ORIGINAL RESEARCH ARTICLE

Factors associated with postpartum contraception in Togo, West Africa

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Abstract

The health benefits of postpartum contraception are well established. Using 2013/14 Togo Demographic and Health Survey (DHS) data, we examine the association between contraceptive use among women who gave birth within 24 months of the DHS and four health service use indicators – antenatal care, institutional delivery, postpartum care, and immunization of the last child – in addition to socio-demographic factors. Factors associated with postpartum contraceptive use in Togo included having their last birth in a health facility, having a postnatal check within two months of birth, youngest child receiving the first diphtheria-pertussis-tetanus vaccine, wanting to space children more than two years from last birth or not have more children, living outside the Savanes region, husband's desire for number of children agreeing with the woman's, and increasing breastfeeding duration. These findings highlight the need for programming which strengthens the integration of contraception into reproductive and immunization services in Togo. *(Afr J Reprod Health 2022; 26[2]: 26-37).*

Keywords: Contraception, family planning, global health, postpartum care, West Africa

Résumé

Les avantages pour la santé de la contraception post-partum sont bien établis. En utilisant les données de l'Enquête Démographique et de Santé (EDS) 2013/14 du Togo, nous examinons l'association entre l'utilisation de la contraception chez les femmes ayant accouché dans les 24 mois précédant l'EDS et quatre indicateurs d'utilisation des services de santé – les soins prénatals, l'accouchement en institution, les soins post-partum et la vaccination du dernier enfant - en plus des facteurs sociodémographiques. Les facteurs associés à l'utilisation de contraceptifs post-partum au Togo sont les suivants: avoir eu son dernier accouchement dans un établissement de santé, avoir subi un examen postnatal dans les deux mois suivant la naissance, avoir reçu le premier vaccin contre la diphtérie, la coqueluche, et le tétanos pour le plus jeune enfant, vouloir espacer les naissances de plus de deux ans ou ne pas avoir d'autres enfants, vivre en dehors de la région des Savanes, partager avec le mari le nombre d'enfants souhaités, et augmenter la durée de l'allaitement. Ces résultats soulignent la nécessité d'une programmation qui renforce l'intégration de la contraception dans les services de reproduction et d'immunisation au Togo. *(Afr J Reprod Health 2022; 26[2]: 26-37).*

Mots-clés: Contraception, planification familiale, sante mondiale, soins post-partum, Afrique de l'Ouest

Introduction

Short birth intervals (less than 18-24 months) present health risks to mothers and children. A birth interval under 18 months is associated with preterm birth, low birth weight, and intrauterine growth restriction[1] as well as with increased risk of placental abruption and premature rupture of membranes[2]. Moreover, intervals of less than 24 months are linked to elevated mortality in newborns, infants, and children under five years of age[3].

Postpartum family planning (PPFP) is a cost-effective intervention that could prevent 30% of maternal and 10% of child deaths by increasing birth interval spacing[3]. PPFP has been shown to reduce the risk of miscarriage, anaemia, and maternal death[4]. The postpartum period often includes increased contact with health care professionals[5], which could be exploited to provide PPFP[6]. Early unmet need for family planning contributes to repeat pregnancies and short birth intervals.

Although the problem of short birth intervals in relation to PPFP is well documented globally, little is known about the characteristics of recently delivered mothers using PPFP in Togo, a small francophone country on the west coast of Africa[7]. Unmet need for family planning generally in Togo is high at 35%[8] and 4% of Togolese women die due to pregnancy-related causes[9]. In 2014, the government of Togo committed to increase modern contraceptive prevalence to 24% by 2017[10] and in 2017, committed to increasing the modern contraceptive prevalence to 35% by 2022 - primarily through scaling-up best practices in reproductive health and family planning, improving the financing of contraceptive products and contraceptive supply chain, and increasing family planning advocacy[10]. Between 2012 and 2019, the modern contraceptive prevalence rate in Togo increased from 15% to 20%[8]. Certain types of encounters with the health care system have been associated with a higher proportion of women using PPFP in other countries. These encounters include using antenatal care[11, 12], giving birth in a health facility[4, 12-15], having a postpartum check-up[12], and accessing immunization services[4]. Socio-demographic factors that have been associated with increased use of PPFP include older age[12,13], higher parity[4], increased desire to space or limit births[12], urban residence[12], higher level of education[16,17], greater wealth[12,17], Protestant religion[13], exposure to family planning in the media[13], and agreement of male partner on reproductive matters[16,18].

