


Getting Intentional about Intention to Use: A Scoping Review of Person-Centered Measures of Demand

Victoria Boydell  and Christine Galavotti

In recent years, there has been much reflection on the measures used to assess and monitor contraceptive programming outcomes. The meaning and measurement of intention-to-use (ITU) contraception, however, has had less attention and research despite its widespread inclusion in many major surveys. This paper takes a deeper look at the meaning and measurement of ITU around contraception. We conducted a scoping review guided by the following questions: What is the existing evidence regarding the measurement of ITU contraception? What definitions and measures are used? What do we know about the validity of these measures? We searched databases and found 112 papers to include in our review and combined this with a review of the survey instruments and behavioral theory. Our review found growing evidence around the construct of ITU in family planning programming and research. However there are inconsistencies in how ITU is defined and measured, and this tends not to be informed by advances in behavioral theory and research. Further work is needed to develop and test measures that capture the complexity of intention, examine how intention differently relates to longer-range goals compared to more immediate implementation, and demonstrate a positive relationship between ITU and contraceptive use.

INTRODUCTION

Understanding women's demand for contraception is essential for designing, implementing, and assessing responsive contraceptive programs. There are currently two ways to measure demand. The first is measuring women's unmet need for contraception, which is a top-down population measure of need. The unmet need has been the main measure of demand since the 1970s, though it has undergone much critique and revision (Westoff 1978; Westoff and

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Ochoa 1991; Bradley et al. 2012).^{1,2} The second way to capture demand for family planning is to measure the intention-to-use (ITU) contraception, which has also been measured since the 1970s using items such as “I intended to do x.”³ Unlike unmet need, ITU draws on a woman’s directly expressed desire to use contraception, her perception of risk to pregnancy, or her interest to use in the future (Ross and Winfrey 2001; Khan et al. 2015). This more person-centered measure of demand directly captures women’s stated preferences about using contraception and may actually better predict need and actual use (Ross and Winfrey 2001).

There have been advances in how we understand and measure intentions in the fields of social psychology and behavioral theory. Drawing on this work, we understand that intentions signal the end of a person’s deliberation processes about what actions one will perform, how hard one will work for it, and how much effort one will apply to achieve the desired outcomes (Ajzen 1991; Gollwitzer 1993; Webb and Sheeran 2006; Gollwitzer and Sheeran 2008). Here, we use Triandis’s (1980, 203) definition of intention: “Behavioral intentions are instructions that people give to themselves to behave in certain ways.” The nature of intention and its relationship to behavior has been theoretically mapped in a range of behavioral theories and models (e.g., the theory of planned behavior, self-regulation theories, and phased models). Each theory has its own model of intention and its relationship to action. Whether the theory is based on goal striving theory of planned behavior, self-regulation, or a staged model of behaviors (transtheoretical model, health belief model), they share a common understanding that intention is not a dichotomous variable, rather, it can be strong or weak, and it is conditioned, among other things, on time (i.e., intention to do immediately vs. at some point in the future) as well as proximity and attributes of the intended behavior. These advances in definition and measuring intention have yet to be applied to the construct of ITU in family planning.

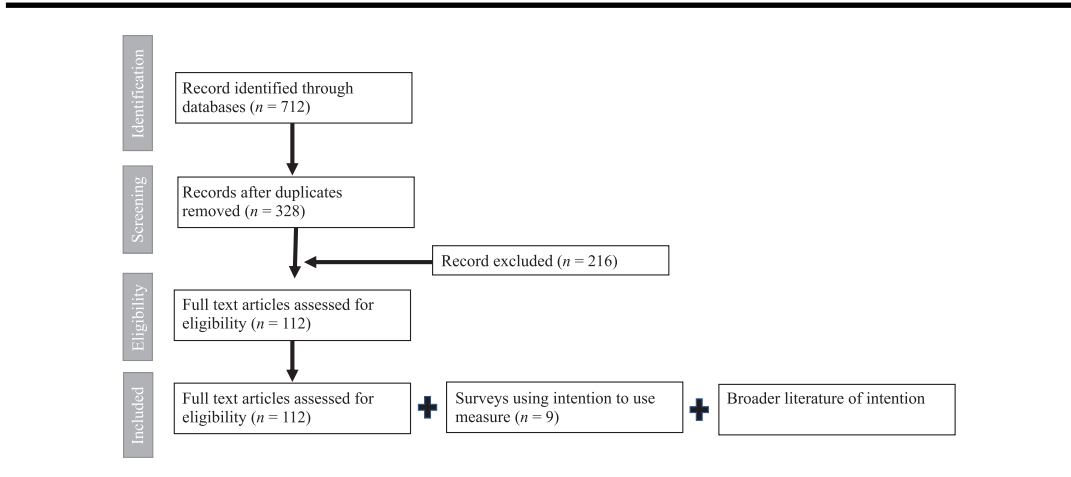
In recent years as part of the post-2012 Family Planning Summit renaissance, there has been much reflection on the measures used to assess and monitor contraceptive programming, for example, unmet need, additional users, demand satisfied, and continuation have been reexamined and refined (Cleland et al. 2014; Bradely and Casterline 2014; Dasgupta et al. 2017). Compared with other measures, ITU has received relatively little attention and it has not been subject to extensive independent research in the same way. The few scholars working on ITU argue that it merits further attention, concerning capturing ideational formation and demand for contraception and as a proximal predictor of future contraceptive use and it is time to get intentional about intent to use (Babalola et al. 2015; Hanson et al. 2015; Sarnak et al. 2020; Curtis and Westoff 1996; Callahan and Becker 2014). This scoping review presents the first attempt to synthesize what we know about ITU and hopes to start to fill this evidence gap. The following paper outlines the findings from a scoping review that examines the extent, range, and nature of the evidence on measuring ITU and the trends and gaps in

1 Unmet need is defined as the number or percentage of women currently married or in union who are fecund and who desire to either terminate or postpone childbearing, but who are not currently using a contraceptive method (Measure Evaluation 2020).

2 See Moreau et al. (2019), Peterson et al. (2013), Darroch and Singh (2013), and Alkema et al. (2013).

3 Collecting data about women’s intention to use contraception has antecedents dating back to the World Fertility Survey in the 1970s.

FIGURE 1 Flowchart of scoping review



the evidence with the aim of galvanizing research interest on this promising person-centered measure of demand.

METHODS

Our aim was to examine the extent, range, and nature of the evidence on measuring ITU. We chose a scoping review because it allowed us to survey a topic that has yet to be examined comprehensively. This review methodology allowed us to encompass a range of evidence sources and uses a variety of study selection approaches. Our research methodology is based on Colquhoun et al. (2014) framework for scoping reviews, which includes (1) identifying the research question; (2) identifying relevant studies; (3) study selection; (4) charting the data; and (5) collating, summarizing, and reporting the results (also see Arksey and O’Malley 2005; Levac et. al. 2010).

The review was guided by the questions: What is the existing evidence regarding the measurement of ITU contraception? What definitions and measures are used? What do we know about the validity of these measures? To identify the relevant studies, we used three data sources: (1) we searched relevant databases of the peer-reviewed literature, (2) we reviewed survey instruments that collected ITU, and (3) we reviewed the broader literature. Figure 1 outlines our scoping review process.

To identify the peer-reviewed literature, we ran search strings using synonyms of “intent to use” and “contraception” in PubMed and Web of Science. The search terms included (intent* OR intend*) AND (“to use”) OR (intent* OR intend* OR willingness) AND (concept* OR “birth control” OR “family planning”). A total of 712 records were found and downloaded into an excel spreadsheet. We reviewed the spreadsheet for duplicate records and 384 were removed. The titles and abstracts of the remaining 328 records were reviewed against the following inclusion criteria: refers a measure of ITU; refers any modern contraceptives, including condoms and emergency contraception; published between 1990 and present;

and published in English. After the review, we retained 112 papers for full paper review (see Table A3 for bibliography).

A data-charting form was developed that detailed the variables we extracted. We abstracted data on the following categories:

- Author;
- Year of publication;
- Country;
- Study design;
- Research objectives;
- Target population;
- Outcome of interest;
- Definition of ITU;
- Theoretical frameworks, if any;
- How ITU was measured;
- Findings.

We grouped the studies by the measures, theories, and the study design used and broad findings.

In addition to the peer-reviewed sources of evidence, we also reviewed how different surveys measured ITU (see Table A1). To further contextualize the findings in the broader literature, we also read key papers on intentions from behavioral science. To provide a picture of the extent, range, and nature of existing evidence on ITU, we compare the findings from the peer-reviewed search with those from two other data sources.

RESULTS

Intention is a complex construct, and there is much debate about the nature of intention and if and how it relates to action. Behavioral theory distinguishes between types of intention, its properties, intensities, and determining variables. How we think intention works is central to how we operationalize it in measurement. After describing the characteristics of the evidence, in this section we detail the findings. The findings are grouped in relation to the definition of ITU, how the measure is used, the characteristics, and the reported results.

Characteristics of the Evidence

The peer-reviewed papers are described in Table 1, together with a description of the research objective and study design for each paper alongside details about the theoretical framework, the ITU items used, and the reported results.

From 1990 to 1999, seven papers on ITU were published. This increased to 28 papers from 2000 to 2009, of which over half related to condom use. From 2010 to 2020, 76 papers on ITU were published, and more than 50 papers came out in between 2015 and 2020. Sixty-eight papers used cross-sectional study designs and 15 longitudinal studies using cohorts to look at the relationships between variables over time. There were 15 experimental and quasi-experimental studies, seven of which were randomized-control trials (RCTs). There

