Drivers of Frequent Induced Abortions and Methods Used among Women of Reproductive Age in Accra, Ghana: Evidence from Poor Urban Settlements

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Introduction: Globally, 56 million abortions are estimated to take place each year, and 45% of these are unsafe [1]. In Ghana, abortion accounts for 15% to 30% of all maternal-related deaths, making it a leading contributor to maternal mortality in the country [2, 3, 4]. The Sustainable Development Goal (SDG) 3 aims to promote good health and wellbeing of all at all ages, and reducing maternal mortality associated with unsafe repeat induced abortions is critical to achieving that goal. Although several studies [3, 5, 6] have examined the predictors of induced abortion in Ghana, limited literature have focused on the frequency of induced abortion among poor urban women. This paper examined factors that influence frequency of induced abortion among urban-poor women, as well as the choice of method for abortion they make in Accra, Ghana. The aim is to identify those terminating unintended pregnancies repeatedly within urban poor communities and how they are inducing abortion in order to identify strategies for targeted interventions to improve reproductive health outcomes.

Methods: This paper used data for women aged 16-44 who were recruited as part of a broader study (Willows Impact Evaluation (WIE)) in poor urban communities of Accra, Ghana. The design of the WIE study is that of a plausibility trial, as such, there are both intervention and comparison communities. The intervention areas are Osu Klottey, La, Teshie and Nungua (OLALE) while La Nkwantanang (Madina), Abogba and Old Ashongmang areas are that of comparison. The study employed a multi-stage cluster sampling technique and data were collected between January and July, 2018. In the first stage, 200 census-based geographic clusters were sampled. The clusters were subdivisions of census Enumeration Areas (EAs) obtained from the Ghana Statistical Service. A complete listing of all households members living in the sampled clustered was conducted to serve as the second stage sampling. In the second stage, approximately 25 households were sampled from each cluster. Finally, where the sampled households had more than one eligible woman (i.e. women aged 16-44 years), one of them was randomly sampled to be interviewed. For this paper, data of 3,043 women who reported ever being pregnant were used. Analytically, the zero-inflated negative binomial (ZINB) model was fitted to determine the factors that influence the frequency of induced abortion while the multinomial logistic regression was used to explain type of methods used for the last induced abortion. The ZINB model was used because the dependent variable is in counts and over half of the sample had zero counts. Also, the multinomial logistic regression was employed because the study classified abortion methods under three broad

categories: 1. surgical; 2. medication; and 3. non-medical. All women who used surgical procedures such as dilation and curettage (D&C), dilation and evacuation (D&E) and vacuum aspiration were classified as surgical abortion. Women who reported using any pills or injection to induce abortion were classified as medication abortion. Of those taking pills, 78% confirmed the use of pharmaceutical tablets which contain mifepristone or misoprostol or misoprostol alone. A further 13% used oral contraceptive pills, and the remainders either could not remember or used other pills. All pill users were included as medication abortion as they had intended to induce using pills whether or not they were doing so correctly. Only 2% of women who induced abortion used injections, and these women were included in the medication abortion group because of the similar nature of how the two methods work and accessed in Ghana. Lastly, the use of concoction, inserting herbs and other non-approved methods were classified as non-medical abortion.

Results: Table 1 presents regression results of the ZINB model, which shows the predictors of abortion frequency among the urban-poor women in Accra, Ghana. The results indicate that incidence and frequency of abortion significantly increases with age and early sexual initiation, and decreases with household wealth, parity and education. On methods of abortion used, older women were more likely to go for surgical abortion relative to medication abortion compared with younger women (Table 2). Table 2 further suggests that, regardless of the age, women who induced abortion recently were also less likely to have used surgical procedure compared with medication abortion.

Table 1: ZINB regression on repeated abortions among the urban-poor

Variable	Incidence rate ratio (IRR)	P>|z|	95% CI	
Age				
16-19	(ref)			
20-24	2.03	0.02	1.11	3.71
25-29	2.86	0.00	1.54	5.32
30-34	3.74	0.00	2.05	6.80
35-39	4.13	0.00	2.22	7.67
40-44	4.30	0.00	2.29	8.06
Woman's marital status				
never union	(ref)			
current union	0.92	0.42	0.76	1.12
former union	0.87	0.27	0.67	1.12
Level of education				
No formal education	(ref)			
Primary	1.36	0.01	1.07	1.73
Middle/JHS	1.05	0.59	0.87	1.28
Secondary	0.95	0.70	0.75	1.21
Higher	0.64	0.01	0.46	0.87
Religion				
Moslem	(ref)			
Catholic	0.91	0.72	0.54	1.53
Anglican/Methodist/Presbyterian	1.13	0.54	0.77	1.66