In this article, we assess whether these factors were associated with use of contraception within 24 months of birth among Togolese women participating in the 2013/14 Demographic and Health Survey (DHS). We examined contraceptive use within 24 months of the most recent birth as a proxy for PPFP due to the low contraceptive prevalence in Togo and because the increased contact with the health system continues through the first two years of the child's life. We also anticipated that additional characteristics specific to the Togolese context may be associated with PPFP, including cohabitation, breastfeeding, and region.

Methods

Study design

This is a cross-sectional descriptive study.

Data source and sample

The data used in this study are from the most recent 2013/14 Togolese DHS. The DHS is a household-based survey with a multistage probability sample design that is generalizable to the national level. The 2013/14 DHS included a "women's questionnaire," the data from which represent Togolese women aged 15-49 years (N = 9480). This study uses a subset of these women who had a live birth within 24 months prior to the survey and who were not pregnant at the time of the interview, referred to here as postpartum women (n = 2749). We omitted women who were pregnant at the time of survey because they would have been ineligible to use contraception at that time as they were already pregnant. Therefore, there was no variation in family planning uptake to model among those already pregnant women. These data were obtained from the DHS program repository[19] following approval of the study by the Emory University Institutional Review Board.

Variables of interest

The dependent variable was postpartum women's use of a method of contraception at the time of survey (yes or no). In this paper, contraceptive use is defined as self-reported current use of female sterilization, intrauterine device (IUD), implants (Norplant/Nexplanon), injectables, oral contraceptive pills, condoms, periodic abstinence, or withdrawal to prevent pregnancy. Key independent variables were the four health system encounters shown to be associated with use of contraception: antenatal care (no antenatal care visits compared to at least one visit), institutional delivery (last delivery not at a health care facility compared to last delivery at a facility), postnatal care within two months of delivery (respondent was not examined or counselled by a health professional after last birth compared to respondent was examined or counselled by a health professional), and immunization of youngest child (no vaccination against diphtheria-pertussis-tetanus (DPT) compared to first vaccination received).

Socio-demographic variables included: age (in years), parity (1-2 children compared to 3 or more), desire to space or limit births (wanting next child within two years of last birth compared to

wanting next child more than two years from last birth, not wanting more children, or being uncertain), breastfeeding duration after last birth (in months), residence (rural or urban), education level (no schooling compared to primary school and to secondary school or higher), region (Savanes compared to the other five regions), economic status (DHS wealth index quintile), marital status (married compared to never in union, living with partner, widowed, divorced or separated), religion (Muslim compared to no religion, traditional/animist, Catholic, and Protestant), exposure to family planning in the media (did not see/hear about family planning from radio, TV, or newspaper compared to did see/hear about it), husband's desire for number of children agreeing with respondent's (wanting more children compared to wanting the same or fewer), and cohabitation with husband (living with husband compared to not living with husband).

Sample

To account for the 2013/14 DHS sampling strategy, we used the SPSS complex samples module, which adjusts for the effects of clustering, stratification, and sample weights. The final sample used in the analysis consisted of 2749 non-pregnant women who had given birth up to 24 months prior to the survey.

Analysis

First, we conducted a descriptive analysis of socio-demographic characteristics, health service use, and contraception use by method type. Next, we used an *F*-transformed Rao-Scott adjusted chi-square statistic for the bivariate analysis of socio-demographic characteristics and health service use by contraception use. Variables with a statistically significant association ($P<.05$) with contraceptive use were selected for inclusion in subsequent multivariate logistic regression analysis. We developed three logistic regression models to predict the odds of women using contraception, using a block-wise approach that included the service use variables first and then added other potentially associated variables.

