

Research Article

Predictors of Contraceptive Adherence among Women Seeking Family Planning Services at Reproductive Health Uganda, Mityana Branch

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Received 22 January 2015; Accepted 26 March 2015

Academic Editor: Pranitha Maharaj

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Poor adherence is one of the main causes of unintended pregnancies among women of reproductive age. The purpose of this study was to establish the predictors of contraceptive adherence. A total of 211 women were enrolled and interviewed while seeking family planning services at reproductive health Uganda facility. Binary logistic regression was used to analyze the association between adherence and the independent variables. Most of the respondents (83.4%) were currently using a hormonal contraceptive. Of the participants who were using contraceptives, 43% had discontinued use at some time for reasons other than pregnancy, 53.1% reported having short birth interval less than 2 years, and 7% reported having more children than desired. The predictors of poor contraceptive adherence included lower education level (OR 2.484, 95% CI 1.403–4.397) and lower self-efficacy (OR 1.698, 95% CI 1.959–3.004). Lack of male partner support (OR 2.014, 95% CI 1.140–3.557) and low education level (OR 2.103, 95% CI 1.196–3.699) were predictive of reporting short birth interval less than 2 years. The findings point to a number of predictors of contraceptive adherence that may have implications for designing and evaluating family planning programs. In the Ugandan context, studies to evaluate effective adherence improvement strategies are needed.

1. Background

While contraceptive use is globally recognized as a key pillar in the improvement of maternal and child health [1, 2], Uganda still reports poor contraceptive use indicators [3–6]. It is estimated that, of 3 million pregnancies that occur annually in the country, 56% are unintended with 30% resulting in abortions [7]. Unwanted pregnancies and high incidences of unsafe abortions contribute to high maternal morbidity and mortality (435/100,000 live births), high fertility rates, and other pregnancy related complications [4]. The high fertility rates with the associated high annual population growth are said to be outpacing the existing resources, contributing to endemic poverty and poor service delivery in the country [8, 9].

Uganda recognizes the role of contraceptive use in the improvement of maternal and child health through enactment of policies and guidelines on family planning programs [10]. In 2005 the government developed a family planning strategic and advocacy plan with the overall goal of contributing to the reduction in fertility rates and maternal mortality through increased utilization of contraceptives [11]. The country has continued to procure and support the availability of modern contraceptives methods including oral pills, injectables, implants, intrauterine devices (IUD), condoms, spermicides, and other vaginal barrier methods [10].

However, the effectiveness of contraceptives in preventing pregnancy varies from method to method, partly due to method use (adherence) and method efficacy [12, 13]. Barrier methods such as condoms require a high degree of

commitment from both the users and their partners but are less likely to be used among married couples [14–17]. Generally, oral contraceptive pills (OCs) and injectables (DMPA) are the most commonly used globally [18]. The trends are not any different in Uganda [7, 19]. However, to maximize their impact in prevention of unplanned pregnancies and their consequences, consistent and correct use is required [20].

Research on general medication use indicates that non-adherence remains one of the major underassessed causes of care gap [21, 22]. Studies in the USA, France, and Pakistan indicate that 2 to 9% of OC users become pregnant within 12 months of starting the method, mainly as a result of inconsistent or incorrect use [23]. In USA alone it is estimated that 50% (1.5 million) of all unintended pregnancies occur among contraceptive users; of these 9 in 10 are due to nonadherence [23]. Studies to evaluate family planning programs in Lilongwe Malawi established that 32–35% of the family planning clients discontinued contraceptive use within 48 weeks mainly due to side effects, partner disapproval, and inadequate preinitiation counseling [24, 25]. Similar findings were established in a study that found high rates of discontinuation among rural Kenyan women living in discordant partnerships [26]. Studies conducted to examine factors influencing contraceptive adherence have concluded that beliefs, attitudes, and daily life activities affect consistent and correct contraceptive use [27–30]. However, little is known about rates of discontinuation and contraceptive adherence among Ugandan women. The available data from the Uganda demographic survey is on contraceptive prevalence and neither disaggregates data for individual districts. Thus in this study the authors thought that identifying predictors of contraceptive adherence could be useful in improving and designing family planning programs.

