in final edited form as:

Patient Educ Couns. 2015 November ; 98(11): 1425–1430. doi:10.1016/j.pec.2015.05.016.

Development of a Brief Questionnaire to Assess Contraceptive Intent

Tina R Raine-Bennett[a,*] and **Corinne H Rocca**[b]

[a]Research Director, Women's Health Research Institute, Division of Research, Kaiser Permanente Northern California, Oakland, USA. (Former affiliation) Professor, Department of Obstetrics, Gynecology and Reproductive Sciences, School of Medicine, University of California, San Francisco, USA

[b]Epidemiologist, Bixby Center for Global Reproductive Health, Department of Obstetrics, Gynecology and Reproductive Sciences, School of Medicine, University of California, San Francisco, CA, USA

Abstract

Objective—We sought to develop and validate an instrument that can enable providers to identify young women who may be at risk of contraceptive non-adherence.

Methods—Item response theory based methods were used to evaluate the psychometric properties of the Contraceptive Intent Questionnaire, a 15-item self-administered questionnaire, based on theory and prior qualitative and quantitative research. The questionnaire was administered to 200 women aged 15–24 years who were initiating contraceptives. We assessed item fit to the item response model, internal consistency, internal structure validity, and differential item functioning.

Results—All items fit a one-dimensional model. The separation reliability coefficient was 0.73. Participants' overall scores covered the full range of the scale (0–15), and items appropriately matched the range of participants' contraceptive intent. Items met the criteria for internal structure validity and most items functioned similarly between groups of women.

Conclusion—The Contraceptive Intent Questionnaire appears to be a reliable and valid tool. Future testing is needed to assess predictive ability and clinical utility.

Practice Implications—The Contraceptive Intent Questionnaire may serve as a valid tool to help providers identify women who may have problems with contraceptive adherence, as well as to pinpoint areas in which counseling may be directed.

[*]Corresponding author Tina Raine-Bennett, Division of Research, Kaiser Permanente Northern California, 2000 Broadway, 3rd Floor, 032R06, Oakland, CA, 94612, USA., Tel: 1-510-891-5930, tina.r.raine-bennett@kp.org.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

Keywords

contraception; medication adherence; questionnaire validation

1. INTRODUCTION

Unintended pregnancy is an important public health problem and is mediated largely by contraceptive use. In the United States, nearly all sexually active women who wish to avoid pregnancy report use of contraception.[1] Use of less effective methods, inconsistent or infrequent use, and method discontinuation contribute significantly to unintended pregnancy rates.[2] Forty-three percent of unintended pregnancies in the U.S. occur among women using contraception inconsistently or incorrectly.[3] Recognizing the critical link between contraception and unintended pregnancy, the Institute of Medicine (IOM) recommended that contraceptive counseling, methods, and services be covered, without copayment, under the Patient Protection and Affordable Care Act (ACA) of 2010, so that women can better avoid unwanted pregnancies, space their pregnancies, and achieve optimal birth outcomes.

Health care providers are the gate keepers of contraceptives, as all highly effective methods (hormonal methods and intrauterine devices) are available by prescription only and require a provider consult. Therefore providers have considerable potential to impact contraceptive use through the content of care provided and the nature of the interactions. The 2014 Guidelines for Providing Quality Family Planning Services by the Centers for Disease Control and Prevention (CDC) and the U.S. Office of Population Affairs outline five steps for providing quality contraceptive services: 1) establishing rapport; 2) obtaining a medical history, information on pregnancy intentions, contraceptive experiences and preferences, and a sexual health assessment; 3) working interactively with the client to select the most appropriate method; 4) conducting a physical assessment when warranted; and 5) providing the contraceptive method with instructions for use.[4] However, providers in most clinical settings have limited time in which to complete these steps. Furthermore, providers have varying levels of communication skills for discussing sensitive topics such as reproduction, and some may harbor biased attitudes about clients that influence their interview and counseling.[5–7] Providers typically use validated tools to obtain a medical history. A tool to elicit relevant information on pregnancy intentions or contraceptive experiences, attitudes, and preferences - to help providers assess risk for contraceptive non-adherence and counsel clients does not exist.