For model 1, we wanted to see if the associations between the four types of health service use and contraception use among postpartum women remained significant adjusting for each of the other three health service use factors. Model 2 retained the service use variables and added all socio-demographic variables that were significant in bivariate analysis. Model 3 was a refinement of model 2 to adjust for collinearity by removing the wealth variable, which had a variance inflation factor of 3.935 in model 2. The area under the receiver operating characteristic curve for model 3 was 0.754, suggesting fair predictive ability. The analyses were conducted using SPSS version 24[20].

Results

Women's socio-demographic characteristics, health service engagement, and contraceptive use

Table 1 shows the socio-demographic characteristics of the postpartum women from the 2013/14 DHS. Most women were between 20-34 years old (71%), had spaced their previous birth more than two years from the last birth (87%), and wished to space their next child more than two years from the most recent birth (85%). Over half of women had three or more children (55%). Most had either no formal education or had only completed primary education (76%). Wealth was evenly distributed among the five quintiles. Sixty-three percent were from rural areas, 72% were married, and more than half agreed with their husbands on the number of children they wanted. Twenty percent of the women were exposed to family planning messages from newspaper, TV, or radio. The most common method of contraception for postpartum women was injectables (7%), followed by implants (4%), condoms (3%), periodic abstinence (2%), IUDs (<1%), and withdrawal (<1%). Female sterilization was rarely used. Lactational amenorrhea was not reported.

The postpartum women in this analysis varied slightly from the overall sample of women in the DHS in relation to region (lower percentage living in Lomé, 24% vs 31%), residence (higher percentage living in rural areas, 63% vs 55%), education (higher percentage with no education, 39% vs 32%), wealth (higher percentage in the poorest, 21% vs 17%, and poorer, 19% vs 17%, categories), marital status (higher percentage of

Table 1: Social and demographic characteristics women who gave birth within 24 months of the 2013/14 Togo DHS (*N* = 2749)

Characteristic	Un-weighted N	Weighted Percent (95% CI)[a,b]
Age, mean (95% CI), years	28.6 (28.3-28.9)	
Breastfeeding duration after last birth, mean (95% CI), months	11.11 (10.85-11.40)	
Parity		
1-2	1162	45 (43-48)
≥ 3	1587	55 (52-57)
Region		
Lomé	508	24 (21-27)
Maritime	281	16 (14-19)
Plateaux	499	24 (21-28)
Centrale	395	10 (9-12)
Kara	408	12 (10-13)
Savanes	658	14 (12-16)
Residence		
Rural	1943	63 (61-66)
Urban	806	37 (35-40)
Educational level (some or completed)		
None	1211	39 (36-43)
Primary	936	36 (34-39)
Secondary	567	23 (21-23)
Higher	35	2 (1-3)
Wealth quintile		
Poorest	813	21 (19-24)
Poorer	550	19 (16-22)
Middle	529	21 (18-23)
Richer	447	20 (18-23)
Richest	410	19 (17-21)
Marital status		
Never in union	113	5 (4-6)
Married	2041	72 (69-74)
Living with partner	500	21 (18-24)
Widowed	38	1 (1-1)
Divorced	10	0 (0-1)
Separated	249	2 (1-2)
Religion		
Animist or traditional	583	19 (16-23)
Muslim	593	19 (16-23)
Catholic	568	21 (19-23)
Protestant	747	32 (29-35)
None	257	9 (7-10)
Living with husband		
Yes	2144	83 (81-85)
No	393	17 (15-19)
Desired spacing of next child		
> 2 y or no next child	2341	85 (83-87)
≤ 2 y or unsure of timing	396	15 (14-17)
Exposed to FP messages in mass media		
Yes	570	20 (18-22)
	2176	81 (78-83)
No		