2. Methods

2.1. Study Variables. In this study, contraceptive adherence, the major dependent variable, was conceptualized as whether or not contraceptive use had been discontinued at some time for reasons other than pregnancy or medical recommendation. It was measured on a dichotomous scale of “Yes” or “No.” The other dependent variables were birth interval less than 2 years and having more children than desired. In this study the major independent variables were categorized as attitude or motivators, subjective norms, and self-efficacy. The categories were derived based on the constructs of the theory of planned behavior, one of the popular sociocognitive models in the health behavior arena [31].

Attitude was conceptualized as what motivated contraceptive users to adhere. Eight attitude items were measured on 8-point rank scale, with 8 indicating the most important and 1 the least important. Participants were asked to indicate to what extent each item (e.g., avoiding having many children and economic gains of small family) made them adhere to contraceptive use.

Subjective norms referred to whether significant others (partner/husband, friends, parents, and mother-in-law) influenced their contraceptive adherence. Four items were measured on 5-point Likert scale from strongly agree to

strongly disagree. Self-efficacy refers to the self-perception of ease or difficulty of the contraceptive user to adhere to contraceptive use. Four items were measured on 5-point Likert scale from strongly agree to strongly disagree. In addition, data was obtained on contraceptives information and health facility related factors. These were also measured on a 5-point scale.

2.2. Study Design and Setting. The study employed a cross-sectional correlational design, which describes relationships among variables. The study was conducted at Reproductive Health Uganda (RHU) facility, Mityana District. RHU is a nongovernmental not for profit organization that specializes in provision of integrated reproductive health services and serves over 4000 clients annually from the semirural district of Mityana and the neighboring subcounties of Mubende and Kiboga in the central region of Uganda.

2.3. Study Population and Recruitment Procedure. The study enrolled 211 women aged between 18 and 49 years who were using or had ever used a modern contraceptive method. The mean age of the participants was 29 ± 8 years and the majority ($n = 176$, 83.4%) were using contraceptives with a median duration of 48 months. Participants were systematically recruited by selecting every second woman who registered to seek family planning services at the facility and met the inclusion criteria. The recruitment process and data collection were done between February and May, 2010. A structured self-report interview was used to collect data. The questionnaire was sectioned into sociodemographics, attitudes, subjective norms, perceived self-efficacy, contraceptive information, and health facility related items. The questionnaire was pretested and adjusted appropriately.

2.4. Ethical Considerations. The study was approved by research committee of the Faculty of Health, Medicine and Life Sciences, Maastricht University, in Netherlands. Permission was sought locally from the management of the facility and informed consent was obtained from the participants after explaining the study requirements.

2.5. Statistical Analysis. Analyses were completed using SPSS version 17.0. Contingency tables, exploratory factor analysis, and logistic regression were the major analyses performed. Exploratory factor analysis using a principal component analysis (PCA) was first used on items in the questionnaire related to attitude, subjective norms, self-efficacy, contraceptive information, and health facility related factors to establish any underlying structure. The assumptions for conducting a PCA (sample adequacy and large enough correlations between items), Kaiser-Meyer-Olkin (KMO) measure, and Bartlett's test of sphericity were obtained. PCA was applied to test whether the items employed to measure independent variables loaded on distinct components. For attitude items, PCA was conducted on 8 items (remain healthy and strong, allow for proper growth and health of children, avoid too many children, allow me time to work, remain young and beautiful, have no money to look after a big family and not having enough help) using oblimin rotation. A good

KMO value (0.78) and Bartlett's test of sphericity (360.3, $P < 0.001$) indicated that the correlations between the items were sufficiently large for PCA. Analysis was done to obtain eigenvalues for each component in the data. Three components had eigenvalues over Kaiser's criterion of 1 but critical observation showed that two components in combination explaining 50.459% of the variance were interpretable. The scree plot's inflexion point also justified retention of two components. The items that clustered on the same component suggested that one of the components represented perceived benefit from contraceptive adherence and the other represented financial ability. Scale reliability analysis was performed for the two components; perceived self-benefit subscale had a high reliability: Cronbach's $\alpha = 0.712$, while the financial ability subscale had a low reliability: Cronbach's $\alpha = 0.612$.

The same procedure was conducted on 9 items for subjective norms and perceived behavioral control items. Three components had eigenvalues over Kaiser's criterion of 1 and all in combination explained 58.12% of the variance. The scree plot was ambiguous. In concordance with Kaiser's criterion, three components were interpretable: support from a close family member, support from a friend, and perceived self-efficacy. Reliability analysis was done for the three components, perceived self-efficacy subscale had a high reliability: Cronbach's $\alpha = 0.703$, while subscales for family support and support from others had low reliabilities: Cronbach's $\alpha = 0.496$ and 0.486 , respectively. Male spouse support remained isolated as an item ($r = 0.82$).