Counseling and provision of contraception does not occur in a vacuum. Contraceptive behavior (method choice and use pattern) is a dynamic and complex process shaped by a number of individual-level and contextual factors. Contraceptives are a form of medication, and the woman's specific beliefs about the medication also influence her engagement and adherence.[8] The confluence of an individuals' beliefs about pregnancy as well as beliefs about contraceptive methods influence contraceptive method choice, predisposition to adhere, and ultimately unintended pregnancy risk. Improving providers' ability to elicit information about individual, contextual, and treatment-specific factors that influence contraceptive decision- making and behavior would be a significant contribution to clinical practice. It could substantially enhance the providers' ability to provide information relevant

to the individual and to work interactively with her to select the most appropriate methods and address potential barriers to adherence.

A number of studies have identified demographic, cultural, and reproductive risk factors for contraceptive nonuse, misuse, and discontinuation.[9–12] This work, however, has not been translational and tools to identify these risk factors in the clinical setting have not been developed. Several questionnaires have been developed and validated to assess medication non-adherence in clinical settings in patients with specific conditions such as hypertension or psychiatric disorders.[13–15] These questionnaires, typically administered at the point of care to patients using a specific medication, provide simple and low-cost approaches to identifying medication non-adherence in clinical practice. Because contraception is used to prevent a condition, assessing an individual's underlying conscious and unconscious predisposition towards using contraception ("contraceptive intent") could have similar utility. The ability to predict contraceptive non-adherence would be useful as individuals do not typically communicate their adherence plans; physicians are unable to predict non-adherence; and awareness of risk may provide opportunity for intervention.[16–18]

Our objective was to develop a brief self-administered questionnaire to help providers to identify young women who may have problems with contraceptive adherence, as well as to pinpoint areas in which counseling may be directed. Specifically, we sought to validate an instrument that can be used in clinical settings prior to contraceptive counseling to measure a clients' contraceptive intent or predisposition to use a new method and predict non-adherence. We describe the conceptualization, development, and preliminary psychometric properties of the Contraceptive Intent Questionnaire (CIQ).

2. MATERIAL AND METHODS

2.1. Conceptual framework

The development of the Contraceptive Intent Questionnaire (CIQ) was grounded in both the Theory of Reasoned Action (TRA), which has guided much of traditional contraceptive behavioral research, as well as the Necessity-Concerns Framework from medication adherence research.[8,19] The TRA posits that the best predictor of a given behavior is intention to engage in the behavior. Intention is influenced by two factors: 1) the individual's attitudes toward taking the action, which reflects her beliefs and values about consequences (costs and benefits) of engaging in the behavior; and 2) her view of social expectations related to the behavior or her perceptions of what other people want her to do.[19] Previous research among adolescents and adult women has demonstrated that a woman's intent to contracept is associated with subsequent contraceptive behaviors.[12,20,21]

Non-adherence, or failure to obtain or to correctly take a prescribed medication, occurs commonly among patients with chronic diseases, including HIV, cardiovascular, endocrine, and mental health disorders.[22,23] Medication adherence is becoming an increasingly important issue in prevention medicine, including reproductive health, such as with the use of antiretroviral therapy to prevent HIV transmission.[24] The Necessity-Concerns Framework posits that individuals balance their concerns about medications against their perceived need for the therapy and its perceived benefits.[8] Measurement instruments based on the

framework have been shown to predict adherence and differentiate non-adherers from adherers across diseases and conditions.[8] The Necessity-Concerns framework is similar to the TRA in that it conceptualizes behaviors (i.e. contraceptive use and medication adherence) as a confluence of mediating factors: 1) beliefs about the behavior and relevant outcome; 2) risks and benefits related to the behavior and outcome; and 3) social, cultural, economic and healthcare system contexts. We incorporated components from the TRA and the Necessity-Concerns Framework to create a theory driven model of contraceptive behavior.

2.2. Development of items for the questionnaire

Building on the theoretical model, the item set for the questionnaire was generated based on results from our prior research and formative qualitative work with young women initiating contraceptives. We incorporated findings from a one-year longitudinal study of women aged 15–24 years initiating hormonal contraceptives at family planning clinics in the San Francisco Bay Area.[12] In addition to the specific contraceptive method initiated, the variables found to be most strongly associated with contraceptive continuation were being sure they would use the method for a year and being employed or in school. Other associated variables were pregnancy and childbearing intentions, endorsement of negative attributes of methods, and perception of one's partner to be against use of hormonal birth control methods. We developed one or more items to correspond with each of these factors.