	Un-weighted N	Weighted Percent (95% CI)[a,b]
Husband's desire for number of children agrees with woman's		
Yes	1003	63 (61-66)
No	634	37 (34-39)
Previous birth interval (last birth)		
≤ 24 months	245	13 (11-15)
> 24 months	1850	87 (86-89)
Contraceptive method		
Not using	2252	80.8 (78.6-82.8)
Injectables	181	7.0 (5.9-8.4)
Implants	120	4.0 (3.2-5.0)
Condoms	73	3.1 (2.4-4.1)
Periodic abstinence	56	2.0 (1.4-2.8)
Pills	41	1.9 (1.4-2.7)
IUDs	13	0.5 (0.3-0.8)
Withdrawal	6	0.3 (0.1-0.7)
Other	2	0.1 (0.0-0.4)
Other Modern	1	0.0 (0.0-0.2)

Abbreviations: ANC, antenatal care; CI, confidence interval; DHS, Demographic and Health Survey; FP, family planning.
[a] Rounded to nearest whole percent.
[b] Percentages are population estimates based on sampling weights and may not correspond to *N*.

Table 2: Health service use of women who gave birth within 24 months of the 2013/14 Togo DHS (*N* = 2749)

Type of service	Un-weighted N	Weighted Percent (95% CI)[a,b]
Currently using contraception		
Yes	497	19 (17-21)
No	2252	81 (79-83)
Number of ANC visits		
None	191	7 (6-9)
1-3	1086	37 (35-40)
4 or more	1463	55 (52-58)
Last birth in health facility		
Yes	1958	76 (72-78)
No	791	25 (22-28)
Postnatal check < 2 months of birth		
Yes	1974	71 (68-73)
No	758	29 (27-32)
Youngest child received first DPT vaccine		
Yes	2283	85 (83-87)
No	379	15 (13-17)

Abbreviations: ANC, antenatal care; CI, confidence interval; DHS, Demographic and Health Survey; DPT, diphtheria, pertussis, and tetanus.
[a] Rounded to nearest whole percent.
[b] Percentages are population estimates based on sampling weights and may not correspond to *N*.

married women, 72% vs 51%, and women living with a partner, 21% vs 15%), and religion (higher percentage of animist practitioners, 19% vs 14%, and

Table 3: Comparison of socio-demographic characteristics and health service use between users and non-users of contraception, 2013/14 Togo DHS (*N* = 2749)

Characteristic or service type	Total	Not using contraception, *n* (%)ᵃ	Using contraception, *n* (%)ᵃ	*p*ᵇ
Parity				.65
1-2	1162	943 (80)	219 (20)	
≥ 3	1587	1309 (81)	278 (19)	
Region				**<.001**
Lomé	508	387 (76)	121 (24)	
Maritime	281	219 (78)	62 (22)	
Plateaux	499	408 (83)	91 (18)	
Centrale	395	306 (77)	89 (23)	
Kara	408	325 (80)	83 (20)	
Savanes	658	607 (92)	51 (7)	
Residence				.02
Rural	1943	1625 (83)	318 (17)	
Urban	806	627 (78)	179 (22)	
Educational level (partial or completed)				**<.001**
None	1211	1067 (87)	144 (13)	
Primary	936	750 (80)	186 (20)	
Secondary or higher	602	435 (72)	167 (28)	
Wealth quintile				**<.001**
Poorest	813	726 (89)	87 (11)	
Poorer	550	446 (82)	104 (18)	
Middle	529	425 (80)	104 (20)	
Richer	447	360 (80)	87 (20)	
Richest	410	295 (72)	115 (28)	
Marital status				.41
Never in union	113	99 (86)	14 (14)	
Married	2041	1683 (81)	358 (19)	
Living with partner	500	388 (79)	112 (21)	
Widowed	38	37 (97)	1 (3)	
Divorced	10	7 (61)	3 (39)	
Separated	249	38 (82)	9 (18)	
Religion				.001
Animist or traditional	583	507 (87)	76 (13)	
Muslim	593	500 (83)	93 (17)	
Catholic	568	451 (78)	117 (22)	
Protestant	747	570 (77)	177 (23)	
None	257	223 (85)	34 (15)	
Living with husband				.28
Yes	2144	322 (83)	71 (17)	
No	393	1745 (80)	399 (20)	
Desired spacing of next child				**<.001**
> 2 years or no next child	2341	1895 (80)	446 (20)	
≤ 2 years or unsure of timing	396	350 (88)	46 (12)	
Exposed to FP messages in mass media				.03
Yes	570	446 (77)	124 (23)	
No	2176	1803 (82)	373 (18)	
Husband's desired # of children agrees with woman's				.03
Yes	1003	766 (76)	237 (24)	
No	634	526 (81)	108 (19)	
Previous birth interval (last birth), months				.09
≤ 24	245	191 (76)	54 (24)	
> 24	1850	1527 (82)	323 (18)	
Breastfeeding duration after last birth, months				.02
0-6	730	676 (93)	54 (7)	