PCA was also conducted on 8 items on contraceptive information and health facility related factors items. Three components had eigenvalues over Kaiser's criterion of 1 in combination explaining 69.8% of the variance. The items that were interpretable were understanding contraceptive information, availability of contraceptives, and awareness on availability of contraceptive options. On scale reliability analysis, only understanding contraceptive information subscale had a high reliability: Cronbach's $\alpha = 0.842$. The subscales that had high reliability were treated for further analysis. Using contingency tables and binary logistic regression, the established components were compared with the adherence, birth interval less than 2 years, and having more children to establish any relationships.

3. Results

Most participants had obtained basic education, with 49% having primary education and only 3% with no education. While 80.9% (170) reported birth interval of two years or more as their desired birth interval, 53.1% (112) reported short birth intervals of less than 2 years. Seven percent (14) of the participants reported having more children than desired. The majority (83.4%) of the participants were using a contraceptive method at the time of data collection. Forty three percent (91) of the respondents had discontinued contraceptive use at some time for reasons other than wanting to get pregnant or medical recommendations. Injection (DMPA) was the most used method and 65.45% (138) of the

TABLE 1: Participants sociodemographic characteristics.

Variable	<i>f</i>	%	Cumm. %
Level of education			
None	7	3.3	3.3
Primary	96	45.5	48.8
Secondary	84	39.8	88.6
Tertiary	24	11.8	100
Nature of work			
Business woman	118	56	56
Civil servant	21	10	66
Peasant labor	24	11.3	77.3
No work outside home	48	22.7	100
Marital status			
Married	157	74.4	74.4
Single	45	21.3	95.7
Separated	6	2.8	98.5
Widowed	3	1.5	100
Religion			
Catholic	65	30.8	30.8
Protestant	82	38.9	69.7
Muslim	43	20.3	90
Pentecostal	20	9.5	99.5
Adventist	1	0.5	100
Discontinuing contraceptive use at some time			
Yes	91	43	43
No	120	57	100
Desired birth interval (years)			
1	40	19.05	19.05
2	82	39.05	58.1
>2	88	41.9	100
Birth interval less than 2 years			
Yes	112	53.1	53.1
No	99	46.9	46.9
Ever changed contraceptive option			
Yes	138	65.4	65.4
No	73	34.6	34.6
Current method of contraception			
None	35	16.6	16.6
Pill	20	9.5	26.1
Depo (injection)	111	52.6	78.7
Implant	34	16.1	94.8
IUD	2	0.95	95.75
Condoms	8	3.8	99.5
Sterilization	1	0.5	100
Total	211	100	

users had reported having switched methods mainly due to side effects and convenience (see Table 1)

TABLE 2: Participants score on the scale dimensions derived from factor analysis.

Scale component	Above median% (<i>n</i>)	Below median% (<i>n</i>)	Mean (SD)	Median
Perceived self-benefit from contraceptive adherence	54 (113)	46 (98)	12.72 (2.60)	13.00
Perceived self-efficacy	53 (112)	47 (99)	4.80 (2.20)	4.00
Understanding contraceptive information	45.5 (96)	54.5 (115)	14.55 (2.73)	16.00

TABLE 3: Variables associated with contraceptive adherence.

Discontinuation of contraceptive use at some time for reasons other than pregnancy	Yes (<i>n</i> = 91)	No (<i>n</i> = 120)	<i>P</i> value
Education			<0.001
Primary or no education	65 (63%)	38 (37%)	
Secondary or tertiary education	26 (24%)	82 (76%)	
Male spouse support			0.429
Yes	45 (48%)	48 (52%)	
No	46 (39%)	72 (61%)	
Age mean in years at first pregnancy (SD)	20.03 (3.55)	20.06 (3.59)	0.351
Age mean in years at start of contraceptive (SD)	21.9 (4.58)	22.002 (5.01)	0.13
Nature of work			0.99
Salaried/business	70 (50.4%)	69 (49.6%)	
Nonsalaried/business	21 (29.2%)	51 (70.8%)	
Perceived benefit from contraceptive adherence			0.54
Score below the median (13)	36 (36.7%)	62 (66.3%)	
Score above the median (13)	55 (48.7%)	58 (51.3%)	
Perceived self-efficacy			0.015
Score below the median (4)	57 (58.8%)	40 (41.2%)	
Score above the median (4)	34 (29.8%)	80 (70.2%)	
Understanding contraceptive information			0.502
Score below the median (16)	60 (53%)	53 (47%)	
Score above the median (16)	31 (31.6%)	67 (86.4%)	