Applying the Necessity-Concerns Framework to contraceptive use, we hypothesized that contraceptive continuation would also be influenced by perceived need for and concerns about the medication. We assumed that attitudes and beliefs about pregnancy and childbearing do not necessarily correspond to necessity beliefs and concerns about contraceptives. We therefore included additional items related to belief in need for, efficacy of, and harms of contraceptives.

A preliminary questionnaire was pilot tested with 41 women from the target population for the validation sample in iterative stages. First, in-depth interviews were conducted to provide additional context for variables that were associated with contraceptive continuation in the longitudinal study and to identify additional new themes. Additional items to measure self-efficacy were added in response to the emergence of a theme around perceived difficulty to use contraceptives. We postulated that addressing self-efficacy, which is incorporated in the Theory of Planned Behavior, an extension of TRA,[25] might improve the predictive power of the questionnaire. Cognitive interviews were then conducted to ensure items were interpreted as intended, hone language, and to refine response categories.

The questionnaire that was administered to the validation sample included 16 candidate items (Table 1). All items had four Likert-scale response categories; response options reflecting a higher level of contraceptive intent or predisposition to use a new method were coded higher. The questionnaire also included items on demographic characteristics and past and current birth control use to assess differential functioning of items.

2.3. Administration of the questionnaire to the validation sample

From February to November 2012, the questionnaire was administered to 200 women age 15–24 from the New Generation Health Center, an affiliate teen reproductive health clinic of the University of California San Francisco (UCSF). To be eligible, women had to be either coming to the clinic to start a new birth control method (no current use) or requesting to switch to a new method (current use). Women were excluded if they were currently using an intrauterine device or a contraceptive implant. The questionnaires were administered prior to a visit with the clinician; however participants could have seen a health educator before completing the questionnaire. Participants provided written informed consent and received $10 for completing the questionnaire. The study was approved by the UCSF Committee on Human Research.

2.4. Data analysis

We used item response theory (IRT) based methods to evaluate the psychometric properties of the questionnaire. IRT uses logistic random intercept models to assess the performance of a set of items as a scale and to place individuals along the continuum of an underlying latent construct (i.e. contraceptive intent).[26–28] The idea behind IRT is that individuals respond to items based on the level of the latent construct they possess. For example, a woman who has higher contraceptive intent would attribute a higher level of importance to using birth control or indicate a higher level of certainty that she will use birth control. IRT offers advantages over traditional questionnaire evaluation methods.[28–30] For example, IRT allows for the distances between response categories – both between and within items – to vary. In IRT, each item has a different difficulty level, providing meaning to the relative levels of individuals and items. With IRT, differential functioning of individual items between groups of individuals can be examined to identify potentially biased items. Analyses were conducted using ACER ConQuest version 2.0[31] and were consistent with guidelines for psychometric testing of a new instrument.[32,33]

We followed several iterative steps to select from the 16 candidate items those that would remain in the questionnaire and assessed the psychometric properties of the final item set. We fit items to one-dimensional “partial credit” item response models for multicategorical items and “rating scale” models after responses were collapsed into dichotomous response categories. We assessed how well items fit the model; a weighted mean square statistic of ≤1.33 was considered acceptable fit. We assessed internal consistency reliability with the separation reliability coefficient.

To assess internal validity, we plotted women’s questionnaire scores on a scale next to “item-threshold levels,” or item difficulty levels (i.e. Wright Map). We examined the plot to be sure that items spanned the full range of contraceptive adherence propensities of participants. We ensured that women endorsing the highest response on each item had higher scores on the scale overall, compared to those who endorsed lower responses. Finally, we plotted the frequency with which each item’s response categories were selected along the range of overall questionnaire scores (item characteristic curves). Items for which the odds of selecting the highest response category was <25% or >75% at all points along the scale were removed.