TABLE 1 Details of included papers

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|---|---|---------------------------|---|---|
| 1993 | A. Joffe and S. M. RADIUS USA | Cross-sectional survey | Does self-efficacy theory explain intent to use condoms of sexually and nonsexually active adolescents in the USA | Self-efficacy theory | If you are planning to have sex, how likely is it that you will use a condom next time? | <ul style="list-style-type: none"> All eight behaviors of condoms were significantly correlated with intent to use condoms for males and six behaviors for females. The frequency of past condom use was most influential in explaining intent to use condoms for sexually active youths. Perceived self-efficacy plays a modest role in predicting adolescent's intent to use condoms Strong contraceptive intentions in 1992 have a strong predictive effect on subsequent contraceptive use even after controlling for other characteristics The strength of the effect is second only to that of the previous contraceptive Past use of contraceptives, spousal communication, and exposure to positive FP messages increase intent to practice. |
| 1996 | S. L. Curtis and C. F. Westoff MOROCCO. | Prospective Cohort Study Multivariate analysis | Assess the predictive effect of contraceptive intentions on subsequent individual contraceptive behavior in Morocco | Not given | <p>"Do you intend to use a method to delay or avoid pregnancy at any time in the future?"</p> <p>"Do you intend to use a method within the next 12 months?"</p> | <ul style="list-style-type: none"> Health considerations played a minor role in determining condom use compared to other immediate consequences, such as perceived inconvenience of use and perceived partner attitude. Perceptions of individuals influence their health behavior: attitudes and beliefs, confidence, previous use, partner perception associate with intention-to-use (ITU) Information on condoms provided by peers was significantly associated with the intention to use condoms; information provided by schools, while not significant in the final model, was positively associated with younger adolescents' intention to use condoms; Sexually inactive male adolescents in a less committed couple relationship had a greater intention to use condoms |
| 1996 | S. I. Hiltabiddle GLOBAL | Systematic review | To examine the factors associated with adolescent condom use | Health belief model | Not detailed | <ul style="list-style-type: none"> Health considerations played a minor role in determining condom use compared to other immediate consequences, such as perceived inconvenience of use and perceived partner attitude. Perceptions of individuals influence their health behavior: attitudes and beliefs, confidence, previous use, partner perception associate with intention-to-use (ITU) Information on condoms provided by peers was significantly associated with the intention to use condoms; information provided by schools, while not significant in the final model, was positively associated with younger adolescents' intention to use condoms; Sexually inactive male adolescents in a less committed couple relationship had a greater intention to use condoms |
| 1996 | Minh Nguyet Nguyen, Jean François Saucier, and Lucille A. Pica CANADA | Cross-sectional survey | To determine whether attitudes and other variables are associated with intention to use condoms in sexually inactive male adolescents in Canada | Theory of reasoned action | Not detailed | <ul style="list-style-type: none"> Health considerations played a minor role in determining condom use compared to other immediate consequences, such as perceived inconvenience of use and perceived partner attitude. Perceptions of individuals influence their health behavior: attitudes and beliefs, confidence, previous use, partner perception associate with intention-to-use (ITU) Information on condoms provided by peers was significantly associated with the intention to use condoms; information provided by schools, while not significant in the final model, was positively associated with younger adolescents' intention to use condoms; Sexually inactive male adolescents in a less committed couple relationship had a greater intention to use condoms |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|--|--|---|---|---|
| 1999 | E. Zimmers, G. Privette, R. H. Lowe, and F. Chappa USA | Randomly assigned field experiment | To assess the impact of viewing a video on women with a willingness to try and to continue using female condoms in the USA | Social psychological perspective | Not detailed | <ul style="list-style-type: none"> Although the video influenced women to try the product, it did not guarantee that they would be the device or continue to use it. Video viewing was unrelated to liking the product and future intent to use. |
| 1999 | Sara Ann Peterson, NIGER | Cross-sectional survey Multivariate logistic regression | To examine the differences between polygamous and monogamous spouses with regard to approval of birth control, desired family size, communication between spouses, and intention of using birth control in Niger | Not given | Not detailed | <ul style="list-style-type: none"> The marital structure is not significantly associated with ITU birth control when the husband's age and the wife's ideal number of children were controlled Educational level and age at first marriage were significantly associated with attitudes towards birth control and also with marital structure. |
| 2000 | Marie Pierre Gagnon, and Gaston Godin USA | Randomized control trial with vignettes | To assess the potential effects of new antiretroviral therapies on preventive sexual behaviors by exploring the intention of young adults to maintain condom use following a modification in the outcomes of HIV infection | Theory of planned behavior and theory of interpersonal behavior | <p>"If the occasion presents itself, I would use a condom with a new sexual partner";</p> <p>"I would use a condom if I had a new sexual partner";</p> <p>"I evaluate my chances of using a condom with a new sexual partner as"</p> | <ul style="list-style-type: none"> For this construct, a Cronbach's alpha coefficient of 0.87 was found and test-retest reliability coefficient was 0.99 Intention to use condoms with a new sexual partner is likely to be modified by the expected outcome of the disease, that is, whether lethal or chronic. New antiretroviral therapies are likely to modify the intention of college students to use a condom with a new sexual partner |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|--------------------------|---|--|--|---|
| 2000 | Ingela Lundin Kvalrem and Bente Træen NORWAY | Randomized control trial | To examine the relationship between contraceptive self-efficacy and the intention to use condoms among Norwegian adolescents | Self-efficacy and sexual script theory | Not detailed | <ul style="list-style-type: none"> • Connection between the adolescents' actual use of condoms at the most recent sex and their intention to do so the next time • Girls' ITU at next sex was not influenced by their contraceptive self-efficacy to the same degree as the boy's intention |
| 2001 | Anna Fazekas, Charlene Y. Senn, and David M. Ledgerwood CANADA | Cross-sectional survey | To identify the variables that best predict whether or not young women intend to use condoms during their sexual encounters with new partners | Theory of planned behavior | Attitudes Toward Condoms Questionnaire (ATCQ) number of subscales tapping different dimensions of condom attitudes | <ul style="list-style-type: none"> • Prediction was improved by including specific beliefs (condom use demonstrates responsible sexual activity, condom use does not destroy trust), group norms, and birth control use (mediated by attitudes toward condoms) |
| 2001 | John A. Ross and William L. Winfrey GLOBAL | Cross-sectional survey | To assess what proportion of women during experience unmet need for contraception and what proportion express an intention to use and, second, how much do these women account for all unmet needs in an entire population, and how much do they represent all women who intend to practice contraception | Not given | <ul style="list-style-type: none"> • Do you intend to use a method to delay or avoid pregnancy in the next 12 months? | <ul style="list-style-type: none"> • Over the first year postpartum, the proportion of women using a contraceptive rise, reducing the base of nonusers. As a result, the overall percentage intending to use declines with time, from 54% in the first three months postpartum to 31% in months 9–12) • Where the stated intention to use contraceptives is high, actual use rises substantially • On average, for each increase of 1% in intention, there is nearly a 1% rise in contraceptive adoption |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|---|---|-------------------------|--|--|
| 2001 | S. Agha ZAMBIA | Cross-sectional survey | To examine intention to use the female condom among men and women in Zambia, who were exposed to mass-marketing of the female condom | Not given | <ul style="list-style-type: none"> “Do you intend to use the female condom in the future?” “Do you intend to use the male condom in the future?” Not detailed | <ul style="list-style-type: none"> In spite of a high level of awareness of the female condom, use of this method in the last year was lower than the use of the male condom Intention to use the female condom in the future was highest among respondents who had used only the female condom in the last year Discussion of the female condom with a partner was an important predictor of intention to use The intervention and control groups did not differ in the proportion of pupils intending to use emergency contraception in the future |
| 2002 | Anna Graham, Laurence Moore, Deborah Sharp, and Ian Diamond UK | Cluster randomized controlled trial | To assess the effectiveness of a teacher-led intervention to improve teenagers' knowledge about emergency contraception in the UK | Not given | Not detailed | |
| 2002 | Sohail Agha and Ronan Van Rossem TANZANIA | Cross-sectional survey Path analysis is a regression based | To assess whether a mass media campaign designed to promote the use of the female condom had an impact on intentions to use the female condom among men and women of reproductive age in Tanzania | Diffusion of innovation | Not detailed | <ul style="list-style-type: none"> Mass media exposure significantly increased the likelihood that a man or a woman would discuss the use of the female condom with a partner. In turn, discussion of the female condom with a partner strongly influenced the intention to use the female condom in the future |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|--|---|-----------------------------------|--|--|
| 2003 | Michael R. Spence, Kindra K. Elgen, and Todd S. Harwell USA. | Cross-sectional survey | To identify factors associated with awareness of emergency contraception (EC), prior use of EC, and intent to use EC in the future among women at the time of pregnancy testing in the USA | Not given | "Would you use emergency birth control?" | <ul style="list-style-type: none"> • Women presenting for pregnancy testing would consider using it in the future (13%). • Women who considered using EC in the future were more likely to be younger, non-White, have <12 years of education, not currently living with a partner, and their usual source of care was a public clinic. Women who considered using EC in the future were also more likely to not want to be pregnant now or ever (21%) compared to women who wanted to be pregnant now or sooner (12%), or with those who were unsure of their current pregnancy (7%) • Women with unintended pregnancies were no less likely to be aware of EC compared to women with intended pregnancies; however, they were more likely to consider using EC in the future • Exposure to BCC messages was associated with increased contraceptive use and intention to use in the near future for nonusers, regardless if they were men and women |
| 2003 | Neeru Gupta, Charles Katende, and Ruth E. Bessinger UGANDA | Pre-Post Delivery of Improved Services for Health evaluation surveys | To examine the associations between multimedia behavior, change communication (BCC) campaigns, and women's and men's use of and intention to use modern contraceptive methods in target areas of Uganda | Theory of diffusion of innovation | | |
| 2003 | T. K. Roy, F. Ram, Parveen Nangia, Uma Saha, and Nizamuddin Khan INDIA | Cohort survey- Logistic regression | To examine intention to use a method as a measure of contraceptive demand | Not given | | <ul style="list-style-type: none"> • Women who were not using a method (including those who were currently pregnant) were asked about their intentions to use a method and about their intended method |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|--|---|---|--------------|--|
| 2003 | I. Mogilevskina, and V. Odland UKRAINE | Unmatched case-control study | To investigate contraceptive practices and factors behind contraceptive preferences among Ukrainian women attending for abortion or gynecological health check-up | Not given | Not detailed | <ul style="list-style-type: none"> A history of previous childbirth (odds ratio (OR) = 1.8), at least two induced abortions (OR = 1.7) and sexual education obtained from the literature (OR = 1.8) were associated with preference to use modern contraceptives |
| 2004 | Ruhul Amin, and Takanori Sato USA | Pre- and postintervention and comparison sites | To systematically evaluate a school-based comprehensive program to assess its impact on contraceptive use, future contraceptive intention | Not given | Not detailed | <ul style="list-style-type: none"> The percentages of enrollees in intervention schools who were using contraceptives or who expressed intention to use contraceptives in the future were higher than those of the counterpart nonenrollees from the comparison school |
| 2004 | Ruey Hsia Wang, Min Tao Hsu, and Hsiu Hung and Wang TAIWAN | Cross-sectional survey of adolescent boys | To explore the predictors of contraceptive intention in adolescent males in Taiwan | Theory of reasoned action (TRA) and self-efficacy | | <ul style="list-style-type: none"> Contraceptive intention was measured using a six-item scale to assess the possibility of contraception use if a participant wanted to have sexual intercourse within the next year |
| 2004 | Margareta Larsson, Karin Eurenus, Ragnar Westerling, and Tanja Tyden SWEDEN | Quasi-experimental, pre- and postintervention with a control logistic regression | To evaluate a community-based intervention regarding emergency contraceptive pills (ECP), including a mass media campaign and information to women visiting family planning clinics | Theory of diffusion of innovation and the health belief model | | <ul style="list-style-type: none"> Intention to use emergency contraceptive pills in case of need was reported by 74% of the women and remained stable over time, but logistic regression showed that information during the previous year contributed to the willingness to use the method in the intervention group |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|--|--|----------------------------|--|---|
| 2005 | Sara J. Newmann, Alisa B. Goldberg, Rodolfo Aviles, Olga Molina de Perez, and Anne F. Foster-Rosales EL SALVADOR | Cross-sectional survey with postpartum adolescents | To describe demographics and contraceptive familiarity and use among postpartum adolescents in El Salvador | Not given | “Do you plan on using contraception in the future?” | <ul style="list-style-type: none"> • Having a partner and living with him were predictors of intent to use contraception ($p = 0.001$ and 0.002, respectively). Being single negatively predicted intention to use contraception ($p = 0.001$) |
| 2005 | Cynthia Rosengard, Jennifer G. Clarke, Kristen DaSilva, Megan Hebert, Jennifer Rose, and Michael D. Stein USA | Cross-sectional survey with women | To explore correlates of intentions to use condoms with main and casual partners among incarcerated women | Theory of planned behavior | “How often do you plan to use condoms in the next six months (following release from the Rhode Island Department of Corrections) with your [main/steady, casual/nonsteady] partner?” | <ul style="list-style-type: none"> • Past behavior is often one of the best predictors of intentions regarding future behavior. Condom use at last sex with a main partner, sexually transmitted disease (STD) history, no strong desire to currently be pregnant, belief that others influence one's health, and perceived STD risk was positively associated with women's intention to use condoms with main partners. Pregnancy history was negatively associated with intention to use condoms with the main partner. Condom use at last sex with a casual partner was positively associated with intention to use condoms with a casual partner |
| 2005 | Jennifer K. Legardy, Maurizio Macaluso, Lynn Artz, and Ilene Brill USA | Randomized control trial A binomial regression analysis | To assess whether participant baseline characteristics modified the effects of a skill-based intervention promoting condom use | Not given | Not detailed | <ul style="list-style-type: none"> • Intention to use condoms next time was a significant modifier of the intervention's effectiveness on consistent condom |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------|---|---|---|--|
| 2005 | Daryl B. O'Connor, Eamonn Ferguson, and Rory C. O'Connor UK | Cross-sectional survey | To explore the extent to which male hormonal contraception is perceived as risky compared to other prevention behaviors and examine the effects of message framing on intentions to use hormonal male contraception | Prospect theory The theory of planned behavior (TPB) | Not detailed | <ul style="list-style-type: none"> Exposure to a loss framing of messages influenced intention to use the daily male pill in men with a more positive attitude |
| 2006 | Ekere James Esien, Gbadebo O. Ogungbade, Harrison N. Kamiru, Ernest Ekong, Doriel Ward, and Laurens Holmes NIGERIA | Cross-sectional study | To examine multiple predictors of condom use among Uniformed Services Personnel in Africa in Nigeria | Self-efficacy theory | Respondents were asked if there is a particular place, they go to get a condom. | <ul style="list-style-type: none"> The knowledge of how to correctly wear a condom was the most significant positive predictor of the intention to use a condom, adjusted prevalence odds ratio (APOR), 5.99, (95% CI = 1.26, 19.79). Other main positive predictors of intent to use condoms were the knowledge of the mode of HIV transmission via blood, APOR 2.43 (95% CI = 1.01, 5.82), saliva (5.87, 95% CI 3.15, 10.94), and preejaculatory fluid (APOR, 3.58, 95% CI = 1.67, 7.48). Male gender was also a significant positive predictor of the intent to use condoms, APOR, 2.55, (95% CI 1.10, 5.97) Compared to men, women were of disadvantage in intent to use condoms; Monogamous relation negatively predicted the intent to use condoms |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|---|---|---------------------------|--|---|