The subscale components derived from factor analysis: perceived self-benefit from contraceptive adherence, perceived self-efficacy, and understanding of contraceptive information, were dichotomized based on the median. The participants were considered to score low (below the median) or high (above the median) on each subscale. Fifty-four percent of the participants (113) scored high on perceived self-benefit, 53% (112) scored high on perceived self-efficacy, and less than half (45.5%) scored high on understanding contraceptive information (see Table 2).

Of those who scored low on understanding contraceptive information 52.2% also scored low on perceived self-benefit ($\chi^2 = 3.355$, $P < 0.05$). When the scales were compared with education level, 58.7% of the participants with low self-efficacy were among women with primary or no education ($\chi^2 = 7.173$, $P < 0.05$). More than half (51%) of the participants who scored low on perceived benefit had primary or no education and 54.8% with low understanding on contraceptive information had primary or no education ($\chi^2 = 3.602$, $P < 0.05$).

There was a significant statistical association between level of education ($\chi^2 = 12.235$, $P < 0.001$), perceived self-efficacy ($\chi^2 = 5.868$, $P < 0.05$) and contraceptive adherence. Sixty-three percent of those who discontinued contraceptive use at some time for reasons other than pregnancy had either no or only primary education. Among those who scored low on perceived self-efficacy, 58.8% (57) also discontinued contraceptive use at some time (see Table 3).

In the adjusted model for the odds of adherence, a number of independent variables were found to be predictive of adherence. Participants with low education level and low self-efficacy were found significantly less likely to be adherent (OR 2.484, 95% CI 1.287–3.909, $p \leq .001$, and OR 1.953, 95% CI 1.935–3.004, $p \leq .018$, resp.). A chi-square test indicated that there was a significant relationship between level of education and self-efficacy (chi-square = 7.173, $P < 0.05$); 58% of the respondents with primary or no education scored low on perceived self-efficacy compared with 42% in the group with the secondary level and above. The odds ratios remain essentially the same in a model that combined together

TABLE 4: Predictors of adherence and related outcomes.

Variable	OR (95% CI)	β (S.E)	P value
Birth interval less than 2 years			
Unadjusted odds			
Lack of male partner support	2.159 (1.235–3.774)	.77 (.29)	0.007
Education level attained	2.243 (1.287–3.909)	.81 (.28)	0.004
Adjusted odds			
Lack of male partner support	2.014 (1.140–3.557)	.70 (.29)	0.0160
Education level attained	2.103 (1.196–3.699)	.74 (.29)	0.0100
Discontinuation contraceptive use at some time for reasons other than pregnancy			
Unadjusted odds			
Education level attained	2.697 (1.537–4.731)	.99 (.29)	0.001
Low self-efficacy	1.953 (1.124–3.393)	.67 (.28)	0.018
Adjusted odds			
Education level attained	2.484 (1.403–4.397)	.91 (.29)	0.002
Low self-efficacy	1.698 (1.959–3.004)	.53 (.29)	0.069
Having more children than desired			
Unadjusted odds			
Perceived benefit from adherence	0.177 (0.039–0.813)	–1.731 (.77)	0.026
Low self-efficacy	6.923 (1.510–31.750)	1.935 (.77)	0.013
Discontinuation contraceptive use	5.317 (1.444–19.665)	1.671 (.67)	0.012
Start contraceptive use after 22 years	7.213 (1.573–33.085)	1.976 (.78)	0.011
Adjusted odds			
Perceived benefit from adherence	0.146 (0.029–0.735)	–1.1925 (.821)	0.0200
Low self-efficacy	7.635 (1.541–37.852)	2.033 (.817)	0.010
Discontinue contraceptive use	5.337 (1.313–21.689)	1.675 (.715)	0.019

education level with lack of self-efficacy. However, lack of self-efficacy had a lowered significance level ($P > 0.05$), confirming the relationship between these two predictors.