We assessed differential item functioning (DIF) to determine whether any questionnaire items performed differently between groups of women. The presence of DIF can provide insight into group differences on a particular item and can sometimes be indicative of item bias (i.e. women of a particular ethnicity are more likely to respond higher to one item than women of a different ethnicity who otherwise have the same overall questionnaire score). We assessed DIF by age group (15–19 years, 20–24 years), has children (yes, no), ethnicity (Latino, non-Latino), current use of a hormonal contraceptive (yes, no) and prior use of a hormonal or long-acting contraceptive (yes, no). To assess DIF, we introduced interaction terms between items and each variable to models with the group alone. We determined, *a priori*, that items with a logit difference in item-by-trait coefficients between groups would be considered for potential removal from the final scale.[34,35]

3.0. RESULTS

3.1. Participants

Half of the validation sample was adolescents (Table 2). The sample was racially and ethnically diverse. Most participants (90%) did not have children. Two-thirds of participants were in high school or community college. Over half had used contraception in the past, and 16% were currently using a hormonal method.

3.2. Measure Performance

Analyses included the 197 of 200 respondents who completed all questionnaire items or were missing only one item; three participants who were missing data on more than three items were excluded. A high proportion of participants (71%) responded that it was “very important” to use birth control now (Table 2). However, fewer than half (43%) responded that they would “definitely not” get pregnant if they used birth control correctly. Few participants (8%) responded that birth control will “definitely not” cause bad side effects (*side*).

Initial analyses indicated that the proportion of responses corresponding to the lowest levels of contraceptive intent was very small. We thus conducted final analyses collapsing the bottom three categories, creating a dichotomous response scale (scored as zero for responses in the lowest 3 response categories and 1 for highest response category). We removed one item: “When do you plan to have a child or your next child?” (*plan*) in which over 30% of respondents endorsed “don’t know.” The dichotomized version of the item did not fit the model well and including it reduced scale reliability. The other 15 items fit the one-dimensional rating scale model, with weighted mean-square fits for all items falling between 0.91–1.12 (Table 1). The separation reliability coefficient of the scale was 0.73. Participants’ overall scores covered the full range of the scale (0–15) with a near-normal distribution, indicating that the items were appropriate for the population analyzed. On the IRT-generated scale, which centers items around zero, scores ranged from about −4 to 4 (Table 1). Items met the criteria for internal structure validity.

Items generally functioned similarly for different groups of women. However, three items (*happy, upset, and infreq)* showed evidence of DIF. Participants aged 20–24, participants with children, and Latinos were less likely to respond that they would be “not at all happy”

if they became pregnant in the next year, compared to adolescents, nulliparous women, and non- Latinos who otherwise scored similarly in terms of contraceptive intent. Similarly, women with children were less likely to respond that they would be “very upset” if they became pregnant, compared to nulliparous women. Finally, participants aged 20–24 and those with children were less likely to respond that it was “very important” to use birth control when having sex infrequently. Items functioned similarly by prior and current use of contraception.

4. DISCUSSION AND CONCLUSION

4.1 Discussion

The Contraceptive Intent Questionnaire (CIQ) measures the latent construct of contraceptive intent and is designed to capture both conscious and unconscious factors that comprise a woman’s predisposition to use contraception. Content validity was established through grounding item development in behavioral theory and prior quantitative and qualitative research. The current psychometric analysis among young women presenting for contraception demonstrated the CIQ has modest reliability and good internal validity. The items and scale met established criteria for internal structure validity. The separation reliability of the 15-item scale of 0.73 met minimal acceptable standards for internal consistency, indicating the items fit together reasonably well.[36]

Perhaps unsurprisingly for a population of women seeking contraceptive care, initial analyses using the four-category Likert responses revealed low endorsement of the lowest categories, compromising internal structure validity. Scale performance was improved greatly when collapsing the lowest three categories. It is possible that the addition of response options capturing higher levels of contraceptive intent would result in greater spread of responses. However, evaluating multiple response categories may not be necessary for a questionnaire of this kind; endorsement of any category except the one reflecting the highest level of contraceptive intent may be sufficient to capture a potential to discontinue contraceptive use. Treating items dichotomously presents numerous practical advantages, including ease of scoring in busy clinical settings. Future testing should examine whether revising response categories improves the ability of the scale to measure the intended construct without compromising ease of use.

We removed the item on planned timing of future children because it did not fit the model well and reduced scale reliability. The high proportion of study participants that responded “I don’t know” is consistent with other studies have shown that the concept of planning the timing of a pregnancy does not resonate particularly well with teenagers and young women.[37] Future testing should consider alternate items that may capture future childbearing intentions.