| 2006 | Cees Hoefnagels, Harm J. Hospers, Clemens Hosman, Leo Schouten, and Herman Schaaijma NETHERLANDS | Cross-sectional survey. | To investigate whether ITU condoms change when there is no pregnancy risk, to allow such changes to be predicted from an STD risk-perception perspective with undergraduate students in the Netherlands | Not given | Not detailed | Intention not to use a condom was three times as high (58 vs. 19) when there was no risk of pregnancy compared to the condition in which no information about contraception was provided. Thirty-seven percent of the respondents stated that they intended to use a condom with a new sexual partner when there was no risk of pregnancy. The different types of risk (pregnancy and STD risk) were associated with the distinction between consistent intenders (who intended to use a condom irrespective of birth control issues) and nonconsistent intenders who intended to use a condom when the birth control issue was implicit, but did not intend to use a condom when there was no risk of pregnancy) |
| 2006 | Hong Ha M. Truong, Timothy Kellogg, Willi McFarland, Mi Suk Kang, Philip Darney, and Eleanor A. Drey USA | Examination of medical records of adolescents | To examine the changes between a choice of contraceptive methods before abortion and contraceptive intentions after abortion in the USA | Not given | Analysis of medical records—individual change in primary contraceptive choices before abortion compared to contraceptive intentions after abortion | <ul style="list-style-type: none"> There was no difference in intention to use condoms after abortion among adolescents who received voluntary HIV counseling and testing compared to those who did not |
| 2007 | Eun Seok Cha, Kevin H. Kim, and Willa M. Doswell KOREA | Cross-sectional survey | This study examined the mediating role of condom self-efficacy between the parent-adolescent relationship and the intention to use condoms in Korea | Theory of reasoned action | Not detailed | <ul style="list-style-type: none"> Condom self-efficacy mediated the prediction of intention to use condoms by the quality of the mother-son relationship |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|------------------------|---|----------------------------|---|---|
| 2008 | Ruey-Hsia Wang, Chung-Ping Cheng, and Fan-Hao Chou TAIWAN | Cross-sectional survey | To investigate how social influences, attitude, and self-efficacy operate together to influence contraceptive intention in Taiwan | Theory of reasoned action | "If you want to have sex within the next year, how strong is the possibility of your using contraceptives?" | <ul style="list-style-type: none"> Social influences affected contraceptive intention indirectly through the contraceptive attitude and self-efficacy for contraception, which affected contraceptive intention directly |
| 2008 | Cynthia J. Mollen, Frances K. Barg, Katie L. Hayes, Marah Gotschik, Nakeisha M. Blades, and Donald E. Schwarz USA | Qualitative research | To explore the knowledge, attitudes, and beliefs of urban, minority adolescent girls about intention to use emergency contraception pills and to identify barriers to emergency contraception pill use among 15-19 Black adolescent girls in hospital settings in the USA | Theory of planned behavior | If they would be considering ECP in the future | <ul style="list-style-type: none"> Urban, minority adolescent girls have misconceptions about ECPs are affected by the opinions of those close to them, and express concern about specific barriers |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|--|---|------------------------------|--|--|
| 2008 | M. Williams, A. Bowen, M. Ross, S. Timpson, U. Pallonen, and C. Amos USA | Cross-sectional survey Two structural equation models | To investigate the contribution of a personal norm of condom-use responsibility to the formation of intentions to use male condoms during vaginal sex among heterosexual African American crack cocaine smokers in Houston, Texas | Integrated behavior al model | Respondents were asked if s/he intended to use a male condom the next time s/he had vaginal sex with the named partner | <ul style="list-style-type: none"> • A personal norm of condom-use responsibility provided a significantly better fit to the data than models that only included outcome expectations, subjective norms, and self-efficacy • A personal norm of condom-use responsibility had a strong direct effect on men's intentions to use condoms with the last sex partner. Women's intentions were strongly influenced by a personal norm and social subjective norms • Strong direct paths in men's and women's models from a personal norm of condom-use responsibility to condom-use self-efficacy beliefs, subjective norms, and condom-use attitudes suggest that developing a personal norm of condom use may be a necessary process before condom-use attitudes, feelings of self-efficacy or subjective norms begin to change • The intentions of using ECPs and condoms were positively correlated with each other and with a positive attitude. • There were significant gender differences on many of the variables, in that female students had higher knowledge about ECPs, intention of using ECPs and condoms, and more positive attitudes toward condoms than male students who had more positive attitudes toward ECPs |
| 2008 | Hee Sun Kang, and Linda Moneyham KOREA | Cross-sectional survey | To examine the intentions, knowledge, and attitudes of college students regarding the use of emergency contraceptive pills (ECPs) and condom in Korea | Theory of planned action | Not detailed | <ul style="list-style-type: none"> • Advanced age and high parity significantly predicted intention to use postpartum contraceptives ($p = 0.02$ and 0.01, respectively). • A high level of respondent's education and EP counseling by doctors and nurses increased the intention to use postpartum contraceptives ($p = 0.03$ and 0.01, respectively) |
| 2009 | Omololu Adegbola, and Adeyemi Okunowo NIGERIA | Cross-sectional survey | To assess the intention to use postpartum contraceptives and factors influencing use among pregnant and puerperal women in Lagos University Teaching Hospital (LUTH), Lagos, Nigeria | Not given | Not detailed | <ul style="list-style-type: none"> • Advanced age and high parity significantly predicted intention to use postpartum contraceptives ($p = 0.02$ and 0.01, respectively). • A high level of respondent's education and EP counseling by doctors and nurses increased the intention to use postpartum contraceptives ($p = 0.03$ and 0.01, respectively) |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|--------------------------|--|----------------------------|--|--|
| 2009 | G Anita Heeren, John B. Jemmott, Andrew Mandeya, and Joanne C. Tyler SOUTH AFRICA | Prospective cohort study | To test the hypothesis that hedonistic and normative beliefs regarding sexual partners and peers, and control beliefs regarding condom-use technical skill and impulse control would predict the intention to use condoms, which would predict condom use three months later among undergraduates at a university in Eastern Cape Province, South Africa | Theory of planned behavior | Not detailed | <ul style="list-style-type: none"> Condom-use intention predicted consistent condom use and condom use during most recent intercourse at three-month follow-up The hedonistic behavioral belief that condoms do not interfere with sexual enjoyment, normative beliefs that sexual partners and peers approve of condom use, and control beliefs reflecting confidence in condom-use technical skill and the ability to exercise sufficient impulse control to use condoms were significantly related to the intention to use condoms This prospective intention–behavior link is held across two different ways of operationalizing the use of condoms—consistent condom use and condom use during most recent intercourse |
| 2010 | Sohail Agha PAKISTAN | Cross-sectional survey | To assess the perceived costs and motivations for specific contraceptive use behaviors among currently married women 15–49 and men married to women 15–49 in Pakistan | Synthesis framework | “Do you or your spouse intend to use this method in the next 12 months?” | <ul style="list-style-type: none"> For women, the perception of in-law’s support, belief in birth spacing, perception method choice, and staff competency were drivers of intentions to use contraceptive methods. The strongest obstacle to ITU was a belief that family planning decisions were made by the husband, and fertility was determined by God’s will. For men, the perception that FP improved the family and wife well-being was the most important drivers of ITU. The strongest obstacle to ITU was a fear that contraceptives would make a woman sterile and harm her womb lowered his intention to use modern contraceptive methods |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|--------------------------------------|--|---------------------------|---|--|
| 2011 | Tina R Raine, Anne Foster-Rosales, Ushma D. Upadhyay, Cherrie B. Boyer, Beth A. Brown, Abby Sokoloff, and Cynthia C. Harper USA | A 12-month longitudinal cohort study | To assess contraceptive discontinuation, switching, factors associated with method discontinuation, and pregnancy among women initiating hormonal contraceptives among adolescent girls and women aged 15–24 years attending public family planning clinics, USA | Theory of reasoned action | “How sure are you that you will use the baseline method selected for 1 year?” | <ul style="list-style-type: none"> The only factors associated with a lower risk of discontinuation were greater intent to use the method Intention was guided by attitudes toward contraception, pregnancy desire, and partner’s attitudes |
| 2011 | Saima Hamid, Rob Stephenson, and Birgitta Rubenson PAKISTAN | Cross-sectional survey | To explore how young married women’s involvement in the arrangements surrounding their marriage is associated with their ability to negotiate sexual and reproductive health decisions in marriage in Pakistan | Self-efficacy theory | Not detailed | <ul style="list-style-type: none"> Having a say in the selection of a spouse was significantly associated with an agreement with the spouse over the number of children to have, ITU contraceptives, and the time between marriage and first contraceptive use The odds of ITU contraceptives were higher among respondents aged 20–24 years at marriage as compared to 15–19 years old The more children the respondents had, the higher was the likelihood of discussing and agreeing with their spouse on the number of children to have, ITU, or be current users Higher mobility outside the household was associated with higher ITU |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|---------------------------|---|----------------------------|---|---|
| 2011 | Katherine E. Brown, Keith M. Hurst, and Madelynn A. Arden UK | Randomized Control Trials | To evaluate the impact of intervention materials, designed to enhance self-efficacy and anticipated regret, on contraceptive behavior and antecedents of contraceptive use in a sample of adolescents in the UK | Theory of planned behavior | "I intend to use a method of contraception effectively every time I have sex" | Among sexually active participants with relatively low levels of intention to use contraception at the outset, increases in several outcome measures including intention and behavior were observed ($F[3,35] 1/4 10.359, P 5.0,001, Zp 1/4 0.47$) The finding that intervention conditions perform no better than control |
| 2011 | Jongwon Lee, Mary Ann Jezewski, Yow Wu Bill Wu, and Mauricio Carvallo USA | Cross-sectional survey | To explore the relationship between acculturation and beliefs, attitudes, norms, and intention regarding oral contraceptive use among Korean immigrant women using acculturation in the USA | Theory of reasoned action | Intention to use oral contraceptives in the future | <ul style="list-style-type: none"> • Acculturation affects intention to use oral contraceptives indirectly only through other components (e.g., changes in beliefs, attitudes, norms, and intention) |
| 2011 | V. Khanal, C. Joshi, D. Neupane, and R. Karkee NEPAL | Cross-sectional survey | To find perceptions, practices, and factors affecting the use of family planning among abortion clients in Nepal | | Intention to use FP after abortion | <ul style="list-style-type: none"> • Knowledge, acceptance of counseling service, and intention to use family planning measure was high in the study participants |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|------------------------|--|-----------------------|--|---|
| 2012 | Joy Noel Baumgartner, Rose Otieno-Masaba, Mark A. Weaver, Thomas W. Grey, and Heidi W. Reynolds KENYA | Cross-sectional survey | To explore the facility-and provider-level characteristics that may be associated with same day uptake or intention to use contraception after a Voluntary counseling and testing (VCT) visit, and contraceptive use three months later among youth clients in Kenya | Not given | Not detailed | <ul style="list-style-type: none"> For the outcome of same day uptake of FP or intention to use FP after the VCT session, significantly associated client-level variables included having a partner (more so for those not living with their partner), having more education, having more children, and not wanting children in the next three months. There were no significant provider characteristics, but at the clinic level, higher levels of integration were significantly associated with higher FP uptake/intention to use |
| 2012 | Elizabeth Rink, Kris FourStar, Jarrett Medicine Elk, Rebecca Dick, Lacey Jewett, and Dionne Gesink USA | In-depth interviews | This study examines the extent to which age, fatherhood, relationship status, self-control of birth control method, and the use of birth control influence young Native American men's intention to use family planning services in the USA | Not given | "How likely is it that you will seek birth control services in the next year?" | <ul style="list-style-type: none"> Men with children were over five times more likely to seek FP services within the next year for birth control than Native American men who reported not having children |
| 2012 | Elizabeth Rink, Kris FourStar, Jarrett Medicine Elk, Rebecca Dick, Lacey Jewett, and Dionne Gesink USA | In-depth interviews | To examine the influence of age, fatherhood, and mental health factors related to historical trauma and loss on young American Indian (AI) men's intention to use birth control in the USA | Not given | Not detailed | <ul style="list-style-type: none"> Fatherhood may also be considered a protective factor that may increase the likelihood that young Native American men will seek family planning services for birth control |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|-------------------------|---|----------------------------|--|--|
| 2012 | Shelly Campo, Natoshia M. Askelson, Erica L. Spies, and Mary Losch USA | Cross-sectional survey. | To examine how the extended parallel process model (EPPM) constructs of fear, susceptibility, severity, response efficacy, and self-efficacy related to young adult women's intention to use contraceptives | EPPM | "How likely are you to use birth control the next time you have sexual intercourse?" | <ul style="list-style-type: none"> Perceived severity of the consequences of unintended pregnancy (p 5 0.01), communication with friends (p 5 0.01) and last sexual partner (p 5 0.05), relationship status (p 5 0.01), and past use (p 5 0.001) were associated with women's intentions to use contraceptives. Talking with their last sexual partner had a positive effect on intentions to use contraceptives while talking with friends influenced intentions in a negative direction Women who perceive an unintended pregnancy as more severe are more likely to intend to use contraceptives |
| 2012 | Catherine Potard, Robert Courtois, Mathieu Le Samedy, B. Mestre, M. J. Barakat, and Christian Réveillère FRANCE | Cross-sectional survey | To identify the determinants of the intention to use and actual use of condoms in a sample of French adolescents based on Ajzen's theory of planned behavior with adolescent boys and girls in France | Theory of planned behavior | I intend to use a condom every time I shall have sex with a new partner in the next three months | <ul style="list-style-type: none"> "Intention" to use a condom during every sexual encounter was explained by "perceived control" and "individual attitudes", and to a lesser extent by "subjective norms of close friends and relatives" and "socio-cultural norms" |
| 2012 | Jin Yan, Joseph T.F. Lau, Hi Yi Tsui, Jing Gu, and Zixin Wang CHINA | Cross-sectional survey | To investigate the prevalence of male condom use and associated factors among monogamous STI female patients | Health belief model | Not detailed | <ul style="list-style-type: none"> Significant factors associated with lower likelihoods of consistent condom use in the past two months were type of sole sex partner (cohabitant vs. boyfriend vs. husband: OR = 0.29, 95% CI = 0.12, 0.70; regular boyfriend vs. husband: OR = 0.52, 95% CI = 0.30, 0.91), being financially dependent (OR = 0.45, 95% CI = 0.27, 0.75), and partner's dislike of condom use (OR = 0.23, 95% CI = 0.15, 0.39) |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|------------------------|---|-----------------------|---|--|
| 2013 | Victor Akelo, Sonali Girde, Craig B. Borkowf, Frank Angira, Kevin Achola, Richard Lando, Lisa A. Mills, Timothy K. Thomas, and Shirley Lee Lecher KENYA | Cross-sectional survey | To analyze FP attitudes among HIV-infected pregnant women enrolled in a Prevention of mother-to-child transmission (PMTCT) clinical trial among HIV positive pregnant women about future FP use in Western Kenya | Not given | Intention to use any form of FP in the future | <ul style="list-style-type: none"> • A significant gap exists between future FP intentions and current FP practices. • Factors associated with positive intentions to use FP were: marital status ($p = 0.04$), having talked to their spouse or partner about FP ($p = 0.001$), perceived spouse or partner approval of FP ($p = 0.001$), previous use of a FP method ($p = 0.006$), attitude toward the current pregnancy ($p = 0.02$), disclosure of a sexually transmitted infection (STI) diagnosis ($p = 0.03$) and ethnic group ($p = 0.03$) |
| 2013 | Patrizia Di Giacomo, Alessia Sbarlati, Annamaria Bagnasco, and Loredana Sasso ITALY | Cross-sectional survey | To describe what puerperal women know about postpartum contraception and to identify their related needs and expectations in Italy | Not given | Intention to use contraception in the postpartum period | <ul style="list-style-type: none"> • During pregnancy and postpartum, 45.5% of the women reported that they had received adequate information about contraception. Of these ones, 64.3% reported their intention to use contraception either to avoid pregnancy or to space out future births • Women's intention to use contraception was proportional to their level of education |