In addition, reported lack of male partner support and low education level were found to be predictive of reporting a short birth interval of less than 2 years (OR 2.014, 95% CI 1.140–3.557, $\rho \leq .016$, and OR 2.103, 95% CI 1.196–3.699, $\rho \leq .010$, resp.). Of the 112 participants who reported having short birth intervals of less than 2 years, 64% had primary or no education. Furthermore, participants who scored high on perceived self-benefit from contraceptive adherence were less likely to report having more children than desired (OR 0.146, 95% CI 0.029–0.735, $\rho \leq .02$). Low self-efficacy and discontinuing contraceptive use increased the likelihood of having more children than desired (OR 7.635, 95% CI 1.541–37.852, $\rho \leq .020$, and OR 5.337 95% CI 1.313–21.689, $\rho \leq .019$, resp.) (see Table 4).

4. Discussion

This study focused on predictors of contraceptive adherence and related outcomes among women in the reproductive age

group. Women with primary or no education (64%) reported having short birth interval of less than 2 years. In addition, women with primary or no education were more likely to be nonadherent to contraceptives. Education is known to empower women; at higher education levels women are more likely to better conceptualize the benefits of child spacing in relation to their own health choices, their children's health, and their family size goals. They are more likely to negotiate contraceptive use with their partners [32–36]. This could in part explain why women with primary or no education were more likely to report lack of partner support, short birth interval less than 2 years, and discontinued contraceptive use for reasons other than pregnancy. Multiple studies support the findings that education was associated with self-efficacy and increased the chances of understanding contraceptive information [37–39]. Both literature and the findings indicate that side effects are a major factor in discontinuation of contraceptive use [40]. It is probable that women with high levels of education are better placed to understand the meaning and management of these side effects. In addition, a number of participants, 65.4% (138) reported switching contraceptive methods mainly due to side effects and convenience.

Other studies have found significant relationships between occupation, marital status, age, and having a stable partner with contraceptive adherence [32, 36, 41]. In this study, majority 157 (74%) of the participants were married and thus in stable relationship. However, there was no significant statistical association with marital status, age and contraceptive adherence.

Partner support was associated with reporting a short birth interval less than 2 years. The majority of the women (64.1%) who reported lack of partner support had a discrepancy in the desired birth interval. Partner support may be important, especially in deciding when to start contraception and adherence more so when a woman experiences contraceptives related discomforts such as spot bleeding, loss of libido and others that may temporary interfere with her desire to have sex with her partner. This may be critical in an African setting like Uganda, especially where partner disapproval has been established as a hindrance to contraceptive use among women [24]. Studies conducted in Uganda and Malawi have found associations between contraceptive use, adherence, and male partner disapproval [24, 42–44]. Lack of partner support in this study could be a proxy determinant of low contraceptive acceptability and adherence. However, partner support may also be important to particular contraceptive choices, an area we did not investigate in this study. Similar findings have been established in studies conducted in northern Uganda and Tanzania that point to partner communication and support [44, 45]. However, most of the studies in Uganda were conducted in rural settings where male dominance may still be predominant. There is need for studies that compare urban and rural communities.

From this study self-efficacy was predictor of contraceptive adherence. Women who scored low on self-efficacy were more likely to stop contraceptive use for reasons other than pregnancy. Women with low self-efficacy, especially in highly patriarchal societies like Uganda, are probably less likely to make independent decisions on matters of contraceptive use and adherence. The finding is consistent with studies elsewhere that have established a relationship between women empowerment and decision making with regard to health choices [20, 38]. The findings of this study support the theorization that education, self-efficacy, and knowledge contribute to better contraceptive adherence and this is also true for some rural settings in Uganda. To improve contraceptive adherence, a number of strategies ranging from provider communication, routine counseling, mobile texts, and daily dairies among others have been recommended in the literature [46–49] but little is known about their use and effectiveness in Uganda.

There are some study limitations that include among others the dependent variables not being compared with the contraceptive methods used. Importantly also most participants (74%) were married and thus the results may not apply to adolescent single women. However, a more complete understanding of the determinants of women's actual contraceptive adherence behavior using longitudinal prospective study is necessary.

In conclusion, low levels of education, lack of male partner support, low perceived benefit from contraceptive

adherence, and self-efficacy were associated with poor adherence and related outcomes. The findings of this study have important implications for the development of effective family planning programs that encourage contraceptive adherence, especially targeting specific groups like the male partner. Programs should help build self-efficacy of women through multisectorial approaches that empower women to discuss their family planning concerns. Specific programs should be designed and implemented to deliberately target the less educated women. In Ugandan context, studies to evaluate effective adherence improvement strategies are needed.