With a few exceptions, items generally functioned similarly by participant characteristics and prior and current contraceptive use. DIF analyses indicated some differential item performance by age and parity, with women aged 20–24 and parous women less likely to anticipate feeling upset or unhappy if they were to become pregnant, compared to adolescents and nulliparous women with otherwise similar contraceptive intent. Notably,

prior research on pregnancy intention measurement has found similar DIF by parity for items assessing pregnancy attitudes.[38] It is likely that the DIF we detect is a reflection of actual differences in anticipated feelings about pregnancy for the underlying contraceptive intent level of older and parous women, in which case the items are not problematic. However, it may also suggest that these items are biased (more likely to elicit a particular response from participants with particular characteristics) or point to a divergence between the underlying construct of contraceptive intent and feelings about pregnancy. Further testing with a larger sample is needed to explore the reasons why these pregnancy attitude items function differentially for different groups.

The CIQ was developed with dual purposes in mind. The overall score of the questionnaire can be used to identify young women with lower levels of contraceptive intent, who may have problems with contraceptive adherence. Identification of such women could help providers in busy clinical settings to target interventions appropriately and effectively. The critical next step in validating the questionnaire for use as a triaging tool is to assess predictive ability, i.e. how well the instrument predicts contraceptive adherence. This will require a longitudinal study in which women who present to obtain a new contraceptive method complete the questionnaire and be followed after method selection to determine if CIQ scores are associated with method continuation and identify meaningful CIQ score cutoffs that can aid in interpretation during use in clinical settings.

We also anticipate that providers might find it useful to examine responses to specific items on the CIQ as a way to guide and target counseling, similar to the way existing tools designed to assess medication adherence are used.[15] We purposefully limited the number of items on the questionnaire to make it brief and easy to administer at the point of care. Consequently, we did not intentionally define subscales or groups of items with similar contextual or thematic areas. Subscales might be appealing to provide structured information to direct counseling; however the trade-off in terms of needing to increase the overall number of items on the questionnaire to maintain internal consistency of each subscale may not be justified. Pilot work with providers will be critical to assess the usefulness of the scale overall and additional benefit, if any, of subscales in clinical practice.

Research that places contraceptive behavior within a medication adherence framework has not been conducted, and validated tools that allow providers to identify individuals at risk for contraceptive non-adherence do not exist. While applying a medication adherence framework to contraceptive behavior is novel and useful, contraceptive use has important differences from treatments to manage chronic diseases. Contraception is used to prevent a condition – unintended pregnancy – in contrast to chronic disease treatments, which are used to improve functioning and prevent progression or negative consequences related to the condition. Furthermore, unlike patients using medications for ongoing medical conditions, contraceptive clients usually do not return for ongoing follow-up care or monitoring; thus there are fewer opportunities to assess current non-adherence. For these reasons, the questionnaire was designed to assess a latent construct that may predict non-adherence, rather than to measure current adherence.

This validation study has many strengths, including grounding in strong theoretical frameworks, an iterative development process, and testing in a population at high risk for unintended pregnancy. However, this analysis has limitations. We did not assess test-retest reliability of the instrument because many contraceptive clients initiating a new method do so shortly after the clinic visit, and it would not be valid to compare consistency of item responses administered before and after initiating a method. Further analyses could incorporate a short-term test-retest examination however it would be important to assess for method initiation at the time re-testing. In addition, the current questionnaire includes only one item worded so that the highest response category is indicative of the lowest level of contraceptive intent (*happy*). Future assessments could include more items worded in the opposite direction (i.e. “Having sex when there is a chance of pregnancy makes it more exciting.”) Finally, analyses should be repeated among different populations to confirm consistency of results.

4.2 Conclusion

The Contraceptive Intent Questionnaire appears to be a reliable and valid tool. Future testing is needed to assess predictive ability and clinical utility.

4.3 Practical Implications

In order to help women avoid unintended pregnancies, we must increase women’s consistency of use of their chosen contraceptive methods. Health care providers are the gate keepers of contraceptives. Development and validation of this novel tool serves as a starting point for improving the content and conduct of contraceptive counseling during clinical encounters. This questionnaire may serve as a valid tool to help providers identify women who may have problems with contraceptive adherence, as well as to pinpoint areas in which counseling may be directed. Increasing awareness of risk and the ability to predict non-adherence may be helpful to guide the development of interventions to assist women who initiate contraceptives.