| 2013 | Rajesh Kumar Rai, and Sayeed Umisa INDIA | Cross-sectional survey | To examine the reasons for not using any method of contraception as well as reasons for not using modern methods of contraception, and factors associated with the future intention to use different types of contraceptives in India | Not given | Not detailed | <ul style="list-style-type: none"> • There is considerable variation in explaining the factors associated with future intention to use contraceptives |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|--|---|---------------------------|--|--|
| 2014 | Bernice Kuang, John Ross, and Elizabeth Leahy Madsen GLOBAL | Cross-sectional survey | To define high and low motivation groups by stated intention to use, past use, and unmet need, to determine how these groups differ in characteristics and in the region of residence in the African continent | Not given | “Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future?” | <ul style="list-style-type: none"> Nonusers were more rural, less educated, and closer to poverty and less likely to have access to public services. Intenders were younger and with smaller families. Also, their ideal family sizes are much smaller than those of nonintenders (though still high) Highly motivated nonusers, the most likely women to adopt contraception in the future, since they both intend to use and report past use |
| 2014 | Laili Irani, Ilene S. Speizer, and Jean-Christophe Fotso KENYA | Cross-sectional survey | To examine the association between relationship-level characteristics (desire for another child, communication about the desired number of children, and FP use) and contraceptive use and intention to use among nonusers in Kenya | | Social ecological theory | <ul style="list-style-type: none"> Not given |
| 2014 | Charles Picavet, Ineke van der Vlugt, and Ciel Wijsen THE NETHERLANDS | Cross-sectional survey Multivariate analysis | To examine whether increased knowledge about ECPs may increase the intention to use these products among women in the Netherlands | Theory of reasoned action | Imagine you had intercourse without using contraception. You do not want to become pregnant. Would you take emergency contraception? | <ul style="list-style-type: none"> Intention is most strongly related to prior use and not having children; being aware that ECPs can be obtained without prescription upgrades intention, whereas knowing that a woman can still get pregnant after having taken the ECP has a negative impact on intention. Ambivalence concerning pregnancy is common and related to an unwillingness to use contraception |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|-------------------------------------|--|-----------------------|--------------|---|
| 2014 | Susan Krenn, Lisa Cobb, Stella Babalola, Mojisola Odeku, and Bola Kusemiju NIGERIA | Pre and post Cross-sectional survey | To describe the activities designed and implemented by Nigerian Urban Reproductive Health Initiative (NUHRI) to meet the project's stated objectives and to illustrate how having a demand lens influenced programming decisions in ways that other family planning programs probably would not have considered in Nigeria | Ideation theory | Not detailed | <ul style="list-style-type: none"> Greater exposure to a comprehensive family planning program in urban Nigeria that emphasized demand generation and communication theory was associated with improved ideation among women (their beliefs, ideas, and feelings about family planning), and more positive ideation was associated with greater intention to use FP |
| 2014 | Getachew Mekonnen, Filkre Enquelasie, Gezahegn Tesfaye, and Agumasie Semahegn ETHIOPIA | Cross-sectional survey | To assess the prevalence and associated factors of long-acting and permanent contraceptive methods in Jinka town, southern Ethiopia | Not given | Not detailed | <ul style="list-style-type: none"> Knowledge of contraceptives and the age of women have a significant association with the use of long-acting and permanent contraceptive methods Different variables, 90 (53%) of illiterate, 51 (64.6%) of those who can read and write, 276 (68.3%) of those with modern education, 57 (58.2%) of those with a college education have intention to use long-acting and permanent methods Participants who perceive their social status to be very poor, poor, medium, and rich have intention to use long-acting and permanent methods were 7 (58.3%), 111 (55.8%), 334 (65.4%), and 13 (68.4%) respectively |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|---|---|---|--|---|
| 2014 | Allahna Esber, Randi E. Foraker, Maryam Hemed, and Alison Norris TANZANIA | Cross-sectional survey Multivariable logistic regression | To study the effect of partner approval of contraception on intention to use contraception among women obtaining post abortion care in Zanzibar, Tanzania | Not given | “Do you think you will use a method of contraception in the future?” | <ul style="list-style-type: none"> Adjusting for past contraception use, partner approval of contraception was associated with 20 times the odds of intending to use contraception (odds ratio, 20.25; 95% CI, 8.45, 48.56). |
| 2014 | Maricianah Onono, Cynthia Blat, Sondra Miles, Rachel Steinfeld, Pauline Wekesa, Elizabeth A. Bukusi, Kevin Owuor, Daniel Grossman, Craig R. Cohen, and Sara J. Newmann KENYA | Pre- and postintervention survey | To determine if a health talk on family planning (FP) by community clinic health assistants (CCHAs) will improve knowledge, attitudes, and behavioral intentions about contraception in HIV-infected individuals in Kenya | The Information Motivation and Behavioral framework | Intention to initiate a new FP method | <ul style="list-style-type: none"> Following the health talk and clinic visit, 45% female participants and 33% of all participants reported they wanted to try a new FP method. Among females, the decision to try a new method was more commonly made by those who were using no method or only condoms than those using a more effective form of FP, (59% vs. 11%, $p < 0.02$). Among males, the proportion that decided they or their partner would try a new method did not differ by FP method use prior to the health talk (33% vs. 33%, $p = 1.0$) |
| 2014 | Md Mosfequr Rahman, Md Golam Mostofa, and Md Aminul Hoque BANGLADESH | Cross-sectional survey | Explores women’s decision-making autonomy as a potential indicator of the use of contraception in Bangladesh | Not given | Not detailed | <ul style="list-style-type: none"> Household decision-making autonomy is significantly associated with the current use of modern contraception, future intention to use contraception, and discussing contraception with the husband |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|--|--|---------------------------|---|---|
| 2014 | Alem Gebremariam and Adamu Addisie ETHIOPIA | Cross-sectional study | To assess intention to use long-acting and permanent contraceptive methods (LAPMs) and identify associated factors among currently married women in Adigrat town, Ethiopia | Not given | Not detailed | <ul style="list-style-type: none"> LAPMs were higher among women who knew at least one of LAPMs (AOR = 4.7, 95% CI = 1.58, 14.01) and women who do not want to have birth within the next 2 years (AOR = 1.9, 95% CI = 1.22, 3.13). Intention to use LAPMs was less among women who perceive poor support from their husbands (AOR = 0.2, 95% CI = 0.09, 0.45) and those who perceive LAPMs are harmful for the womb (AOR = 0.24, 95% CI = 0.14, 0.41). Similarly, participants in the focus group discussion have expressed their concern on the return of fertility after using implants or IUCD as well as insertion and removal procedures. The most preferred LAPMs were implants (71.3%). The most preferred LAPMs were implants (71.3%) Positive attitude, absence of myths, and misconceptions on LAPMs and secondary and plus a level of education predict intention to use LAPMs |
| 2014 | Mengistu Meskele and Wubegzier Mekonnen ETHIOPIA | Cross-sectional survey In-depth interviews | To examine the association between women's awareness, attitude, and barriers with their intention to use LAPMs among users of short-term methods in Ethiopia | Not given | Not detailed | <ul style="list-style-type: none"> The most preferred LAPMs were implants (71.3%). The most preferred LAPMs were implants (71.3%) Positive attitude, absence of myths, and misconceptions on LAPMs and secondary and plus a level of education predict intention to use LAPMs |
| 2015 | Tina R. Raine-Bennett, and Corinne H. Rocca USA | Psychometric evaluation | To develop and validate the psychometric properties of the Contraceptive Intent Questionnaire (CIQ), an instrument that can enable providers to identify young women who may be at risk of contraceptive nonadherence in the USA | Theory of reasoned action | 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 developed items | <ul style="list-style-type: none"> The Contraceptive Intent Questionnaire (CIQ). CIQ has modest reliability and good internal validity. The separation reliability of the 15-item scale of 0.73 met minimal acceptable standards |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------------|--|----------------------------|---|--|
| 2015 | Hae Won Kim KOREA | Cross-sectional study with | To compare the ECP awareness of males and females and its associations with intention to use four other contraceptive methods (condoms, oral contraceptive pills, and withdrawal and rhythm methods) of unmarried university students in Korea | Theory of planned behavior | I will choose this method myself; I will use this method consistently; I will choose this method without another's recommendation | <ul style="list-style-type: none"> ECP awareness was associated with the intentions of students to use withdrawal or rhythm methods The multiple assessments of four kinds of contraceptive intentions were made at a time that differs from previous studies. Accordingly, the comparisons of the current study's findings to other findings could be given consideration |
| 2015 | Mishal S. Khan, Farah Naz Hashmani, Owais Ahmed, Minaal Khan, Sajjad Ahmed, Shershah Syed, and Fahad Qazi PAKISTAN | Unmatched case-control study | To quantitatively evaluate the effect of family members' opposition to family planning on intention to use contraception among poor women who have physical access to family planning services in two public hospitals in Karachi, Pakistan | Not given | Information on women's intention to use contraception in the future was solicited by first mentioning the local names of a list of 11 contraceptive methods and asking (one by one) if the woman was aware of it (knowledge of contraception assessment) and then asking whether they intend to use any form of contraception in the near or distant future | <ul style="list-style-type: none"> Negative contraceptive intent was associated with no knowledge of contraception (AOR = 3.79 [2.43-5.90]; p \ 0.001), husband's opposition (AOR = 21.87 [13.21-36.21]; p \ 1) and mother-in-law's opposition (AOR = 4.06 [1.77-9.30]; p \ 0.001). Husband's opposition has the strongest effect on women's intention to use contraception, even when the women have knowledge of and physical access to family planning services There is little evidence of an independent effect of parity on contraceptive intent |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|-------------------------|--|------------------------|--------------|---|
| 2015 | Jongwon Lee, Mauricio Carvallo, and Taehun Lee USA | Psychometric evaluation | To evaluate the psychometric properties of a measure of attitudes and subjective norms toward OC use among Korean American women in the USA | The theory of reasoned | Not detailed | <ul style="list-style-type: none"> The measure and its use for determining the degree to which Korean immigrant women intend to use OCs is valid and reliable. Subjective norms ($r = 1/4 .56$) and general attitude ($r = 1/4 .44$) exhibited strong associations with intention to use OCs, whereas effectiveness ($r = 1/4 .24$) and usability ($r = 1/4 .21$) exhibited small associations with intention to use OCs The analysis revealed that subjective norms were a much stronger predictor of intention to use OCs ($b = 1/4 0.47, p < 0.001$) than general attitude ($b = 1/4 0.26, p < 0.001$). Even when women's OC use history was controlled for, the relative importance of subjective norms ($b = 1/4 0.45$) over general attitude ($b = 1/4 0.27$) did not differ |
| 2015 | Sadaf Khan, Breanne Grady, and Sara Tift GLOBAL | Cross-sectional survey | To describe a demand estimation exercise conducted in response to an initiative to introduce Sayana Press in 12 countries in Sub-Saharan Africa and South Asia | | Not given | |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------|---|-----------------------|---|---|
| 2015 | Echezona E. Ezeanolue, Juliet Iwelunmor, Ibitola Asaolu, Michael C. Obiefune, Chinenye O. Ezeanolue, Alice Osuji, Amaka G. Ogidi, Aaron T. Hunt, Dina Patel, and Wei Yang, John E. Ehiri NIGERIA | Cross-sectional survey | To determine if (1) male partners' awareness of, and support for, female contraceptive methods, and (2) influence of male partners' contraceptive awareness and support on pregnant women's expressed desire to use contraception among pregnant women and their male partners in Nigeria | Not given | Male participants were asked the following questions among others: (a) are you aware of types of female contraceptive methods? (b) If yes, mention any methods that you are aware of. (c) Would you support your spouse's use of any form of contraception (men's support for contraception)? (d) If yes, what type? Female participants were asked the following: (a) Are you aware of types of female contraceptive methods? (b) Are you interested in using any contraceptive method? (c) If yes, which type(s)? | <ul style="list-style-type: none"> Men's awareness of, and support for, use of modern contraceptives was significantly associated with their female partners' desire to use contraception. A majority of the men who were aware of modern contraceptives. In addition, men who showed support for their spouses' use of contraception were over five times more likely to have spouses who indicated a desire to use contraception (AOR = 5.76, 95% CI = 4.82, 6.88) |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|------------------------|--|---|--------------|---|
| 2015 | Stella Babalola, Neetu John, Bolanle Ajao, and Ilene S. Speizer KENYA AND NIGERIA | Cross-sectional survey | To examine differences and commonalities in the determinants of contraceptive use intentions in these two contexts with a special focus on ideational variables in Kenya and Nigeria | Ideation model of strategic communication and behavior change | Not detailed | <ul style="list-style-type: none"> The data revealed four dimensions of contraceptive ideation in both countries: perceived self-efficacy, myths, and rumors related to contraceptives, social interactions and influence, and contraceptive awareness. All four dimensions of ideation are strongly associated with contraceptive use intention in Nigeria. Both perceived self-efficacy and myths and rumors dimensions were significantly associated with contraceptive use intention in Kenya. In contrast, social interaction dimension and contraceptive awareness were not strongly associated with intention in Kenya. Striking similarities in the dimensions of ideation and the relationship between ideation and contraceptive use intentions in the two countries. The importance of self-efficacy for contraceptive use intention in both countries is The odds of contraceptive use intention increase with parity may suggest that women in both countries tend to wait until they have a specific number of children before considering contraception. |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------|--|--------------------------------|---|---|
| 2015 | Ramos Mboane, Madhav P. Bhatta MOZAMBIQUE | Cross-sectional survey | To examine the influence of a husband/partner's healthcare decision-making power on a woman's intention to use contraceptives in Mozambique | Not given | Are you thinking about using any contraceptive method to delay or avoid getting pregnant in the future? | <ul style="list-style-type: none"> A husband/partner's healthcare decision-making power in the relationship had a significant negative effect on a Mozambican woman's intention to use contraceptives. |
| 2015 | Jessica D. Hanson, Faryle Nothwher, Jingzhen Ginger Yang, and P. Romitti USA | Cross-sectional survey | To test and analyze direct and indirect measures of perceived behavioral control (PBC) in the context of birth control use among women. In addition, it aimed to examine the associations between PBC measures, intention, and actual birth control use in the USA | The theory of planned behavior | | <ul style="list-style-type: none"> Participants indicated a high level of control over using birth control, and a significant positive correlation was observed between direct and indirect PBC measures. Participants also reported high intentions to use birth control, and a significant positive correlation was observed between intention and PBC. Both PBC measures and intention were independently and significantly associated with behavior, and PBC remained significantly associated with behavior when intention was added into the model. In conclusion, compared to the previous literature, this study is unique in that it examines indirect PBC measures and also the important role that PBC plays with actual birth control behavior |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------|---|-----------------------|--------------|--|
| 2015 | Fand, Xavier and Shireen J. Jejeebhoy INDIA | Cross-sectional survey | To better understand the contraceptive practices of young abortionseekers aged 15–24 years in India | Not given | Not detailed | <ul style="list-style-type: none"> • Similar proportions (16%–19%) of unmarried and married adolescents had practiced contraception at the time of both their first and last sexual encounter, and that while many more intended to practice contraception postabortion, significantly fewer unmarried than married young women intended to do so (42% vs. 57%). • ITU was significantly associated with the nature of sexual relations and the abortion experience, regardless of marital status • The odds that an abortion-seeker had intended to use contraception postabortion were greater among those who had practiced contraception earlier in their sexual life (odds ratios (OR), 2.6 among all respondents; 2.9 among the unmarried; 2.2 among the married), and among the unmarried, decreased among those who had experienced forced sex (OR, 0.5). • Many reported their intention to practice postabortion contraception, more among married than unmarried young women • Intention to use is influenced by a range of social and biological factors • Educational attainment, exposure to media, and visitation to a health facility affected intention to use contraception significantly and positively in both countries. On the other hand, number of living children, infrequent sexual intercourse, postpartum amenorrhea, opposition to contraception, and lack of access to contraceptives negatively affected intention to use contraception |