Abbreviations

DMPA:	Depot medroxyprogesterone acetate
CI:	Confidence interval
IUD:	Intrauterine device
KMO:	Kaiser-Meyer-Olkin measure
OC:	Oral contraceptive
OR:	Odds ratio
PCA:	Principal component analysis
RHU:	Reproductive Health Uganda
SD:	Standard deviation.

Conflict of Interests

The authors in this study have no conflict of interests.

Authors' Contribution

Richard Muhindo conceived the research idea and participated in the design, coordination of data collection, and drafting of the paper. Joyce Nankumbi participated in the drafting of the paper. Michelene Chenault performed the statistical analysis and participated in drafting of the paper. Sara Groves participated in the drafting of the paper.

Acknowledgments

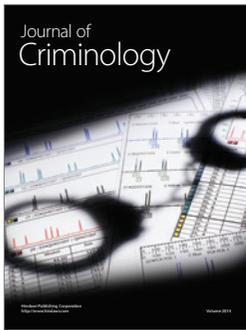
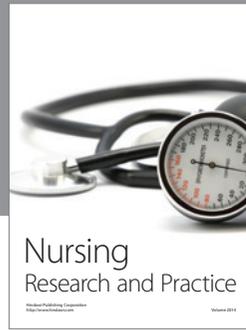
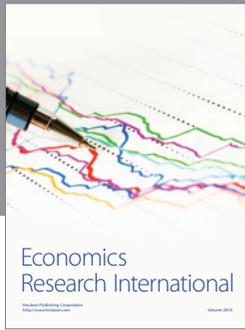
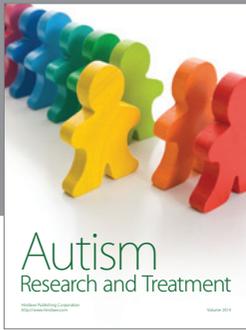
The authors would like to thank Nuffic for the funds that supported the research. Also thanks are due to Mrs. Opedun Margaret and Mr. Opedun Mark who coordinated the data collection process.

References

- [1] A. O. Tsui, R. McDonald-Mosley, and A. E. Burke, "Family planning and the burden of unintended pregnancies," *Epidemiologic Reviews*, vol. 32, no. 1, pp. 152–174, 2010.
- [2] WHO, *The World Health Report 2005—Make Every Child Count*, 2005.
- [3] R. K. Wanyenze, N. M. Tumwesigye, R. Kindyomunda et al., "Uptake of family planning methods and unplanned pregnancies among HIV-infected individuals: a cross-sectional survey among clients at HIV clinics in Uganda," *Journal of the International AIDS Society*, vol. 14, no. 1, article 35, 2011.
- [4] UBOS, *Demography and Health Survey Calverton*, UBOS and Macro International, Kampala, Uganda, 2011.
- [5] J. G. Cleland, R. P. Ndugwa, and E. M. Zulu, "Family planning in sub-Saharan Africa: progress or stagnation?" *Bulletin of the World Health Organization*, vol. 89, no. 2, pp. 137–143, 2011.