7-12	675	572 (74)	103 (16)	
13-18	652	503 (76)	149 (24)	
19-24	387	281 (82)	106 (18)	
Number of ANC visits				**<.001**
None	191	176 (91)	15 (9)	
1-3	1086	924 (83)	162 (17)	
4 or more	1463	1144 (78)	319 (22)	
Last birth in a health facility				**<.001**
Home or other	791	714 (90)	77 (10)	
Facility	1958	1538 (78)	420 (22)	
Postnatal check < 2 months after birth				**<.001**
Yes	1974	1577 (78)	397 (22)	
No	758	661 (87)	97 (13)	
Youngest child received first DPT vaccine				**<.001**
Yes	2283	1821 (78)	462 (22)	
No	379	355 (94)	24 (6)	

Abbreviations: ANC, antenatal care; DHS, Demographic and Health Survey; DPT, diphtheria, pertussis, and tetanus; FP, family planning.
[a] Rounded to nearest whole percent.
[b] Statistical significance is based on the Rao-Scott adjusted *F* test.

fewer Catholics, 21% vs 26%). A slightly higher percentage of postpartum women in this study had their last delivery in a health facility (76% vs 73%), but a lower percentage had a youngest child with at least one DPT vaccination (85% vs 93%). Use of family planning, type of family planning method, and number of ANC visits were similar to the overall sample[19].

Nineteen percent of women were using a method of contraception at the time of the survey. Nearly all women had received some antenatal care (93%), and the majority had received four or more antenatal care visits (55%). Most women also had given birth in a health facility (76%), had received a postnatal check-up within two months of birth (71%), and had had their youngest child receive the first DPT vaccination in the series (85%) (Table 2).

Factors associated with women's use of contraception

In bivariate analysis, women who were more likely to use contraception lived in urban areas, were better educated, wealthier, and were from the dominant religious groups--Protestant, Catholic, Muslim (Table 3). Moreover, they had been exposed to family planning messages, desired to space their next birth more than two years from the previous birth, and their husbands agreed with them about number of children. These women also had experienced key interactions with the health system (Table 3).

Modelling contraceptive use

Except for antenatal care, in all models the health service engagement variables were associated with increased odds of using contraception in the postpartum period (Table 4). In model 3, women had almost three times the odds of contraception use if their youngest child had received the first DPT vaccination (OR, 2.71; 95% CI, 1.37-5.37), almost twice the odds of using contraception if they gave birth in a health facility (OR, 1.78; 95% CI, 1.18-2.69), and one-and-a-half times the odds if they had a postnatal check within two months of the previous birth (OR, 1.59; 95% CI, 1.08-2.36).

In model 3, women residing outside the Savanes region had three to four times the odds of contraceptive use compared to their Savanes counterparts. Other factors associated with the use of contraception were desire to space next birth (OR, 2.13; 95% CI, 1.23-3.70) and breastfeeding duration after most recent birth: a 1-month increase in breastfeeding duration slightly increased odds of using contraception (OR, 1.11; 95% CI, 1.08-1.14).