| 2015 | Christopher Godwin Udomboso, A. Y. Amoateng, and P. T. Doegah GHANA and NIGERIA | Cross-sectional study | To examine the effects of selected bio-social factors on the intention to use contraception among never married and ever-married women in Ghana and Nigeria | Not given | DHS | |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|-------------------------------------|--|-----------------------|---|--|
| 2016 | Yonatan Moges Mesfin and Kelemu Tilahun Kibret ETHIOPIA | Systematic review and meta-analysis | To summarize the evidence of practice and intention to use long-acting and permanent family planning methods among women in Ethiopia | Not given | Not detailed | <ul style="list-style-type: none"> Women's intention to use LARPCMs is generally good but their utilization is low prevalence of intention was 42.98% (95% CI 32.53, 53.27%). compared to practice was 16.64% (95% CI 12.4, 20.87%). |
| 2016 | Matthew F. Reeves, Qihong Zhao, Gina M. Secura, and Jeffrey E. Peipert USA | Prospective cohort study | To compare unintended pregnancy rates by the initially chosen contraceptive method after counseling to traditional contraceptive effectiveness in the same study population in the USA | Not given | Not detailed | <ul style="list-style-type: none"> Though highly effective in the as-used analysis, women initially choosing injectable contraception had pregnancy rates similar to oral contraception and significantly worse than IUC or implantable contraception |
| 2016 | Jennifer H. Tang, Dawn M. Kopp, Gretchen S. Stuart, Michele O'Shea, Christopher C. Stanley, Mina C. Hosseinipour William C. Miller, Mwawi Mwale, Stephen Kaliti, Phyllos Bonongwe and, Nora E. Rosenberg MALAWI | Prospective cohort study | To evaluate if implant knowledge and intent to use implant were associated with implant uptake of postpartum women in Malawi | Not given | The contraceptive methods she was planning to use in the first year after de-livery | <ul style="list-style-type: none"> Correct implant knowledge (adjusted HR = 1.69; 95% CI 1.06, 2.68) and intent to use implant (adjusted HR 1.95; 95% CI 1.28, 2.98) were both associated with implant uptake, with a stronger association for intent. The association between intent to use implant and implant uptake was stronger than the association between correct implant knowledge and implant uptake |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|------------------------|--|--|--------------|--|
| 2016 | Kebede Haile, Meresa Gebremedhin, Hailelase Berhane, Tirhas Gebremedhin, Negassie Berhe, Tewodros Haile, Goitom Gigar, and Yonas Girma ETHIOPIA | Cross-sectional study | To assess magnitude and factors associated with a desire for birth spacing for at least two years or limiting childbearing and nonuse of LAPMs among married women of reproductive age in Ethiopia | Not given | Not detailed | <ul style="list-style-type: none"> Intention to use LAPMs were significantly associated with not using LAPMs |
| 2016 | Gareth Roderique-Davies, Christine McKnight, Bev John, Susan Faulkner, Deborah Lancaster UK | Cross-sectional survey | To investigate women's intention to use long-acting reversible contraception using two established models of health behavior in the UK | The theory of planned behavior and the health belief model | Not detailed | <ul style="list-style-type: none"> The theory of planned behavior and the health belief model accounted for 75% of the variance in intention to use. Perceived behavior al control, perceived barriers, and health motivation predicts the use of long-acting reversible contraception All multiitem constructs were shown to have internal consistency with all scoring over 0.8 The construct with the strongest predictive power was perceived benefits. The next strongest predictor variable in this model was the subjective norm in that the salience of the beliefs of others will increase or decrease a woman's intention to use LARC Intention was a significant predictor of whether a woman was using LARC. |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|---|---|-----------------------|--------------|---|
| 2016 | Maureen French, Alexandra Albanese, and Dana R. Gossett USA | Retrospective cohort study Regression analysis | To evaluate the effect of high-risk pregnancy status on antepartum contraceptive planning and postpartum use among women delivering at a university hospital in the USA | Not given | Not detailed | <ul style="list-style-type: none"> Low-risk and high-risk women showed interest in tier 1 contraceptive while antepartum (54.4% low-risk vs. 58.0% high-risk, $p = 0.2$), with lower interest at discharge (42.3% vs. 50.7%, $p = 0.001$) and the postpartum visit (33.8% vs. 40.1%, $p = 0.002$), while women with a high-risk pregnancy were more likely than low-risk women to indicate an intent to use highly effective methods, this did not translate into actual administration High-risk women had similar rates of planning for tier 1 contraceptive but similar rates of subsequent unplanned pregnancy. Intention to use highly effective contraception did not translate into actual use In our regression analysis, factors predicting plans to use highly effective contraception in the postpartum period included Hispanic ethnicity and public insurance. public insurance was also a significant predictor of subsequent pregnancy, representing a failure in the actual use of such methods |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------|---|-----------------------|--------------|---|
| 2016 | Fentanesh Nibret Tiruneh, Kun Yang Chuang, Peter A. M. Ntenda, and Ying Chih Chuang ETHIOPIA | Cross-sectional survey | To explore the relationship of various predisposing, enabling, and need factors with the intention to use contraceptives, as well as the actual contraceptive behavior among women in Ethiopia. Intention to use contraception could be an important indicator of the potential demand for family planning services in Ethiopia | Not given | Not detailed | <ul style="list-style-type: none"> • About 44.1% of women who were not current users of contraceptives reported that they intended to use contraceptives in the future • Women who were married after the age of 20 years (OR = 1.39; 95% CI = 1.09, 1.78), who were Oromo (OR = 1.95; 95% CI = 1.49, 2.54) or other ethnic groups (OR = 1.63; 95% CI = 1.22, 2.18), who received primary (OR = 1.51; 95% CI = 1.20, 1.89) or secondary education (OR = 1.63; 95% CI = 1.05, 2.55), who were categorized as rich in the wealth index (OR = 1.27; 95% CI = 1.01, 1.62); who were employed (OR = 1.23; 95% CI = 1.02, 1.49); who were told of family planning at a health facility (OR = 1.34; 95% CI = 1.07, 1.67); whose ideal number of children was in the 3–4 range (OR = 1.47; 95% CI = 1.10, 1.97); and whose husband wanted fewer children (OR = 1.33; 95% CI = 1.09, 1.61) were more likely to have the intention to use contraceptives than their counterparts • Mass media exposure, location of residence, abortion experience, and education of the husband, were significant in the analyses of contraceptives use but were not significant in the analyses of intention to use contraceptives |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------|---|--|--|---|
| 2016 | N. van der Westhuizen and G. Hanekom SOUTH AFRICA | Cross-sectional survey | To determine the quantity and quality of knowledge about the IUCD, and to evaluate its acceptability for future use in South Africa | Not given | Not detailed | <ul style="list-style-type: none"> Despite the availability of the IUCD in SA clinics and hospitals, its uptake is poor. Awareness of this method seems to have improved over the past few years, but the qualitative knowledge is still considerably lacking. Forty-five percent ($n = 86$) of patients indicated a desire for future IUCD use |
| 2017 | Francesca L. Cavallaro, Lenka Benova, David Macleod, Adama Faye, and Carolline A. Lynch SENEGAL | Cross-sectional survey | To analyze FP trends among harder-to-reach groups (including adolescents, unmarried and rural poor women) in Senegal | Coale's framework of fertility decline | DHS measures used ITU as a proxy for willingness | <ul style="list-style-type: none"> intention to use FP has remained stable at around 40% since 2005 for all groups except unmarried women (75% of whom intend to use) Intention to use was consistently highest among unmarried women with unmet needs, rising to 75% in 2014. In contrast, among easier-to-reach women, adolescents, and the rural poor, intention to use FP rose between 1997 and 2005, and has since stagnated around 40%. Among women with unmet need, the proportion with neither knowledge of nor intention to use FP was lower than the proportion with both knowledge and intention by 2014, in all groups except for adolescents (Supplementary material 2). There is no clear association between intention to use and woman's age, parity, or wealth. Intention to use also increased with the number of living children, although urban and better educated women no longer had higher odds of intention to use |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|--------------------------|--|-----------------------|--------------|--|
| 2017 | Nadine Shaanta Murshid PAKISTAN | Cross-sectional survey | To examine the association between reports of IPV and the use of contraceptives in Pakistan | Not given | Not detailed | <ul style="list-style-type: none"> If lifetime prevalence of physical violence and emotional violence increased by one unit each, the relative risk for intending to use contraceptives increased significantly by a factor of 2.42 and 1.97, respectively. Policy and practice implications are discussed. The key finding that the experience of intimate partner violence was associated with increased use of contraceptives is in line with studies from neighboring Bangladesh. This association suggests that women experiencing intimate partner violence use contraceptives as a tool to gain control over their own bodies and their own futures After using the app, 68% of the sexually active participants reported intention to use effective contraception in the future, and sexual health knowledge improved significantly to 79% ($p < 0.001$). The most popular method was the birth control pill, with 23% of participants indicating future intention to use this method |
| 2017 | Veronika V. Mesheriakova and Kathleen P. Tebb USA | Prospective cohort study | To examine the effectiveness of an iPad-based application (app) on improving adolescent girls' sexual health knowledge and on its ability to influence their intentions to use effective contraception among girls aged 12–18 years recruited from three school-based health centers in California | Not given | Not detailed | |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|----------------------------|--|---|---------------------------|--------------|---|
| 2017 | Rajesh Kumar Rai, ETHIOPIA | Cross-sectional survey Multivariate binary logistic regression analysis | To examine whether the sex composition of living children and future desire for additional children were associated with the intention to use contraceptives among Ethiopian women aged 15–49 | Social cognitive approach | Not detailed | <ul style="list-style-type: none"> Irrespective of the sex composition of living children and desire for additional children, future intention to use contraceptives increased significantly between 2000 and 2011 Women who had at least one child (with an equal number of boys and girls, more boys than girls or more girls than boys) who did not want any more children, and those who were unsure about their desire for additional children, showed an increased intention to use contraceptives in the future, compared with those with an equal number of boys and girls who expressed a desire for additional children. Women with no children and who did not want children, or those who were unclear about their future desire, showed a lower intention to use contraceptives, compared with women with an equal number of boys and girls who wanted a child in the future If women or couples are not satisfied with their existing (sex) composition of children, their plan to have an additional child will discourage future intention to use contraceptives, Looks at intention but not use |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | | ITU item | Reported results |
|------|--|------------------------|--|-----------------------|--------------|---|------------------|
| | | | | Not given | Not detailed | | |
| 2017 | Elena Fuell Wysong, Krystal Tossone, and Lydia Furman USA | Cross-sectional survey | To examine whether low-income inner-city expectant women who intend to breastfeed make different contraceptive choices than those who intend to formula feed in expectant women age 14 years and older receiving prenatal care at MacDonald Women's Hospital the USA | Not given | Not detailed | <ul style="list-style-type: none"> Women intending to breastfeed had 0.44 times the odds of intending to use birth control after delivery (95% CI [0.19, 1.05], p 1/4 .06), while women intending to feed formula had 2.26 times the odds of intending to use birth control after delivery (95% CI [0.95, 5.40]). Contraceptive attitudes significantly impacted intent to use contraception (p 1/4 .007), with every point higher on the contraception attitudes scale equating to a 7% increase in odds of postpartum contraception use Postpartum contraceptive intentions do not differ significantly between women intending to breastfeed and those intending formula feeding. Contraception attitudes do not significantly change this association but were significantly related to contraceptive intent Intent to breastfeed at all or exclusively did not significantly impact odds of intending to use contraception after delivery, of intending to use a LARC method after delivery, or of intending to begin contraception postpartum prior to discharge | |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------|--|-----------------------|--------------|--|
| 2017 | Caroline Wuni, Cornelius A. Turpin, and Edward T. Dassah GHANA | Cross-sectional survey | To determine factors influencing current use and future contraceptive intentions of women who were attending child welfare clinics within two years of delivery in Sunyani Municipality, Ghana | Not given | Not detailed | <ul style="list-style-type: none"> Family planning discussions during child welfare clinic (adjusted RR, 1.12; 95% CI, 0.99, 1.26) or with one's spouse (adjusted RR, 1.20; 95% CI, 1.08, 1.34), desire to space children (adjusted RR, 1.35; 95% CI, 1.17, 1.55), previous (adjusted RR, 1.15; 95% CI, 1.05, 1.27) and current (adjusted RR, 1.11; 95% CI, 1.01, 1.22) contraceptive use were predictive of clients' intention to adopt family planning in the future |
| 2018 | Amy G. Bryant, Ilene S. Speizer, Jennifer C. Hodgkinson, Alison Swiatlo, Sián L. Curtis, and Krista Perreira USA | Cross-sectional survey | To understand practices, preferences, and barriers to the use of contraception for women obtaining abortions at clinics in North Carolina. | Not given | Not detailed | <ul style="list-style-type: none"> Almost one-third of women (29%) reported that they had wanted to use contraception in the last year but were unable Approximately three-fourths of respondents (76%) stated that they intend to use contraception after this pregnancy. Approximately one-fifth of women stated that would like to use long-acting reversible contraception (LARC) after this abortion, with the most common method desired being the oral contraceptive pill |
| 2018 | Victoria Shelus, Lauren VanEnk, Monica Giuffrida, Stefan Jansen, Scott Connolly, Marie Mukabatsinda, etc RWANDA | Mixed method study | To explore the impact of a serial radio drama on fertility awareness and other factors in Rwanda | Not given | | <ul style="list-style-type: none"> No significant differences in modern family planning use or intention to use were found between listeners and nonlisteners, but listeners reported greater supportive norms, self-efficacy, and discussion of family planning |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|---|---|--------------------------------|--|---|
| 2018 | Bola Lukman Solanke, Olufunmilola Olufunmilayo Banjo, Bosede Odunola Oyinloye, Soladoye Sunday Asa NIGERIA | Cross-sectional survey Unadjusted multinomial logistic regression | To examine the association between grand multiparity and intention to use modern contraceptives in Nigeria. | The theory of planned behavior | This information was sourced from currently married women who were not using a modern method. The variable has three categories, namely, (1) use later, (2) uncertain, and (3) does not intend to use. | <ul style="list-style-type: none"> Results further revealed pregnancy termination, fertility planning status, exposure to mass media family planning messages, knowledge of modern contraceptives, ideal family size, remarriage, household power relations, and maternal education as other key factors influencing expected risk of intention to use contraceptives relative to being uncertain about future contraceptive use |
| 2018 | Tom Lutalo, Ron Gray, John Santelli, David Guwatudde, Heena Brahmhatt, Sanyukta Mathur, David Serwadda, Fred Nalugoda, and Fredrick Makumbi UGANDA | Prospective cohort study | To estimate rates of an unfulfilled need for contraception, defined as having the unmet need and intent to use contraception at baseline but having an unintended pregnancy or with persistent unmet need for contraception at follow up of sexually active nonpregnant women with unmet need for contraception in Uganda | Not given | <p>“Do you intend to use any contraceptive method between now and your next pregnancy?”</p> | <ul style="list-style-type: none"> Significant discrepancy between women’s intent to use contraception (text greater 60%) and subsequent initiation of use |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|------------------------|---|-----------------------|--------------|---|
| 2018 | Sumitra Dhal Samanta, Gulhoza Usmanova, Anjum Shaheen, Murari Chandra, and Sunil Mehra INDIA | Cross-sectional survey | to describe the design, implementation, and baseline findings of “family-centric safe motherhood approach among marginalized young married couples in rural India” with the primary aim to improve the reproductive health of just married and first time pregnant couples in India | Not given | Not detailed | <ul style="list-style-type: none"> Almost all respondents were knowledgeable about at least one method of contraception, and this indicator is consistent in two blocks. On the other hand, slightly more recent parents discussed about family planning choices/use with their partners compared to recently married young couples. Furthermore, 64.3% of respondents have an intention to use any family planning method in the next 12 months |