Acknowledgments

FUNDING SOURCE

Tina Raine-Bennett received research support for this work under NICHD grant K24HD057086; NICHD had no involvement in the design, collection, analysis or interpretation of data, or manuscript preparation.

References

1. Jones, J.; Mosher, WD.; Daniels, K. National health statistics reports. Hyattsville MD: National Center for Health Statistics; 2012. Current contraceptive use in the United States, 2006–2010, and changes in patterns of use since 1995; p. 60
2. Trussell J. Contraceptive failure in the United States. Contraception. 2011; 83:397–404. [PubMed: 21477680]
3. Sonfield, A.; Hasstedt, K.; Gold, RB. Moving Forward, Family Planning in the Era of Health Reform. New York: 2014.
4. Gavin L, Moskosky S, Carter M, et al. Providing Quality Family Planning Services: Recommendations of CDC and the U.S. Office of Population Affairs. MMWR Recomm Rep. 2014; 63:1–54. [PubMed: 24759690]

5. Henderson JT, Raine T, Schalet A, Blum M, Harper CC. I wouldn't be this firm if I didn't care": preventive clinical counseling for reproductive health. Patient Educ Couns. 2011; 82:254–9. [PubMed: 20558024]
6. Dehlendorf C, Grumbach K, Vittinghoff E, Ruskin R, Steinauer J. A study of physician recommendations for reversible contraceptive methods using standardized patients. Perspect Sex Reprod Health. 2011; 43:224–9. [PubMed: 22151509]
7. Schulman KA, Berlin JA, Harless W, et al. The effect of race and sex on physicians' recommendations for cardiac catheterization. N Engl J Med. 1999; 340:618–26. [PubMed: 10029647]
8. Horne R, Chapman SC, Parham R, Freemantle N, Forbes A, Cooper V. Understanding Patients' Adherence-Related Beliefs about Medicines Prescribed for Long-Term Conditions: A Meta-Analytic Review of the Necessity-Concerns Framework. PLoS One. 2013; 8:e80633. [PubMed: 24312488]
9. Foster DG, Bley J, Mikanda J, et al. Contraceptive use and risk of unintended pregnancy in California. Contraception. 2004; 70:31–9. [PubMed: 15208050]
10. Frost JJ, Singh S, Finer LB. Factors associated with contraceptive use and nonuse, United States, 2004. Perspect Sex Reprod Health. 2007; 39:90–9. [PubMed: 17565622]
11. Frost JJ, Darroch JE. Factors associated with contraceptive choice and inconsistent method use, United States, 2004. Perspect Sex Reprod Health. 2008; 40:94–104. [PubMed: 18577142]
12. Raine TR, Foster-Rosales A, Upadhyay UD, et al. One-year contraceptive continuation and pregnancy in adolescent girls and women initiating hormonal contraceptives. Obstet Gynecol. 2011; 117:363–71. [PubMed: 21252751]
13. George J, Mackinnon A, Kong DC, Stewart K. Development and validation of the Beliefs and Behaviour Questionnaire (BBQ). Patient Educ Couns. 2006; 64:50–60. [PubMed: 16843634]
14. Hahn SR, Park J, Skinner EP, et al. Development of the ASK-20 adherence barrier survey. Curr Med Res Opin. 2008; 24:2127–38. [PubMed: 18554431]
15. Svarstad BL, Chewning BA, Sleath BL, Claesson C. The Brief Medication Questionnaire: a tool for screening patient adherence and barriers to adherence. Patient Educ Couns. 1999; 37:113–24. [PubMed: 14528539]
16. Lapane KL, Dube CE, Schneider KL, Quilliam BJ. Misperceptions of patients vs providers regarding medication-related communication issues. Am J Manag Care. 2007; 13:613–8. [PubMed: 17988186]
17. Mushlin AI, Appel FA. Diagnosing potential noncompliance. Physicians' ability in a behavioral dimension of medical care. Arch Intern Med. 1977; 137:318–21. [PubMed: 843149]
18. Britten N, Stevenson FA, Barry CA, Barber N, Bradley CP. Misunderstandings in prescribing decisions in general practice: qualitative study. Bmj. 2000; 320:484–8. [PubMed: 10678863]
19. Ajzen, I.; Fishbein, M. Understanding attitudes and predicting social behavior. Englewood Cliffs: Prentice-Hall; 1980.
20. Kegeles SM, Adler NE, Irwin CE Jr. Adolescents and condoms. Associations of beliefs with intentions to use. Am J Dis Child. 1989; 143:911–5. [PubMed: 2756965]
21. Moore PJ, Adler NE, Kegeles SM. Adolescents and the contraceptive pill: the impact of beliefs on intentions and use. Obstet Gynecol. 1996; 88:48S–56S. [PubMed: 8752228]
22. DiMatteo MR, Giordani PJ, Lepper HS, Croghan TW. Patient adherence and medical treatment outcomes: a meta-analysis. Med Care. 2002; 40:794–811. [PubMed: 12218770]
23. De Geest S, Sabate E. Adherence to long-term therapies: evidence for action. Eur J Cardiovasc Nurs. 2003; 2:323. [PubMed: 14667488]
24. Bangsberg DR, Perry S, Charlebois ED, et al. Non-adherence to highly active antiretroviral therapy predicts progression to AIDS. Aids. 2001; 15:1181–3. [PubMed: 11416722]
25. Ajzen I. The theory of planned behaviour: reactions and reflections. Psychol Health. 2011; 26:1113–27. [PubMed: 21929476]
26. De Boeck, P.; Wilson, M. Explanatory Item Response Models: a Generalized Linear and Nonlinear approach. New York, NY: Springer-Verlag; 2004.
27. Embretson, SE.; Reise, SP. Item response theory for psychologists. Mahwah, NJ: MEA; 2000.