Discussion

Health services and contraception use

The positive association between contraceptive use and health facility birth shown in this study has been reported by others in sub-Saharan Africa[4, 13]. The association is thought to be related to contraceptive

Table 4: Adjusted odds of contraceptive use among women who gave birth within 24 months of 2013/14 Togo DHS

Variable/category	Model 1 OR	95% CI	Model 2 OR	95% CI	Model 3 OR	95% CI
Antenatal visits during last pregnancy						
None	1.00	*ref.*	1.00	*ref.*	1.00	*ref.*
1-3	0.93	0.49-1.75	0.66	0.29-1.49	0.62	0.28-1.38
4 or more	1.03	0.55-1.92	0.54	0.24-1.24	0.54	0.24-1.21
Last birth in a health facility						
Home or other	1.00	*ref.*	1.00	*ref.*	1.00	*ref.*
In facility	2.30[a]	1.70-3.09	1.78[a]	1.16-2.73	1.78[a]	1.18-2.69
Postnatal check < 2 months after last birth						
No	1.00	*ref.*	1.00	*ref.*	1.00	*ref.*
Yes	1.48[a]	1.12-1.97	1.66[a]	1.12-2.46	1.59[a]	1.08-2.36
Youngest child received first DPT vaccine						
No	1.00	*ref.*	1.00	*ref.*	1.00	*ref.*
Yes	3.46[a]	2.07-5.77	2.78[a]	1.37-5.61	2.71[a]	1.37-5.37
Desire to space next birth						
Wants within 2 years or wants but unsure of timing or undecided			1.00	*ref.*	1.00	*ref.*
Wants in more than 2 years or does not want more children			2.18[a]	1.22-3.88	2.13[a]	1.23-3.70
Educational level						
None			1.00	*ref.*	1.00	*ref.*
Primary			1.10	0.74-1.63	1.09	0.74-1.62
Secondary or higher			1.45	0.91-2.31	1.55	0.97-2.47
Wealth quintile						
Poorest			1.00	*ref.*		
Poorer			1.29	0.78-2.14		
Middle			0.90	0.52-1.56		
Richer			1.49	0.70-2.17		
Richest			2.78[a]	1.12-6.88		
Religion						
Muslim			1.00	*ref.*	1.00	*ref.*
Animist or traditional			1.32	0.70-2.49	1.26	0.68-2.34
Catholic			1.46	0.83-2.57	1.55	0.90-2.69
Protestant			1.69[a]	1.01-2.83	1.65	0.99-2.76
None			1.45	0.72-2.92	1.37	0.69-2.74
Residence						
Rural			1.00	*ref.*	1.00	*ref.*
Urban			0.60	0.31-1.17	0.93	0.59-1.46
Region						
Savanes			1.00	*ref.*	1.00	*ref.*
Kara			3.51[a]	1.76-6.97	3.51[a]	1.78-6.93
Centrale			4.07[a]	1.90-8.50	4.07[a]	1.97-8.44
Plateaux			2.84[a]	1.34-6.03	2.59[a]	1.45-5.63
Maritime			3.39[a]	1.56-7.36	3.40[a]	1.68-6.90
Lomé			2.52[a]	1.13-5.61	3.15[a]	1.46-6.80
Exposed to FP messages in mass media						
No			1.00	*ref.*	1.00	*ref.*
Yes			0.87	0.60-1.27	0.88	0.61-1.27
Husband's desired number of a children						
More than woman's			1.00	*ref.*	1.00	*ref.*
Same as or fewer than woman's			1.42[a]	0.99-2.04	1.42[a]	0.99-2.03
Breastfeeding duration after last birth, months			1.12[a]	1.09-1.15	1.11[a]	1.08-1.14
Constant (intercept)	2.74[a]	2.30-3.27	8.10[a]	2.69-24.37	18.95[a]	8.01-44.81

Abbreviations: CI, confidence interval; DHS, Demographic and Health Survey; DPT, diphtheria, pertussis, and tetanus; FP, family planning; OR = odds ratio; *ref.* = reference group. [a] Significant at the <0.05 level.

counselling of women prior to discharge from the hospital[21]. Similarly, the positive association between contraceptive use and postnatal check-ups has been noted in Uganda[13]. The association between contraceptive use by postpartum women and child immunization has also been found by others[33]. Reasons for these associations are potentially related to increased exposure to health information and contact with the health system, thereby providing more chances to receive these services[4, 22, 23].