- [6] J. Bongaarts, "The impact of family planning programs on unmet need and demand for contraception," *Studies in Family Planning*, vol. 45, no. 2, pp. 247–262, 2014.
- [7] UBOS, *Uganda Demographic and Health Survey*, 2011.
- [8] A. Scott and P. Seth, *Infrastructure Services Post—2015*, ODI Research Report, London, UK, 2012.
- [9] World Bank, *Poor Countries Loosing out on Family Planning Benefits*, World Bank, 2007.
- [10] Ministry of Health, *Uganda Reproductive Health Commodity Security Strategic Plan 2010—2014*, Ministry of Health, Kampala, Uganda, 2008.
- [11] MOH, *National Family Planning Advocacy Strategy 2005-10*, 2005.
- [12] R. A. Hatcher, W. Rinehart, R. Blackburn, J. S. Geller, and J. D. Shelton, *The Essentials of Contraceptive Technology*, 2003.
- [13] S. Freeman, "Nondaily hormonal contraception: considerations in contraceptive choice and patient counseling," *Journal of the American Academy of Nurse Practitioners*, vol. 16, no. 6, pp. 226–238, 2004.
- [14] L. Thompson and G. B. Spanier, "Influence of parents, peers, and partners on the contraceptive use of college men and women," *Journal of Marriage and the Family*, vol. 40, no. 3, pp. 481–492, 1978.
- [15] K. K. Nielsen, S. M. Nielsen, R. Butler, and J. V. Lazarus, "Key barriers to the use of modern contraceptives among women in Albania: a qualitative study," *Reproductive Health Matters*, vol. 20, no. 40, pp. 158–165, 2012.
- [16] J. E. Darroch and S. Singh, "Trends in contraceptive need and use in developing countries in 2003, 2008, and 2012: an analysis of national surveys," *The Lancet*, vol. 381, no. 9879, pp. 1756–1762, 2013.
- [17] J. Reed, P. England, K. Littlejohn, B. C. Bass, and M. L. Caudillo, "Consistent and inconsistent contraception among young women: insights from qualitative interviews," *Family Relations*, vol. 63, no. 2, pp. 244–258, 2014.
- [18] CDC, "U. S. medical eligibility criteria for contraceptive use, 2010," *Morbidity and Mortality Weekly Report*, vol. 59, no. RR-4, pp. 1–6, 2010.
- [19] UBOS, *Uganda Health and Demographic Survey 2006*, UBOS, Calverton, Md, USA, 2006.
- [20] N. Peyman, A. Hidarnia, F. Ghofranipour et al., "Self-efficacy: does it predict the effectiveness of contraceptive use in Iranian women?" *Eastern Mediterranean Health Journal*, vol. 15, no. 5, pp. 1254–1262, 2009.
- [21] A. J. Karter, M. M. Parker, A. S. Adams et al., "Primary non-adherence to prescribed medications," *Journal of General Internal Medicine*, vol. 25, no. 8, p. 763, 2010.
- [22] R. Tamblyn, T. Eguale, A. Huang, N. Winslade, and P. Doran, "The incidence and determinants of primary nonadherence with prescribed medication in primary care: a cohort study," *Annals of Internal Medicine*, vol. 160, no. 7, pp. 441–450, 2014.
- [23] L. B. Finer and S. K. Henshaw, *Estimates of US Abortion Incidence in 2001 and 2002*, Alan Guttmacher Institute, 2005.
- [24] L. B. Haddad, C. Cwiak, D. J. Jamieson et al., "Contraceptive adherence among HIV-infected women in Malawi: a randomized controlled trial of the copper intrauterine device and depot medroxyprogesterone acetate," *Contraception*, vol. 88, no. 6, pp. 737–743, 2013.
- [25] M. Campbell, N. N. Sahin-Hodoglugil, and M. Potts, "Barriers to fertility regulation: a review of the literature," *Studies in Family Planning*, vol. 37, no. 2, pp. 87–98, 2006.
- [26] K. Ngiure, J. Baeten, J. Lingappa et al., "P1-S6.02 Contraceptive discontinuation by rural Kenyan women in HIV discordant partnerships after exiting an HIV prevention trial," *Sexually Transmitted Infections*, vol. 87, supplement 1, pp. A196–A196, 2011.
- [27] D. Cebeci Save, T. Erbaydar, S. Kalaca, H. Harmanci, S. Cali, and M. Karavus, "Resistance against contraception or medical contraceptive methods: a qualitative study on women and men in Istanbul," *European Journal of Contraception and Reproductive Health Care*, vol. 9, no. 2, pp. 94–101, 2004.
- [28] M. Karavus, S. Cali, S. Kalaca, and D. Cebeci, "Attitudes of married individuals towards oral contraceptives: a qualitative study in Istanbul, Turkey," *Journal of Family Planning and Reproductive Health Care*, vol. 30, no. 2, pp. 95–98, 2004.
- [29] V. Halpern, D. A. Grimes, L. M. Lopez, and M. F. Gallo, *Strategies to Improve Adherence and Acceptability of Hormonal Methods of Contraception*, The Cochrane Library, 2006.
- [30] W. A. Fisher and A. Black, "Contraception in Canada: a review of method choices, characteristics, adherence and approaches to counselling," *Canadian Medical Association Journal*, vol. 176, no. 7, pp. 953–961, 2007.
- [31] I. Ajzen, "Theory of planned behavior," in *Handbook of Theories of Social Psychology*, vol. 1, pp. 438–459, Sage, London, UK, 2011.
- [32] G. J. Molloy, H. Graham, and H. McGuinness, "Adherence to the oral contraceptive pill: a cross-sectional survey of modifiable behavioural determinants," *BMC Public Health*, vol. 12, no. 1, article 838, 2012.
- [33] A. Choi and A. Dempsey, "Strategies to improve compliance among oral contraceptive pill users: a review of the literature," *Open Access Journal of Contraception*, vol. 5, pp. 17–22, 2014.
- [34] C. A. Clare and C. Fraser, "Contraception adherence among East Harlem adolescents," *Gynecology & Obstetrics*, vol. 3, article 177, 2013.
- [35] J. F. Peipert, Q. Zhao, L. Meints, B. J. Peipert, C. A. Redding, and J. E. Allsworth, "Adherence to dual-method contraceptive use," *Contraception*, vol. 84, no. 3, pp. 252–258, 2011.
- [36] E. M. Donadiki, R. Jimenez-Garcia, E. G. Velonakis et al., "Factors related to contraceptive methods among female higher education students in Greece," *Journal of Pediatric and Adolescent Gynecology*, vol. 26, no. 6, pp. 334–339, 2013.
- [37] M. A. Longmore, W. D. Manning, P. C. Giordano, and J. L. Rudolph, "Contraceptive self-efficacy: does it influence adolescents' contraceptive use?" *Journal of Health and Social Behavior*, vol. 44, no. 1, pp. 45–60, 2003.
- [38] R. Schwarzer and A. Luszczynska, "Self-efficacy, adolescents' risk-taking behaviors, and health," in *Self-Efficacy Beliefs of Adolescents Adolescence and Education*, vol. 5, pp. 139–159, 2005.
- [39] F. Pajares and T. C. Urdan, *Self-Efficacy Beliefs of Adolescents*, IAP, 2006.
- [40] L. R. B. Huber, C. J. Hogue, A. D. Stein et al., "Contraceptive use and discontinuation: findings from the contraceptive history, initiation, and choice study," *The American Journal of Obstetrics and Gynecology*, vol. 194, no. 5, pp. 1290–1295, 2006.
- [41] G. K. Al-Shaikh, A. Y. Mayet, M. K. Alshaikh, A. F. Hamad, M. A. Mahmoud, and H. S. Aljadhey, "Knowledge on adherence and safety of the oral contraceptive pill," *Saudi Medical Journal*, vol. 33, no. 6, pp. 665–671, 2012.
- [42] G. Nalwadda, F. Mirembe, J. Byamugisha, and E. Faxedid, "Persistent high fertility in Uganda: young people recount obstacles and enabling factors to use of contraceptives," *BMC Public Health*, vol. 10, article 530, 2010.