| 2018 | Heba Mahmoud Taha Elweshahi, Gihan Ismail Gewafel, Sameh Saad EL-Din Sadek, and Omnia Galal El-Sharkawy EGYPT | Cross-sectional survey | To estimate the level of unmet need for postpartum family planning one year after birth as well as identify factors associated with having unmet needs in Alexandria, Egypt | Not given | Not detailed | <ul style="list-style-type: none"> Perceived susceptibility to conceive and intention for future use of contraceptives Less than a half of women (47.1%) perceived that they are susceptible to pregnancy at any time however 36.3% stated that they are not susceptible at all. The remaining 16.7% were not sure. On the other hand, only 59.3% of women intended to use a method in the near future, 20.1% of them do not intend to use a modern contraceptive soon and 20.6% are not sure |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------|--|-----------------------|---|---|
| 2018 | Teklehaymanot Hulus Abbraha, Hailay Siyum Belay, Getachew Mebrahtu Welay ETHIOPIA | Cross-sectional survey | To assess intention to use modern contraceptives and to identify factors associated among postpartum women in Aksum town, Ethiopia | Not given | Not given | <ul style="list-style-type: none"> Intention to use modern contraceptives was 84.3%. Resumed sexual intercourse (AOR = 1.78; 95% CI: 1.34, 3.92) and women whose their husbands approved family planning to use (AOR = 1.57; 95% CI: 2.02, 5.57) were more likely to have intention on contraceptive use. In addition, those women who knew at least one method of modern contraceptive (AOR = 5.17; 95% CI: 1.69, 15.82) were more likely to have intention to use a modern contraceptive during the extended postpartum period compared to their counterparts. |
| 2018 | Zhongchen Luo, Lingling Gao, Ronald Anguzu, Juanjuan Zhao CHINA | Cross-sectional survey | To describe the intentions of and barriers to the use of long-acting reversible contraceptives (LARCs) in the postabortion period among women seeking abortion in mainland China | Not given | <p>“Would you like to use an intrauterine device (IUD) for contraception in the immediate postabortion period?”</p> <p>“Would you like to use an implant for contraception in the immediate postabortion period?”</p> | <ul style="list-style-type: none"> This study identified that only around two-fifths of Chinese women seeking abortion were interested in using a LARC. One-third intended to use IUDs, while only one in seven intended to use the implant method during the postabortion period Intention to use LARCs was predicted by marital status, frequency of sexual activity, number of children, planned timing of next pregnancy, and previous LARC use. Impaired future fertility, being harmful to health, irregular bleeding, risk of complications, and lack of awareness with regard to LARCs were the main barriers in their potential use. |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|--|--------------------------|---|-----------------------|---|--|
| 2018 | Ana Luiza Vilela Borges, Osmara Alves dos Santos, and Elizabeth Fujimori BRAZIL | Prospective cohort study | To examine the effect of pregnancy planning status in the concordance between intention to use and current use of contraceptives among postpartum women primary health care facilities in São Paulo, Brazil | Not given | To assess women's intentions to use contraceptives, we asked them while they were pregnant what type of contraceptive they intended to use after childbirth | <ul style="list-style-type: none"> On average, we observed 28.9% concordance between contraceptive preference and contraceptive use, which means that less than a third of postpartum women were actually using the method that they reported they intended to use after childbirth. Postpartum women whose pregnancy was unplanned were less likely to use the contraceptive methods that they intended to use when they were pregnant [aOR = 0.36; 95% CI = 0.14, 0.97; <i>p</i> = 0.044] Substantial differences between the contraceptive methods used by Brazilian postpartum women and the methods they intended to use when they were pregnant, this varied by FP method Women who participated in group ANC were more likely to use modern and nonmodern contraception than those in individual care (59.1% vs. 19%, <i>p</i> < 0.001). This relationship improved when controlled for intention, age, religion, gravida, and education (AOR = 6.690; 95% CI: 2.724, 16.420). Women who stated immediately postpartum that they intended to use contraception had higher odds of using a family planning method (modern or nonmodern) one-year postpartum than those with no stated intention (OR = 2.171; 95% CI: 1.109, 4.250). |
| 2018 | Jody R. Lori, Meagan Chuey, Michelle L. Munro-Kramer, Henrietta Ofosu-Darkwah, and Richard M. K. Adanu GHANA | Prospective cohort study | To examine the uptake and continuation of family planning following enrolment in group versus individual ANC in Ghana | Not given | Immediate postpartum intention to use family planning | |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|--------------------------------------|---|-----------------------|--|--|
| 2018 | Sebastian Eliason, Frank Baiden, Derek Anamaale Tuoyire, and Kofi Awusabo-Asare GHANA | Cross-sectional survey | To better understand the issues by examining the sex composition of living children and how it is associated with reproductive outcomes such as pregnancy intendedness and intention to use postpartum family planning among women in a matrilineal area of Ghana | Not given | The intention to adopt postpartum family planning (PPFP) | <ul style="list-style-type: none"> Sex composition of living children had a significant association with pregnancy intendedness but not with intention to use postpartum family planning Here was persistence of more sons than daughters born in a predominantly matrilineal inheritance system and sex composition of living children had a significant association with pregnancy intendedness but not with intention to use postpartum family planning |
| 2018 | Bobby Kgosiemang and Julia Blitz BOTSWANA | Cross-sectional survey | To assess the level of knowledge, attitudes, and practices of female students with regard to emergency contraception at the University of Botswana | Not given | Not detailed | <ul style="list-style-type: none"> Better knowledge of emergency contraception was associated with more positive attitudes towards actual use ($p < 0.001$). Older students ($p < 0.001$) and those in higher years of study ($p = 0.001$) were more likely to have used emergency contraception |
| 2019 | Phillie Shongwe, Busisiwe Ntuli, and Sphive Madiba, ESWATINI | Qualitative, Focus group discussions | To explore the views of Eswatini men about the acceptability of vasectomy | Not given | Not detailed | <ul style="list-style-type: none"> Intention to use vasectomy was very low Cultural beliefs, societal norms, lack of knowledge about the procedure for vasectomy, and misconceptions influenced the acceptability of vasectomy greatly Ideas about vasectomy were influenced by their misconceptions not based on facts |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|-----------------------|--|-----------------------|--|--|
| 2019 | Natasha A. Johnson, Elena Fuell Wyson, Krystal Tossone, and Lydia Furman USA | Pre- and postsurvey | To understand how women's prenatal infant feeding and contraception intentions were related to postpartum choices in of expectant women #14 years of age receiving care at MacDonaid Women's Hospital, Cleveland, Ohio | Not given | Not recorded in the pretest, only posttest | <ul style="list-style-type: none"> • Prenatal feeding and contraceptive intent were significantly associated with postpartum feeding and contraceptive choice • Prenatal contraceptive intention was significantly associated with a contraceptive choice both postpartum in-hospital and at the postpartum visits (PPV) • No statistically significant relationship between the three feeding choice variables (exclusive breastfeeding versus mixed feeding vs. exclusive formula feeding) and contraceptive choice • Thus, mothers who were breastfeeding at all, as compared with those who were feeding formula exclusively, were less likely to have effective contraception |
| 2019 | Hailay Syum, Gizienesh Kahsay, Teklehaymanot Htulu, Berhe Beyene, Hadgu Gerensea, and Gebreamlak Gidey, and others ETHIOPIA | Cross-sectional study | To assess intention to use LAPMs and their determinants among short-acting users in health institutions among women who are short-acting contraceptive users that visited health institutions Aksum Town, North Ethiopia | Not given | Desire to use long-acting and permanent contraception methods as reported by the study participant | <ul style="list-style-type: none"> • Good knowledge on LAPMs [AOR = 2.15; 95% CI (1.29, 3.56)], positive attitude towards LAPMs [AOR = 3.4; 95% CI (1.99, 5.85)], 18–24 years of age [AOR = 3.18; 95% CI (1.30, 7.79)], being primary school in educational level [AOR = 0.34; 95% CI (0.14, 0.78)], decision on the number of children jointly with partner [AOR = 2.05; 95% CI (1.01, 4.18)], having more than two children [AOR = 10.67; 95% CI (1.29, 88.31)], and no [AOR = 10.2; 95% CI (3.10, 33.58)] and one [AOR = 4.70; 95% CI (1.68, 13.13)] extra number of children desired were factors significantly associated with having intention to use LAPMs |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------|---|-----------------------|---|--|
| 2019 | Fauzia Akhter Huda, John B. Casterline, Faisal Ahmed, Kazuyo Machiyama, Hassan Rushekh Mahmood, Anisuddin Ahmed, and John Cleland BANGLADESH | Cross-sectional survey | To understand how Bangladeshi women's perceptions of a method's attributes are associated with their intention to use that method. To examine associations between 12 method attributes and intention to use the pill or the injectable in Bangladesh | Not given | Intended to do so in the next 12 months and whether they intended to do so at any time in the future. | <ul style="list-style-type: none"> The likelihood that a woman intended to use a method was positively associated with her perception that it is easy to use (odds ratio, 2.9) and does not cause serious health problems (1.7) or affect long-term fertility (2.9). Satisfied past users of a method were more likely than never users to report intending to use the method (5.2). Intention to use the pill rather than the injectable was positively associated with education (2.0–3.6) and having a migrant husband (1.7). In the adjusted model, however, only four method attributes remained associated with intention to use the pill or injectable. Women had elevated odds of intending to use a method if they perceived it to be easy to use (odds ratio, 2.9), did not cause any serious health problems (1.7), and did not affect long-term fertility (2.9). In addition, satisfied past users were more likely than never users to report intending to use the pill or injectable (5.2). They found no differences in the use of condoms at the last act of sexual intercourse at six months or the intention to use condoms between the intervention and control groups |
| 2019 | Aalaa Jawad, Issrah Jawad, and Nisreen A. Alwan GLOBAL | Systematic review | To evaluate the effectiveness of interventions using social networking sites (SNSs) to promote the uptake of and adherence to contraception in reproductive-age women | Not given | Not detailed | |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|-----------------------------|---|-----------------------|--------------|--|
| 2019 | Sara Adelman, Caroline Free, and Chris Smith CAMBODIA | Randomized controlled trial | To evaluate which characteristics collected at the point of abortion are associated with contraceptive use over the extended postabortion period for women in Cambodia | Not given | Not detailed | <ul style="list-style-type: none"> • Prior use of contraception, intention to use postabortion contraception, increased number of children, and medical abortion were associated with increased contraceptive use over the year postabortion. • Contraceptive intention was the strongest predictor of continuation in the four-month period postabortion. More than half the women in the study were undecided on their intention |
| 2019 | Ona L. McCarthy, Hanadi Zghayyer, Amina Stavridis, Samia Adada, Irrfan Ahamed, Baptiste Leurent, Phil Edwards, Melissa Palmer, and Caroline Free PALESTINE | Randomized controlled trial | To estimate the effect of a contraceptive behavioral intervention delivered by mobile phone text message on young Palestinian women's attitudes towards effective contraception among women aged 18–24 years living in the West Bank, who were not using contraception. | Not given | Not detailed | <ul style="list-style-type: none"> • Intervention control was more likely to agree that their friends would use an effective method and to intend to use an effective method, compared to participants in the control group • The intervention moderately improves knowledge about effective contraception, perceived norms about friends using effective contraception, and intention to use effective contraception. |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|----------------------------------|--|-----------------------|--------------|---|
| 2019 | Silas Ochejele,; Chris Ega, Muhammad Shakir Balogun, Patrick Nguiku, Tunde Adedokun, and Hadiza Usman NIGERIA | Cross-sectional study | To determine the factors that affect the contraceptive intentions of women who survive SAMM in Kaduna State, northern Nigeria. | Not given | Not detailed | <ul style="list-style-type: none"> Only 56 out of the 69 respondents who reported not wishing to have another child in the future responded to this question. The commonest reason given for not wanting to get pregnant again was to avoid complications (17 women [30.4%]) The majority of the respondents (228 women [69.1%]) intended to use contraception in the future. Having more than five living children and birth interval were found to be significant predictors of intention to use modern contraception in SAMM survivors, the same predictors as for FP use Intention to use also increased compared to reported actual use. |
| 2019 | Crystal L. Moore, Alison H. Edie, Jennifer L. Johnson, and Eleanor L. Stevenson USA | Pre- and postintervention survey | The LARC QI intervention Project aims were threefold: (1) increase knowledge about LARC by 50% among college students attending group educational sessions one month after implementation; (2) increase intention to use a LARC method by 20% among college students one month after the implementation of the LARC-QI project, and (3) increase usage of LARC methods three months after implementation of the project in the USA | Not given | Not detailed | |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------|-------------------------------|----------------------------|--|--|
| 2019 | E. Costenbader, S. Zissette, A. Martinez, K. LeMasters, and N. A. Dagaду (Costenbader, et al. 2019) DRC | Cross-sectional survey | 18–22 college students in DRC | Theory of planned behavior | On the survey, respondents were asked how likely they were to use modern contraceptives in the future. This question was asked on a four-point Likert scale, with one being extremely unlikely to use and four being extremely likely to use modern contraceptives in the future | <ul style="list-style-type: none"> • Social norms influence intentions to use modern contraception overall, but that normative influence varies by gender • In both the men's and women's models, multiple factors were associated with intention to use family planning, there was not one common factor that was significantly associated with the outcome for both men and women. Common to both models was the fact that respondent age, having transportation to an FP clinic, relationship quality, and couple communication were not significantly associated with intention to use a modern method. In addition, none of the social norm constructs had significant indirect effects (i.e., via relationship quality or couple communication) on intention to use a modern method. • Among the women, the variables that were significantly associated with intention to use a modern contraceptive method were the number of children the respondent had, the information she had about FP, and perceptions of two social norms; injunctive FP norms and descriptive gender equity norms related to childcare responsibilities. • Among the men, having the means to purchase contraception, an understanding of the availability of FP methods in the community, and perceptions of descriptive FP social norms were significantly associated with intention to use a modern method of contraception • Specifically, we found that the descriptive norm around FP use was only influential for men and that the injunctive norm related to FP use was only influential among the women. These results indicate that men are more swayed by their perceptions about how many of their peers are using FP, whereas women are more concerned about social sanctions resulting from the use of FP |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|------------------------|--|----------------------------------|--|---|
| 2019 | Andrea L. DeMaria, Beth Sundstrom, Amy A. Faria, Grace Moxley Saxon, and Jaziel Ramos-Ortiz USA | Cross-sectional survey | To assess combined oral contraceptive pill (COC) users' intention to obtain LARC | Theory of planned behavior (TPB) | TPB factors were measured and adapted from Ajzen's Likert scales | <ul style="list-style-type: none"> • Self-identity and attitude pathways were significant ($p < 0.01$) toward intention • Participants' attitudes, behaviors, perceived behavioral control, and self-identity influence LARC intention • Self-identity with being a pill user had a significant, negative relationship with LARC intention • Current COC user's intention to switch to a LARC method in the prolonged future proved greater than intention for immediate use (12 months) |
| 2019 | Dana Sarnak, Amy Tsui, Fredrick Makumbi, Simon Kibira, and Saifuddin Ahmed UGANDA | Cohort study | To assess the dynamic influence of unmet need on time to contraceptive adoption, as compared with that of contraceptive intentions and their concordance in Uganda | Not given | Whether they would use contraceptives in the future, and their responses were classified as (1) intend to use and (2) do not intend to use | <ul style="list-style-type: none"> • The unmet need indicator underperforms in predicting future contraceptive adoption compared to contraceptive intentions, which merits further consideration as a complementary predictor of future use. Non-contracepting women with unmet needs but no intention to use contraception in particular warrant programmatic attention • The study found women classified as having unmet needs were slower to adopt contraception than those without unmet need, after adjustment for background covariates (aHR = 0.79, 95% CI = 0.57, 1.10). Women intending future contraceptive use were significantly faster to adopt (aHR = 1.45, 95% CI = 1.22, 1.73) than those not intending. Women with no unmet need but intending to use had the highest rate of adoption compared to those with no need and no intention to use (aHR = 2.78, 95% CI = 1.48, 5.25). • His study assesses the dynamic influence of unmet need on time to contraceptive adoption, as compared with that of contraceptive intentions and their concordance |