		RRR	P>|z|	95%CI	
	Pentecostal	1.18	0.35	0.83	1.68
	Other Christians	1.38	0.08	0.96	1.98
	Others/No religion	1.19	0.56	0.67	2.12
Wealth Index					
	Richest	(ref)			
	Richer	1.39	0.06	0.99	1.94
	Middle	1.40	0.05	1.00	1.98
	Poorer	1.48	0.03	1.04	2.11
	Poorest	1.37	0.11	0.93	2.04
Sexual debut					
	Initiated sex age 16+	(ref)			
	Initiated sex before age 16	1.40	0.00	1.16	1.68
Number of live birth					
	0	(ref)			
	1	0.52	0.00	0.41	0.65
	2	0.54	0.00	0.42	0.69
	3+	0.58	0.00	0.45	0.74
Knowledge of abortion law					
	Incorrect Knowledge	(ref)			
	Correct knowledge	0.86	0.12	0.72	1.04
Number of obs. = 2,866		*Wald $X^2(29)$*	*= 255.17*		
Nonzero obs. = 1,197		*Prob > chi2*	*=0.00*		
Zero obs. = 1,669					

Table 2: Multinomial logistic regression for abortion methods

Medication (Base outcome) (n=530)		Surgical (n=632)				Non-Medical (n=85)			
Variable		RRR	P>|z|	95%CI		RRR	P>|z|	95%CI	
Age									
	16-19	(ref)				(ref)			
	20-24	2.01	0.39	0.41	9.72	0.75	0.80	0.08	6.87
	25-29	2.27	0.31	0.47	11.08	0.31	0.27	0.04	2.43
	30-34	2.91	0.18	0.60	14.05	0.64	0.68	0.08	5.23
	35-39	3.74	0.10	0.76	18.35	0.28	0.27	0.03	2.64
	40-44	8.34	0.01	1.63	42.60	0.81	0.86	0.09	7.71
Woman's marital status									
	never union	(ref)				(ref)			
	current union	0.92	0.69	0.61	1.39	1.45	0.31	0.71	2.99
	former union	1.28	0.44	0.68	2.42	2.18	0.15	0.76	6.27
Level of education									
	No formal education	(ref)				(ref)			
	Primary	1.22	0.54	0.65	2.29	0.83	0.68	0.34	2.01
	Middle/JHS	1.08	0.79	0.61	1.90	0.52	0.10	0.24	1.12
	Secondary	1.33	0.37	0.71	2.52	0.29	0.06	0.08	1.06
	Higher	1.35	0.49	0.57	3.20	2.08	0.42	0.35	12.31
Religion									
	Moslem	(ref)				(ref)			
	Catholic	3.60	0.04	1.06	12.19	38.79	0.01	2.75	546.17

Anglican/Methodist/Presb	2.17	0.08	0.91	5.19	3.01	0.37	0.27	33.50
Pentecostal	2.13	0.06	0.97	4.69	4.24	0.20	0.47	37.89
Other Christians	2.14	0.08	0.92	4.97	3.88	0.24	0.40	37.42
Others/No religion	0.53	0.35	0.14	1.98	3.39	0.34	0.27	42.27
Wealth Index								
Richest	(ref)							
Richer	0.41	0.08	0.15	1.10	1.30	0.84	0.10	16.38
Middle	0.34	0.03	0.13	0.92	0.61	0.70	0.05	7.56
Poorer	0.36	0.05	0.13	1.01	1.44	0.78	0.11	18.70
Poorest	0.31	0.04	0.10	0.96	1.34	0.83	0.10	18.55
Knowledge of abortion law								
Incorrect Knowledge	(ref)							
Correct knowledge	0.89	0.56	0.59	1.33	0.41	0.07	0.16	1.06
Last induced abortion (years)								
3+	(ref)							
<=3	0.48	0.00	0.33	0.70	0.38	0.01	0.18	0.81
Numb of obs = 1,210	*Prob > chi2 = 0.00*							
Wald X^2 (52) = 142.02	*Pseudo R2 = 0.10*							

Conclusion: To reduce the incidence of repeat induced abortions for improved reproductive health outcomes in urban-poor communities of Accra, Ghana, these findings should be considered. Specifically, there is the need for post-abortion education and counselling for women on the risk of repeat induced abortion and the benefits of family planning in these areas..

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