- [43] A. Kabagenyi, L. Jennings, A. Reid, G. Nalwadda, J. Ntozi, and L. Atuyambe, "Barriers to male involvement in contraceptive uptake and reproductive health services: a qualitative study of men and women's perceptions in two rural districts in Uganda," *Reproductive Health*, vol. 11, no. 1, p. 21, 2014.
- [44] M. K. Adams, E. Salazar, and R. Lundgren, "Tell them you are planning for the future: gender norms and family planning among adolescents in northern Uganda," *International Journal of Gynecology & Obstetrics*, vol. 123, no. 1, pp. e7–e10, 2013.
- [45] I. Moshia, R. Ruben, and D. Kakoko, "Family planning decisions, perceptions and gender dynamics among couples in Mwanza, Tanzania: a qualitative study," *BMC Public Health*, vol. 13, no. 1, article 523, 2013.
- [46] V. Halpern, L. M. Lopez, D. A. Grimes, L. L. Stockton, and M. F. Gallo, "Strategies to improve adherence and acceptability of hormonal methods of contraception.," *The Cochrane Database of Systematic Reviews*, vol. 10, Article ID CD004317, 2013.
- [47] V. Halpern, L. Lopez, D. Grimes, L. Stockton, and M. Gallo, *Ways to Improve Use of Hormonal Birth Control*, Health, 2013.
- [48] L. M. Lopez, L. L. Stockton, M. Chen, M. J. Steiner, and M. F. Gallo, *Behavioral Interventions for Improving Dual-Method Contraceptive Use*, The Cochrane Library, 2014.
- [49] C. Smith, J. Gold, T. D. Ngo, C. Sumpter, and C. Free, "Mobile phone-based interventions for improving contraception use," *The Cochrane Database of Systematic Reviews*, no. 6, Article ID CD011159, 2014.



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