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TABLE 1 (Continued)

| Year | Author | Study Design | Research objectives | Theoretical framework | ITU item | Reported results |
|------|---|--|--|-----------------------|--------------|---|
| 2020 | Janine Barden-O'Fallon, Jennifer Mason, Emmanuel Thluway, Gideon Kwesigabo, and Egidius Kamanyi TANZANIA | Pre post intervention study (no control) | To assess the effect of providing revised injectable and HIV risk counseling messages on contraceptive knowledge and behavior during a three-month pilot intervention in Tanzania. | Not given | Not detailed | <ul style="list-style-type: none"> Results indicate that the counseling messages did not cause a decrease in the uptake of injectables (Depo-Provera); 97% of interviewed clients received Depo-Provera at their visit; 60% reported an intention to use condoms for dual protection |

were three mixed-method studies, three qualitative studies, three reviews, and two studies of psychometric scales.

The surveys that we included contain the Demographic Health Surveys (DHS), the Measure Evaluation Family Planning, and Reproductive Health Indicators Database, CDC RH assessment toolkit in a conflict setting, PMA2020, Track20/FP2020, Multiple Indicator Cluster Surveys, Reproductive Health Surveys (CDC), Breakthrough Action Research Indicators, National Survey of Family Growth (US), and NATSAL (UK).

Synthesis of Results

What Theoretical Frameworks Are Used?

Of the 112 papers include, 67 papers did not state or explain how they understood intention worked. Twenty-five papers used Azjen's (1991) theory of planned action or a variation of it, in which attitudes, subjective norms, and perceived behavioral control, influence an individual's intentions towards a given behavior; such intentions predict whether an individual engages in that behavior in the future (Nguyen, Saucier, and Pica 1996; Gagnon and Goden 2000; Fazekas, Senn, and Ledgerwood 2001; Wang et al. 2004; Rosengard et al. 2005; O'Connor, Ferguson, and O'Connor 2005; Cha, Kim, and Doswell 2007; Wang et al. 2008; Kang et al. 2008; Heeren et al. 2009; Raine et al. 2011; Brown, Hurst, and Arden 2011; Lee et al. 2011; Potard et al. 2012; Picavet, Vlugt, and Wijzen 2014; Raine-Bennett and Rocca 2015; Kim et al. 2015; Lee, Carvallo, and Lee 2015; Hanson et al. 2015; Roderique-Davies et al. 2016; Solanke, Oyinloye, and Asa 2018; Costenbader et al. 2019; DeMaria et al. 2019). Twelve papers referred to other behavioral theories of intention including the health belief model (three papers), diffusion theory (three papers), and ideation theory (two papers), or specific constructs like self-efficacy (four papers). Seven of the papers used more bespoke models that were not easily categorized under established behavioral models, such as the social-psychological perspectives (Zimmers et al. 1999), prospect theory (O'Connor, Ferguson, and O'Connor 2005), synthesis framework (Agha 2010); the extended parallel process model (EPPM) (Campo et al. 2012); social ecological theory (Irani, Speizer, and Fotso 2014); and the information motivation and behavioral framework (Onono et al. 2014) and integrated behavioral model (Williams et al. 2008).

How ITU Is Operationalized

Across the papers, there is no accepted definition or measure of intent to use contraception. Over 50 papers did not state the exact wording of the items and, of those that did, few of the measures were validated. There are two notable exceptions. Raine-Barrett and Rocca 2015 (2015) developed the Contraceptive Intent Questionnaire (CIQ) that measures contraceptive intent among adolescent girls in the USA, based on a theory of reasoned action and necessity-concerns framework. The CIQ has modest reliability and good internal validity. Lee, Carvallo, and Lee (2015) developed another measure for determining the degree to which Korean immigrant women in the USA intend to use oral contraceptives that was both valid and reliable.

Of the papers that did specify the exact wording used to measure ITU, twenty-four used the items from the Demographic and Health Survey (DHS) or a slight variation of it. The way that the DHS measures are applied in these papers is not standard or consistent. We found that 10 papers used the question (or a variation of it), Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future?, six papers used the question, Do you intend to use a method within the next 12 months, and eight papers used a combination of the two questions. Another 15 papers defined ITU in relation to a specific method (e.g., emergency contraceptive pill, condoms, and long acting and permanent methods (APM) or to a specific time frame (e.g., postdelivery or abortion),

Twenty papers drew on theory of planned/reasoned behavior to inform their items (Gagnon and Godin 2000; Fazekas, Senn, and Ledgerwood 2001; Wang et al. 2004, 2008; Rosengard et al. 2005, Williams et al. 2008; Kang and Moneyham et al. 2008; Raine et al. 2011; Raine-Barrett and Rocca 2015; Brown, Hurst, and Arden 2011; Lee et al. 2011, 2015; Potard et al. 2012; Picavet, Vlugt, and Wijzen 2014; Kim et al. 2015; Hanson et al. 2015; Roderquie-Davies 2016; Costenbader et al. 2019; DeMaria et al. 2019). Five papers used bespoke theories to inform their measures (Campo et al. 2012; Irani, Speizer, and Fotso 2014; Onono et al. 2014; Agha 2010; Larsson et al. 2004). Of these items that were explicitly informed by theory, one-third (seven papers) aligned with the DHS items.

How ITU Is Used

The review found that ITU has become increasingly popular over time. Of the 112 papers found in this scoping review, 92 papers treated ITU as a dependent variable (alone or in some combination with knowledge and attitudes, and contraceptive use). There are three broad ways that ITU has been used in the evidence found.

The first way ITU has been applied was to augment the current measures of unmet need. Several authors have incorporated information on women's future contraceptive intentions to distinguish contraceptive readiness of women with unmet needs (Moreau et al. 2019; Ross and Winfrey 2001; Roy et al. 2003; Cavallaro et al. 2017; Sarnak et al. 2020; Khan 2015; Callahan and Becker 2014; Moreau et al. 2019).

The second way ITU was used was to measure ideational formation and outcome for those developing and implementing behavior change programming. Twelve papers used ITU, as opposed to self-reported contraceptive use, as the outcome measure for counseling and social and behaviour change communication (SBCC) interventions and programs. (Shelus et al. 2018; Amin and Sato 2004; Zimmers et al. 1999; Krenn, et al. 2014; Jawad, Jawad, and Alwan 2019; McCarthy et al. 2019; Moore et al. 2019; Graham et al. 2002; Agha and Van Rossem 2002; Brown, Hurst, and Arden 2011; Onono et al. 2014; Barden-O'Fallon et al. 2020).

The final way ITU was used in the papers was to predict future use of contraception. Fifteen papers assessed the relationship and causal pathways between ITU and contraceptive use (Curtis and Westoff 1996; Kvaem et al. 2000; Roy et al. 2003; Ross and Winfrey 2001; Callahan and Becker 2014; Lori et al. 2018; Tang 2016; Johnson et al. 2019; Adelman, Free, and Smith 2019; Raine et al. 2011; Lutalo et al. 2018; Haile et al. 2016; Akelo et al. 2013; Potard et al.

2012; French, Albanese, and Gossett 2016). ITU was also used to identify the determinants that predict contraception use.

Reported Results

Where ITU augmented the current measures of unmet need, Sarnak et al. (2020) found that women classified as having unmet need were slower to adopt contraception than those without unmet need in Uganda; however, women intending future contraceptive use were significantly faster to adopt than those not intending. Women with no unmet need but intending to use had the highest rate of adoption. Two papers indicate that women move in and out of the unmet need grouping depending on a range of variables (Callahan and Becker 2014; Ross and Winfrey 2001).

Where ITU was used was to measure ideational change, 14 papers used ITU as an outcome measure to assess Social and Behavior Change programs (such as radio and TV shows, phone, iPad, mass and social media, and school and community-based education). Two papers looked at specific counseling on long-acting reversible contraceptives (LARCs) and found that counseling was associated with increased ITU (Barden-O'Fallen et al. 2020; Moore et al. 2019). The fact that only two papers looked at ITU in the context of counseling interventions reinforces an observation made by Raine et al. (2011): there has been little attention on how to support women with low intentions in clinical settings.⁴

Where papers used ITU to assess the relationship and causal pathways between ITU and use of contraceptives, five prospective cohort studies have found that intention to practice contraception is a strong predictor of subsequent use in Bangladesh, Ghana, India, Morocco, and the USA (Curtis and Westoff 1996; Roy et al. 2003; Callahan and Becker 2014; Lori et al. 2018; Tang et al. 2016; Johnson et al. 2019). Ross and Winfrey's (2001) secondary analysis of DHS data in 27 countries found that for each increase of one percentage point in stated ITU contraceptives, there was nearly a 1% rise in the actual use of contraceptives. ITU also has been found to have a positive relation to contraceptive continuation; Raine et al. (2011) and Adelman, Free, and Smith (2019) found that a higher intent to use a method was associated with a lower risk of discontinuation. However, five papers found null or negative associations between ITU and use (Lutalo et al. 2018; Hale et al. 2016; Akelo et al. 2013; Potard et al. 2012; French, Albanese, and Gossett 2016). In an RCT in Norway, Kvaalem et al. (2000) found a relationship between adolescents' actual use of condoms at the most recent occasion of sexual intercourse and their intention to do so the next time (Kvalen et al. 2000).

The majority of studies looked at ITU in cross-sectional studies at national, facility, and household levels. The cross-sectional studies explored the variables that were associated with ITU contraception and suggest that ITU contraception is affected by many personal and social variables. These can be grouped into broader categories: (1) socioeconomic variables such as social and economic factors that indicate a person's status within a community; and (2) behavioral variables, for example, an individual's knowledge and attitude (see Table A2). The socioeconomic variables had a positive relationship with ITU and included higher

⁴ Raine et al. (2011) suggest that we need further research to determine how best to accurately assess contraceptive intention in the clinical setting and support it through counseling interventions.

educational attainment, number of children, and partner's support for family planning. The behavioral variables that had a positive relationship with ITU included a positive attitude to contraception, support from those immediately around the person (such as partners and friends), knowledge about contraceptive methods, and previous experience using contraception. These studies, however, provide little information about the relations between the variables over time or the causal relationship between them.

Several studies focused on ITU for a specific method: condoms (15 papers), LARC methods (14 papers), and emergency contraceptive pills (ECP; six studies). These studies suggest that intentions may vary by the contraceptive method under consideration. For example, anxieties about longer-term effects may be relevant to LARCs but not to condoms. The assessment by Kim et al. (2015) of ITU multiple methods in Korea found possible influences of ECP awareness on ITU other contraceptives.

Another finding is that there can be degrees of intentions. Several studies attempted to decipher the strength of intention (Solanke, Oyinloye, and Asa 2018; Kim 2015). Using DHS data in Nigeria, Solanke, Oyinloye, and Asa (2018) found that certain background characteristics had degrees of association with ITU. Rural residence was associated with higher ITU and advanced reproductive age and religion (compared to no religion) were associated with lower ITU. This suggests that it is possible to distinguish degrees of intention that could be relevant to programming.

DISCUSSION

In this scoping review, we identified 112 peer-reviewed journal articles, assessed nine surveys, and scoped the theoretical literature on intention from behavioral science. Our findings indicate that measures of ITU contraception are being used in a variety of ways and in much research, suggesting the importance and utility of this construct. It may be particularly relevant in assessing programs focused on ideational change and it may help distinguish between women within the category of unmet need. By synthesizing the evidence, five prospective cohort studies have found that intention to practice contraception is a strong predictor of subsequent use and suggests it has the potential to predict contraceptive uptake and use in its own right (Curtis and Westoff 1996; Roy et al. 2003; Callahan and Becker 2014; Lori et al. 2018; Tang et al. 2016; Johnson et al. 2019). However, its definition and operationalization have been underelaborated and inconsistent.

What is notable is that the current operationalization of ITU is driven by the relevant items in the DHS and disconnected from advances in behavioral science. In behavioral science, intentions signal the end of a person's deliberations about what actions one will perform, how hard one will work for it, and how much effort one will apply to achieve the desired outcomes (Ajzen 1991; Gollwitzer 1993; Webb and Sheeran 2006; Gollwitzer and Sheeran 2008). Sheeran (2002), among others, argues that moving from intention to action is complex and moderated by the type of desired behavior, the intention type, properties of intention, and cognitive and personality variables. Sheeran illustrates this complex relationship by grouping people into those with positive intentions who subsequently act (in-

clined actors), those who fail to act (inclined abstainers), those with negative intentions who do act (disinclined actors), and those with negative intentions who do not act (disinclined abstainers).

Different variables have been associated with the strength of intention and whether an intention will be realized. Take, for example, whether intentions are stable over time or whether the behavior predicted is a single action (Webb and Sheeran 2006; Sheeran 2002). A person's control over the behavior (e.g., they do not have the necessary knowledge, resources, opportunity, availability, or cooperation) and the potential for adverse social reaction can limit the realization of an intention (Sheeran 2002; Webb and Sheeran 2006). Moreover, intentions do not always successfully translate into behavior because committing to achieve a behavior does not necessarily prepare people to deal with the issues faced when trying to achieve it. Gollwitzer and Sheeran (2008) helpfully distinguish between a goal intention and an implementation intention. Goal intentions relate to what people plan to do some time in the future, whereas implementation intention is more specific in terms of when, where, and how one intends to achieve it. Implementation intentions tend to be a single action, whereas goal intentions tend to be the outcomes that can be achieved by performing a variety of single actions.

Distinguishing the type of intention is critical because implementation intentions are more likely to translate into behavior than goal intentions (Cohen 1992).⁵ Gollwitzer and Sheeran (2008) argue that goal intentions do not prepare people for dealing with the obstacles they face in initiating, maintaining, disengaging from, or overextending oneself in realizing their intentions. Whereas an implementation intention sets out the when, where, and how in advance, this kind of planning bridges the intention to behavior gap and increases the likelihood of intentions being realized. Take, for example, Joffe and Radius (1993), who see intention for condom use as several single actions linked with specific implementation intentions: to purchase or request condoms from a drug store or clinic; to convince their partner to use them and to use condoms correctly during intercourse. Calculated together, these assess intent to use condoms. Here, the intention is broken down into a set of single actions that specify the situation for performing an intended action.

These developments in behavioral theory are relevant to how we understand intention in contraceptive decision-making and our findings of the mixed evidence about the causal relationship between intent to use and contraceptive use. A closer reading reveals that the studies that found a positive relationship between intention and use and those that found no relationships or negative relationships can be grouped by the types of intention they measured. The papers that found a positive relationship measured "implementation intention" questions, which specified a time frame and/or a specific method. The papers that did not find a relationship between ITU tended to capture goal intention through questions about intentions for contraceptive use in the unspecified future. These insights from behavioral theory merit further examination about the predictive ability of ITU using implementation intention or goal intention, as well as investigating other variables surrounding intention. Furthermore,

5 Cohen's (1992) meta-analysis found a medium-to-large magnitude effect associated with the impact of implementation intention formation on goal attainment.

more research is needed to examine if the degrees of intention related to socio-demographic variations related to different types of intention, such as goal and implementation.

Behavioral theory has also shown that intention is a debated, layered, and phased construct. So it is surprising that most papers in this review did not specify how they understood intention to work and how it related to behavior. This conspicuous absence suggests that there are some implicit assumptions about the ITU construct in the family planning field. The most immediate assumption here is that there is already an accepted definition and measurement of ITU. This review clearly shows that this is not the case, even among the studies that used the more common DHS measures of ITU. This assumed definition of ITU is not informed by behavioral sciences, rather it is driven by legacies from theories of demographic transitions.