Health policies and programs in Togo may have contributed to the associations between contraceptive use and engagement with three of the four health services analysed. Togo has seen great improvement in maternal and child health statistics in the last 30 years. Seventy-five percent of births took place in a health facility in the three years preceding the 2013/14 DHS, an increase from 49% in the 1998 DHS, and there was a large increase in vaccination rates[9, 19]. For example, between the two surveys the number of children receiving the first DPT vaccine increased from 69% to 91%, and the number of children who received no vaccination decreased from 17% to 6%[9,19].

Between 1998 and 2014, the government of Togo changed policies and launched programs to improve the reproductive and sexual health of the population. These included enacting the 2004 National Political Program for Reproductive Health[24]; passing the 2007 Reproductive Health Law[25]; adopting the 2008 National Strategy for Reproductive Health[26]; opening additional schools of midwifery and medicine in Kara and increasing the number of national placement tests for health care workers in 2009[27]; launching the African Union's Campaign on accelerated reduction of maternal, newborn, and child mortality in Africa in 2010 (CARMMA)[28]; developing a national volunteer program that includes recruiting unemployed health care workers and paying them a living stipend to work in government health facilities in 2011[29]; and creating a National Health Insurance program in 2012[30]. These activities aimed to increase institutional delivery and availability of emergency obstetric care as well as to ensure access to quality family planning services through greater funding, more health care workers, supportive policies, and increased mass media campaigns to educate the population on healthy practices related to sexuality and reproduction[24-30].

Partnerships between the Togolese government and international and donor agencies have also contributed to the increased access to sexual and reproductive health services. In 2013, EngenderHealth launched AgirPF, a five-year project funded by the U.S. Agency for International Development to expand women's access to and use of family planning services in Lomé, Sokodé, and Kara[31]; and in 2014, Togo participated in a training and support program developed by Jhpiego, which trained antenatal, maternity, and postnatal care providers in PPFP[7].

Furthermore, the vaccination expansion program, funded by the Gavi Vaccine Alliance since 2002, has supported health system strengthening, immunization services, injection safety devices, and vaccine supplies[32]. Gavi programs have enabled Togo to offer vaccinations free of charge to children under one year and to pregnant women in government facilities[32]. In the 1990s, researchers in Togo conducted one of the first studies of the integration of family planning into immunization services[33], which found that adding short messages to mothers on the benefits of family planning and availability of on-site services to the vaccination protocol increased same-day uptake of contraception.

The lack of a positive association between antenatal care visits and contraception use has also been noted by other researchers in sub-Saharan Africa[4]. The authors of a systematic review of interventions to increase PPFP found mixed results for antenatal care[21]; high-intensity antenatal counselling about family planning was necessary to improve contraceptive uptake after birth[11,34], while single, short counselling sessions appeared to have no effect[35,36].

Socio-demographic factors and increased contraceptive use

That the agreement between husband and wife in the desired number of children is associated with increased use of PPFP suggests the importance of men's role in reproductive decision-making and of encouraging discussion of reproductive plans between male and female partners. Authors of studies in Ghana and Uganda found that the

approval of or discussion with a male partner related to family planning was significantly associated with use of PPFP[16, 18].

The fact that women from the Savanes region were less likely to use contraception compared with their counterparts in the postpartum period is notable. The Savanes region is the northernmost region of Togo. Its population is poorer (64% in the lowest wealth quintile). Savanes women are less educated (76% are illiterate), have less exposure to mass media (70% have no access to radio, TV, or newspaper), have a higher total fertility (six children per woman), and higher unmet need for family planning (39%) compared with women in the other regions[19]. These women also have more difficulty accessing health care due to distance (46%) and inadequate funds (68%) than women in other regions[19].

Socio-demographic factors not associated with contraceptive use

Several socio-demographic factors included in our final model were not significantly associated with contraceptive use, and these findings may appear counter-intuitive. These factors included age, parity, previous birth interval, living with husband, educational level, wealth, religion, urbanity, and exposure to family planning messages from any media source.

The lack of associations between age and parity and PPFP was found in other DHS analyses[4, 12, 37], but the reasons are unclear. It could be due to the high desire for children at all ages except for very young women (<18 years) or the fact that high-parity women likely have not used contraception and therefore will be less likely to use contraception in the future[4].