28. Wilson M, Allen DD, Li JC. Improving measurement in health education and health behavior research using item response modeling: comparison with the classical test theory approach. Health Education Research. 2006; 21:19–32.
29. Hayes RD, Morales LS, Reise SP. Item Response Theory and health outcomes measurement in the 21st century. Medical Care. 2000; 38:II28–II42. [PubMed: 10982088]
30. Embretson SE. The new rules of measurement. Psychol Assess. 1996; 8:341–9.
31. Wu, ML.; Adams, RJ.; Wilson, MR.; Haldane, SA. ACER ConQuest version 2.0: Generalized Item Response Modeling Software. Camberwell, Australia: ACER Press; 2007.
32. American Educational Research Association, American Psychological Association, National Council for Measurement in Psychology. Standards for educational and psychological testing. Washington, DC: American Psychological Association; 1999.
33. Wilson, M. Constructing Measures: An Item Response Modeling Approach. Mahway: Lawrence Erlbaum Associates; 2006.
34. Steinberg L, Thissen D. Using effect sizes for research reporting: examples using Item Response Theory to analyze Differential Item Functioning. Psychol Methods. 2006; 11:402–15. [PubMed: 17154754]
35. Uebelacker LA, Strong D, Weinstock LM, Miller IW. Use of Item Response Theory to understand differential functioning of DSM-IV major depression symptoms by race, ethnicity and gender. Psychol Med. 2009; 39:591–601. [PubMed: 18588740]
36. Nunnally, JC. Psychometric theory. 2. New York: McGraw-Hill; 1978.
37. Borrero S, Nikolajski C, Steinberg JR, et al. “It just happens”: a qualitative study exploring low-income women’s perspectives on pregnancy intention and planning. Contraception. 2015; 91:150–6. [PubMed: 25477272]
38. Rocca CH, Krishnan S, Barrett G, Wilson M. Measuring pregnancy planning: An assessment of the London Measure of Unplanned Pregnancy among urban, south Indian women. Demogr Res. 2010; 23:293–334. [PubMed: 21170147]

Highlights

- We validate a questionnaire to assess risk for contraceptive non-adherence.
- Item response theory methods were used to evaluate its psychometric properties.
- All items fit a one-dimensional model.
- The separation reliability coefficient of the questionnaire was 0.73.
- The Contraceptive Intent Questionnaire appears to be a reliable and valid tool.