In demography, there is an assumed association between reproductive intentions toward smaller families and fertility decline, whether it is caused by changing material conditions or diffusion of ideas (Johnson-Hanks 2008). We can trace the assumptions about ITU in the DHS measures back to Coale's (1973) "ready, willing and able" model that has become popular in describing the adoption of new forms of behavior and the subsequent generalization of these behaviors. Lesthaeghe and Vanderhoeft (2001) refined Coale's model so that the transitions were understood as a process of diffusion of ideas and technologies. The model argues that three intersecting preconditions are necessary for adopting new behavior: individual readiness, willingness, and ability. Here, the intention is linked with "readiness," an individualistic rational-cost benefit analysis of whether or not to have a child, and whether the benefits of preventing pregnancy compensate for the costs of using family planning. Thus utility of new behavior should be self-evident, and the advantages must outweigh the disadvantages (Coale 1973; Lesthaeghe and Vanderhoeft 2001; Dereudde et al. 2016; Mannan and Beaujot 2006).

When designing, implementing, and assessing contraceptive services, there is an implicit assumption that contraceptive use is linked to whether a woman intends to get pregnant in the near future. This logic is reflected in the decision to move the ITU questions from the section on contraception to the section on fertility intention in Phase 3 (1992–1997) of the DHS. The DHS measures of ITU are the most commonly used; but, these have changed over time (see Table A4). The DHS ITU questions were initially located in the contraceptive section and covered three questions: Do you intend to use a method to avoid pregnancy at any time in the future? Which method would you use? and Do you intend to use (preferred method) in the next 12 months? In Phase 2 (1992–1997), the questions were moved into the fertility preferences section. In Phases 4 and 5, the question, Do you intend to use (preferred method) in the next 12 months? was dropped. In the final three rounds, the question related to Which method would you use? was dropped, and ITU was reduced to a single question, Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future? This link between pregnancy intentions and contraceptive use may explain why ITU has received relatively less attention.

However, the relationship between reproductive intention, ITU, and contraceptive use is complicated at best (Higgins et al. 2012; Mumford et al. 2016; Aiken et al. 2016; Barrett and Wellings 2002; Moreau et al. 2013). Fertility intentions are often conflated with contraceptive motivations even though the two often do not align (Moreau et al. 2019; Cleland, Harbison,

and Shah 2014). Raine-Barrett and Rocca (2015) point out that contraceptive intention relates to ideas about preventative medication, and, therefore, its measurement must take into account a woman's specific beliefs about medicine and about contraception itself, along with beliefs about pregnancy, and not the cost-benefit calculus of having a child (or not). There has been limited research examining the meaning and measurement of this construct despite its widespread inclusion in many major surveys.

Our scoping review had some limitations. To make our review more feasible, we searched only two databases. Given our limited data sources, we chose to include databases that covered both public health (e.g., PubMed) and the social sciences (e.g., Web of Science). To further the feasibility of this review, we limited the search period from 1990 to November 2020. From this review, we have found the earlier antecedents for ITU and in a subsequent systematic review of the relationship between ITU and contraceptive use, we have used a longer search period.

CONCLUSION

ITU contraception is an important construct that has not been applied consistently. Despite its widespread inclusion in major surveys, there is limited research examining the meaning and measurement of this construct and this research does not reflect advances in behavioral theory and research. As an accepted measure that captures a more person-centered measure of demand, there is much to be gained if we were more intentional in our use of intent to use. Further work is needed to develop and test measures that capture the complexity of intention, examine how intention differently relates to longer-range goals compared to more immediate implementation, and demonstrate a positive relationship between ITU and contraceptive use.

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TABLE A1 Intention to use measures in the survey instruments reviewed

| Survey Instrument (year) | Intention to Use Measure |
|---|--|
| CDC RH assessment toolkit in a conflict setting ^a (2011) PMA2020 (2020) | Do you think you will use a method to delay or avoid pregnancy in the next 12 months? Female Questionnaire (Panel) <ul style="list-style-type: none"> Do you think you will use a contraceptive method to delay or avoid getting pregnant at any time in the future? When do you think you will start using a method? (Months/year) What method do you think you will use? Female Questionnaire (Cross-Sectional) Do you think you will use a contraceptive method to delay or avoid getting pregnant at any time in the future? When do you think you will start using a method? (Months/year) What method do you think you will use? |
| UNICEF Multiple Indicator Cluster Surveys ^c | Not included |
| CDC Reproductive Health Surveys (2018) | <ul style="list-style-type: none"> Intend to use a method in the future What method do you think you will use? |
| National Survey of Family Growth (US) ^e | Not included |
| NATSAL (UK) ^f | Not included |

^a <https://www.cdc.gov/reproductivehealth/global/tools/crisissituations.htm>.

^b <https://www.pmadata.org/data/survey-methodology>.

^c <https://mics.unicef.org>.

^d <http://ghdx.healthdata.org>.

^e <https://www.cdc.gov/nchs/data/nsfg/NSFG-2017-2019-FemaleCAPLite-forPUF-508.pdf>.

^f <https://www.natsal.ac.uk/natsal-survey/natsal-3>.

TABLE A2 Overview of variables' relationship to ITU found in the studies

| | Positive association with ITU | Negative association with ITU |
|-----------------------|---|---|
| Socioeconomic factors | | |
| Education | Baumgartner et al. 2012; Cavallaro et al. 2017; Kuang, Ross, and Madsen 2014; Adegbola and Okunowo 2009; Syum et al. 2019; Huda et al. 2019; Mekonnen et al. 2014; Tiruneh et al. 2016; Spence, Elgen, and Harwell 2003; Di Giacomo et al. 2013; Meskele et al. 2014; Kgosiemang and Blitz 2018; Udomboso et al. 2015 | |
| Number of children | Baumgartner et al. 2012; Cavallaro et al. 2017; Syum et al. 2019; Hamid, Stephenson, and Rubenson 2011; Luo et al. 2018; Adelman, Free, and Smith 2019; Ochejele et al. 2019; Babalola et al. 2015; Peterson 1999; Costenbader et al. 2019 | Solanke, Oyinloye, and Asa 2018; Udomboso et al. 2015 |
| Abortion | Adelman, Free, and Smith 2019; Mogilevkina and Odland 2003; Truong et al. 2006; Francis and Jejeebhoy 2015 | |
| Unplanned pregnancy | Spence, Elgen, and Harwell 2003; Curtis and Westoff et al. 1996; Campo et al. 2012 | Borges et al. 2018 |

(Continued on next page)

TABLE A2 (Continued)

| | Positive association with ITU | Negative association with ITU |
|---|--|--|
| Partner support for FP | Ezeanolue et al. 2015; Agha 2010; Abraha, Belay, and Welay 2018; Triuneh et al. 2016; Onono et al. 2014; Yan et al. 2012; Hiltabiddle 1996; Akelo et al. 2013; Williams et al. 2008; Esber et al. 2014 | |
| Married/partnered | Baumgartner et al. 2012; Newman et al. 2005; Akelo et al. 2013; Luo et al. 2018; Tiruneh et al. 2016; Legardy et al. 2005 | Cavallaro et al. 2011; Essien et al. 2006 |
| Type of relationship/sexual frequency | Irani, Speizer, and Fotso 2014; Luo et al. 2018; Spence, Elgen, and Harwell 2003; Campo et al. 2012; Francis and Jejeebhoy 2015 | Yan et al. 2012 |
| Parity | Adegbola and Okunowo 2009; Rink et al. 2012; Rai et al. 2017; Mogilevkina and Odilind 2003; Babalola et al. 2015 | Picavet, Vlugt, and Wijzen 2014 |
| Age | Adegbola and Okunowo 2009; Syum et al. 2019; Hamid, Stephenson, and Rubenson 2011; Nangia et al. 2003 | Solanke, Oyinloye, and Asa 2018; Kuang, Ross, and Madsen 2014; Spence, Elgen, and Harwell 2003 |
| household decision making | Syum et al. 2019; Hamid, Stephenson, and Rubenson 2011; Rahman, Mostofa, and Hoque 2014; Mboane and Bhatta 2015 | |
| Ideal family size | Kuang, Ross, and Madsen 2014; Tiruneh et al. 2016 | |
| Rural | | Solanke, Oyinloye, and Asa 2018; Kuang, Ross, and Madsen 2014 |
| Income | Kuang, Ross, and Madsen 2014; Tiruneh et al. 2016 | |
| High-risk pregnancy | French, Albanese, and Gossett 2016 | |
| Late marriage | Tiruneh et al. 2016 | |
| Breastfeeding | | Udomboso et al. 2015; Fuell, Tossone, and Furman 2017 |
| Violence | Murshid 2017 | |
| Urban | Cavallaro et al. 2017 | |
| Behavioral factors | | |
| Attitude to contraception (willingness to use) | Wang et al. 2008; Raine et al. 2011; Hitabiddle et al. 1996; Lee, Carvalho, and Lee 2015; Syum et al. 2019; Picavet, Vlugt, and Wijzen 2014; Krenn et al. 2014; Mollen et al. 2008; Potard et al. 2012; Fuell, Tossone, and Furman 2017; Wang et al. 2004; Fazekas, Senn, and Ledgerwood 2001; O'Connor, Ferguson, and O'Connor 2005; Kang and Moneyham 2008; Lee et al. 2011; Gebremariam and Addissie 2014; Meskele et al. 2014; DeMaria et al. 2019 | |
| Subjective norms (pressure from others) partner parents | Raine et al. 2011; Hitabiddle et al. 1996; Heeran et al. 2009; Khan et al. 2015; Lee, Carvalho, and Lee 2015; Rosengard et al. 2005; Akelo et al. 2013; Mollen et al. 2008; Williams et al. 2008; Gagnon and Godin 2000; Esber et al. 2014; Abraha, Belay, and Welay 2018; Roderique-Davies et al. 2016; Wang et al. 2004; Agha 2010; Babalola et al. 2015 | |
| Knowledge of method | Shongwe, Ntuli, and Madiba 2019; Cavallaro et al. 2017; Tang et al. 2016; Khan et al. 2015; Syum et al. 2019; Abraha, Belay, and Welay 2018; Mesheriako et al. 2018; Moore et al. 2019; Larsson et al. 2004; Mogilevkina and Odilind 2003; Di Giacomo et al. 2013; Babalola et al. 2015; Gebremariam and Addissie 2014; Nguyen, Saucier, and Pica 1996; Khanal et al. 2011; Meskele et al. 2014; Costenbader et al. 2019 | Newman et al. 2005; van der Westhuizen and Hanekom 2016 |

(Continued on next page)

TABLE A2 (Continued)

| | Positive association with ITU | Negative association with ITU |
|--|--|-------------------------------|
| Previous experience | Joffe and Radius 1993; Hitabiddle et al. 1996; Huda et al. 2019; Picavet, Vlugt, and Wijzen 2014; Rosengard et al. 2005; Akelo et al. 2013; Esber et al. 2014; Luo et al. 2018; Adelman, Free, and Smith 2019; Ochejele et al. 2019; Kvaalem et al. 2000; Campo et al. 2012; Wuni, Turpin, and Dassah 2017 | |
| Perceived risk | Hitabiddle et al. 1996; Huda et al. 2019, Rosengard et al. 2005; Hoefnagels et al. 2006; Gagnon and Godin 2000; Elweshahi et al. 2018; Luo et al. 2018 | |
| Perceived control | Mollen et al. 2008; Potard et al. 2012; Roderique-Davies et al. 2016; DeMaria et al. 2019; Hanson et al. 2015 | |
| Pregnancy intentions | Raine et al. 2011; Baumgartner et al. 2012; Rosengard et al. 2005; Luo et al. 2018; Spence, Elgen, and Harwell 2003; Gebremariam and Addissie 2014; Wuni, Turpin, and Dassah 2017 | |
| Self-efficacy | Shelus et al. 2018; Wang et al. 2008; Gagnon and Godin 2000; Wang et al. 2004; Cha, Kim, and Doswell 2007; Babalola et al. 2015 | |
| Communication/discussion | Akelo et al. 2013; Shelus et al. 2018; Agha and Van Rossem 2002; Campo et al. 2012; Wuni, Turpin, and Dassah 2017; Agha 2001; Wang et al. 2004 | |
| Attitude to pregnancy | Picavet, Vlugt, and Wijzen 2014; Akelo et al. 2013; Rai et al. 2017; Agha 2010. | |
| Injunctive norms/ social norms | Shongwe, Ntuli, and Madiba 2019; Costenbader et al. 2019 | |
| What other people are doing | Mollen et al. 2008; Wang et al. 2004; Fazekas, Senn, and Ledgerwood 2001; Nguyen, Saucier, and Pica 1996 | |
| Knowledge of use Confidence/ease of use | Essien et al. 2006; Heeran et al. 2009 Hitabiddle et al. 1996; Lee, Carvallo, and Lee 2015; Huda et al. 2019; Ochejele et al. 2019 | |
| Anticipatory regret | Gagnon and Godin 2000 | |
| Perceived benefits | Roderique-Davies et al. 2016 | |
| Convenience | Hitabiddle et al. 1996; Heeran et al. 2009 | |
| Personal norm | Williams et al. 2008 | |
| Social identity | DeMaria et al. 2019 | |

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TABLE A4 ITU items in the DHS questionnaire over time

| | | |
|--|--|---|
| DHS Model Questionnaire with Commentary – Phase 1 (1984–1989) (English) ITU in contraception sections | Pregnant women, past users, and never users of FP asked about their intentions to use (with the distinction between use in the near future and later use) and preferred method. The data provide an indication of future demand for services. The distinction b/w the near and the more distant future is to avoid the respondents misunderstanding the time references. | Do you intend to use a method to avoid pregnancy at any time in the future? Which method would you use? Do you intend to use (preferred method) in the next 12 months |
| DHS Model Questionnaire with Commentary – Phase 2 (1988–1993) (English) | As above | Do you intend to use a method to avoid pregnancy at any time in the future? Do you intend to use a method in the next 12 months? When you use a method, which method would you prefer to use? |
| DHS Model Questionnaire with Commentary – Phase 3 (1992–1997) (English) ITU moved from the contraception section to fertility preferences | As above, with the addition “ Such data provides an indication of the future demand for services” ALSO “In previous, DHS questionnaires were located in Section 3. They have been relocated here so that the contraceptive intentions will be closer to reproductive intentions” | Do you think you will use a method to avoid pregnancy within the next 12 months? Do you think you will use a method to avoid pregnancy at any time in the future? Which method would you prefer to use? |
| DHS Model Questionnaire with Commentary – Phase 4 (1997–2003) (English) ITU in fertility preferences | Women who are not currently using a method are asked whether they intend to use one in the future. There is strong evidence that such intentions are highly predictive of future use. | Do you intend to use a method to avoid pregnancy at any time in the future? Which method would you use? |
| DHS Model Questionnaire – Phase 5 (2003–2008) (English) | | Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future? Which contraceptive method would you prefer to use? (1) |
| DHS Model Questionnaire – Phase 6 (2008–2013) (English, French) | | Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future? |
| DHS Model Questionnaire – Phase 7 (English, French) | | Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future? |
| DHS Model Questionnaire – Phase 8 (English) | | Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future? |