The lack of association between education and use of contraception in multivariate analysis seems counterintuitive, since more educated women are thought to have greater knowledge and access to services. It is possibly due to the low levels of family planning generally, combined with the extremely low overall level of education among Togolese women – only about 2% of women surveyed had more than secondary education. In addition, since education level was significant in bivariate analysis, any effect of formal education

may be attributable to other covariates in the regression model, such as region.

The lack of association between exposure to family planning messages through media and PPFP is unexpected and contrary to findings from Uganda, Kenya, and Nigeria[13, 37, 38]. This could also be related to the low number of women who reported hearing about family planning through the media in Togo – only about 20% compared to 74% in Uganda, 72% in Kenya, and 42% in Nigeria[9, 39-41].

Limitations

We defined our sub-sample of postpartum women as all non-pregnant women who gave birth in the 24 months prior to the survey. This was done given the low contraceptive prevalence overall and the desire to have an adequate sub-sample size. Including only women who had given birth up to six months prior to the survey would have reduced the sample size to 774 women, of which only 59 women (7.6%) used a method of contraception. Moreover, birth intervals of fewer than 24 months are associated with worse maternal and child outcomes. We excluded women who were pregnant at the time of survey, because they would have been ineligible to use contraception at that time, as they were already pregnant. Therefore, there was no variation in family planning uptake to model among those pregnant women.

This is a descriptive study that used existing data, and possible reasons behind the findings cannot be fully explored. Due to the large number of categorical independent variables, there is a risk of having an inadequate number of observations in each cell, which increases the chance of type II error. The low rates of contraceptive use in Togo in the sample may have limited disaggregation by factors such as education, marital status, and exposure to family planning messages. While this data set is from 2013/14, it is the most recent DHS, which includes the family planning variables from Togo.

Recommendations for policy and programming

Low rates of PPFP combined with the high use of key maternal and child health services and the strong associations between PPFP use and use of these services makes a compelling case for

integrated family planning. At present, the integration of family planning into reproductive and child health services in Togo is increasing through governmental and non-governmental policy, programming, and training[7,33,42,43,44], although it is not provided in a standard way in all health facilities.

Not providing contraception as part of other health services is a missed opportunity[6, 21]; therefore, programming should focus on further integration, with attention by the government of Togo and donors to investments in the Savanes region, which has experienced extremely low contraceptive prevalence and high rates of poverty, low education levels, and limited access to mass media compared with other regions. The fact that the immunization and facility birth rates have increased substantially between 1998 and 2013/14 shows the potential of health policy and program implementation in Togo.

Recommendations for future research

Increasing PPFP use in Togo has the potential to reduce maternal and infant morbidity and mortality. Future research on PPFP in Togo should use qualitative methods to characterize the facilitators and barriers to PPFP, because these are difficult to illuminate through standardized surveys such as the DHS. Other research areas include comparing the effectiveness of providers who are trained to operate in contexts of integrated family planning with those who are not and evaluating specific programs and policies to integrate family planning into reproductive and immunization services. Further, research should evaluate the efficacy of contextualized methods of behaviour change communication to increase understanding and use of contraceptive methods. As Togolese women have low reported exposure to mass media about family planning and frequent concerns about contraceptive side effects[9], this is a particularly pressing issue.

Conclusion

This study highlights the potential for integrated health services in Togo. Low rates of PPFP use combined with the high rates of key maternal and child health services, which have increased greatly over the last two decades, and the strong associations between PPFP use and these services

makes a robust case for the integration of family planning, particularly during immunization, intrapartum, and postpartum care. Future research should further investigate the reasons for use and non-use of PPFP and interventions that are most successful at increasing its use. Continued research and programming have the potential to save the lives and improve the health of Togolese women and their families.

Contributions of authors

Helen Baker and Blake McGee: Conceptualization, Methodology, Analysis, Interpretation, and Drafted Manuscript; Roger Rochat, Kenneth Hepburn, Monique Hennink, Lynn Sibley: Conceptualization, Methodology, Interpretation, and Reviewed manuscript. All authors approved the manuscript.

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