Table 1

Candidate items for the Contraceptive Intent Questionnaire

Items (*label*)	Response categories [a]	Percent endorsed	Mean CIQ score [b]	Weighted Mean Square [c]
1. How important is it for you to get further along in your life, like finish school, get a job, or make more money, before you have a child or your next child? (*life*)	**Very important**	**92**	0.4	1.00
	Not at all important; Somewhat important; Important	8	−0.9	
2. Do you think the person you have sex with is against you using birth control? (*pagainst*)	**Definitely not**	**91**	0.4	1.00
	Definitely yes; Probably yes; Probably not	9	−0.7	
3. How important is it for you to avoid getting pregnant now? (*avoid*)	**Very important**	**81**	0.6	0.91
	Not at all important; Somewhat important; Important	19	−0.8	
4. How important is it for you to use birth control now? (*now*)	**Very important**	**70**	0.7	0.94
	Not at all important; Somewhat important; Important	30	−0.4	
5. When do you plan to have a child or your next child? (*plan*) [d]	**In more than 2 years; Never**	**66**	*d*	*d*
	In less than 1 year, In 1 to 2 years; Don't know	44		
6. How happy would you feel if you got pregnant in the next year? (*happy – reverse coded*)	**Not at all happy**	**61**	0.7	1.05
	Somewhat happy; Happy; Very happy	39	−0.3	
7. How sure are you that you will use birth control for the next year? (*usebc*)	**Very sure**	**61**	0.7	0.93
	Not at all sure; Somewhat sure; Sure	39	−0.3	
8. Do you think it will be hard for you to use birth control correctly? (*hard*)	**Definitely not**	**59**	0.7	0.97
	Definitely yes; Probably yes; Probably not	41	−0.2	
9. How sure are you that you could plan ahead to use birth control? (*ahead*)	**Very sure**	**56**	0.9	0.91
	Not at all sure; Somewhat sure; Sure	44	−0.3	
10. How upset would you feel if you got pregnant in the next year? (*upset*)	**Very upset**	**48**	0.7	1.12
	Not at all upset; Somewhat upset; Upset	52	0	
11. How sure are you that you could resist having sex if your partner did not want you to use birth control? (*resist*)	**Very sure**	**48**	0.9	0.99
	Not at all sure; Somewhat sure; Sure	52	−0.2	
12. Do you think birth control will do more harm than good for you? (*harm*)	**Definitely not**	**48**	0.7	1.08
	Definitely yes; Probably yes; Probably not	52	0	
13. Do you think you will get pregnant if you use birth control correctly? (*correct*)	**Definitely not**	**43**	0.7	1.10

Items (*label*)	Response categories [a]	Percent endorsed	Mean CIQ score [b]	Weighted Mean Square [c]
	Definitely yes; Probably yes; Probably not	57	0	
14. How important is it for you to use birth control when you don't have sex very often? (*infreq*)	**Very important**	**36**	1.0	1.02
	Not at all important; Somewhat important; Important	64	0	
15. How sure are you that you could stop yourself from having sex once you were highly aroused or turned on if you weren't using birth control? (*stop*)	**Very sure**	**21**	1.2	0.98
	Not at all sure; Somewhat sure; Sure	79	0.1	
16. Do you think birth control will cause you to have bad side effects? (*side*)	**Definitely not**	**8**	1.5	1.00
	Definitely yes; Probably yes; Probably not	92	0.2	

[a] The bolded response category is coded as highest. Response options reflecting a higher level of contraceptive intent or predisposition to use a new method were coded higher.

[b] Internal structure: On the IRT-generated scale, which centers items around zero, Contraceptive Intent Questionnaire scores ranged from about −4 to 4.

[c] Item fit: A weighted mean square statistic of ≤1.33 was considered acceptable fit.

[d] The item *plan* was removed from the scale.

Table 2

Characteristics of participants (*N*=197)

	Mean	SD
Age (n=196)	18.7	2.4
	n	**%**
Race/ethnicity (n=197)		
Latina	94	47.7
Asian/Pacific-Islander	48	24.4
Black	26	13.2
White	18	9.1
Mixed/missing	11	5.6
Has a child (n=197)	19	9.6
Employed (full or part-time) (n=197)	64	32.5
In school (n=197)		
No	39	19.8
Yes: high school, junior/community college	130	66.0
Yes: college, university, graduate	28	14.2
Ever used a hormonal or LARC method	120	60.9
Currently using a hormonal method	31	16.0