Prevalence and Determinants of Postnatal Care Utilization for Women and Newborns in Egypt (2000-2014)

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Abstract:

The main purpose of this paper is to investigate the factors determining utilization of receiving postnatal care for mothers and newborns using logistic regression model. A national representative data from Egypt Demographic and Health Survey (EDHS) in 2000 and 2014 is used. The findings of this study indicate that there is a rise in the proportion of receiving postnatal care for women and newborns between 2000 and 2014. The results show that wealth index, husband's education, and women's education play an important role in raising the level of receiving postnatal care. Moreover, the higher level of quality of health services would increase the utilization of postnatal care. However, availability of health services has a positive effect on postnatal care utilization only in 2000. Further research may identify the barriers which may prevent the mothers and their newborns to use postnatal care services

Keywords: Postnatal care - Maternal health care — Newborns – Quality of health care - Logistic Regression - EDHS – Egypt

محددات استخدام الرعاية الصحية ما بعد الولادة للام والطفل فى مصر 2000 و 2014

الملخص:

يهدف هذا البحث الى معرفة العوامل المؤثرة على استخدام الرعاية الصحية ما بعد الولادة للام والطفل وذلك من خلال استخدام نموذج الانحدار اللوجيستي. تم استخدام بيانات المسح السكاني والصحي في مصر عام 2000 و 2014. توصلت نتائج الدراسة الى ارتفاع فى نسب استخدام الرعاية الصحية ما بعد الولادة للام والطفل بين عام 2000 الى عام 2014. كما توصلت الدراسة الى ان مؤشر الثروة وتعليم الأم والأب هم من اهم العوامل فى زيادة استخدام الرعاية الصحية ما بعد الولادة للام والطفل. اوضحت نتائج الدراسة الى ان زيادة جودة خدمات الرعاية الصحية تزيد من استخدام الرعاية الصحية ما بعد الولادة للام والطفل. توصلت الدراسة الى ان اتاحة وتوفر خدمات الرعاية الصحية تزيد من استخدام الرعاية الصحية ما بعد الولادة للام فى عام 2000 فقط. يقترح هذا البحث اجراء دراسة فى المستقبل للتعرف على الاسباب التى تمنع السيدات من استخدام الرعاية الصحية بعد الولادة.

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Introduction

Postnatal health care can be defined as the care given to the woman and her infant after the childbirth and for the first six weeks of life [15]. Postnatal period is a very critical time in the lives of the mother and her infant. Most of the maternal and neonatal deaths happen during this risk period [14].

The first day after childbirth is the most dangerous day in the lives of mother and her infant. Every single day in 2018, there are about 7000 newborn deaths. About a third of all neonatal mortality occurs during the first day of life [17]. Moreover, every day in 2017, about 810 mothers died due to complications resulting from pregnancy and delivery [18]. Globally, every year about 2.8 million pregnant women and newborns die from preventable reasons related to pregnancy and delivery [19].

Maternal and child mortality rates are among the most important health indicators representing the development of a population [5]. Moreover, these rates are considered indicators of overall maternal and newborn health and the care that mothers and their infants receive [10]. In Egypt, neonatal mortality rate was 11 deaths in 2018 [12]. Moreover, the rate of maternal mortality in 2017 was 37 deaths for each 100,000 women giving birth [18].

The third goal of the Sustainable Development Goals calls for decreasing the worldwide maternal mortality ratio to less than 70 deaths for each 100 000 live births by 2030. Moreover, it intends to finish preventable deaths of newborns through reducing neonatal mortality to at least as low as 12 for each 1000 live births by 2030 [16]. Maternal and neonatal mortality could

have been reduced through a strategy that promotes utilization of postnatal care for mothers and their newborns [14]. Therefore, the current study aims to find out the prevalence of the postnatal care utilization between mothers and their newborns in 2000 and 2014. Moreover, this paper seeks to explore the determinants affecting receiving postnatal care between mothers and their newborns in 2000 and 2014 utilizing the logistic regression.

Data source

This paper is a cross-sectional analytical study. It depends on data taken from Egypt Demographic and Health Surveys (2000 and 2014). El-Zanaty made these surveys in Egypt on interest of the Ministry of Health. The analysis of this study included married women aged 15-49 whose last birth was during the five-year period before each survey because data about postnatal care was collected from only this sub-sample.

Methods

Study Variables: Our study has two binary dependent variables. First dependent variable is whether the woman did a check-up after delivery. Second dependent variable is whether the newborn received postnatal care.

Logistic regression model is employed in our study to identify the most important determinants of postnatal care utilization for mother and newborn. Chi-square test is used to test the statistical significance association of bivariate distributions of postnatal care utilization for mother and newborn across explanatory variables.

The independent variables in our study include education status of woman and husband; age of women; work status; wealth index; availability of health services; media exposure (TV, radio and newspaper,); place of residence; region; and quality of health services. Following on Zaky et al, Exploratory Factor Analysis technique (EFA) is used to construct composite

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indicators to express availability and quality of health services by using principal component as an extraction method and VARIMAX as a rotation method [21, 22].

Results

Changes in receiving postnatal care for women and newborns between EDHS 2000 and EDHS 2014 are presented in Figure (1). The results demonstrate that around 21 percent of women received postnatal care in 2000, while this percentage expanded to around 83 percent in 2014. Moreover, the findings from Figure 1 reveal that only 15 percent of last births received postnatal care at the time of 2000 survey while this percentage had expanded to around 36 percent by the time of 2014 survey.

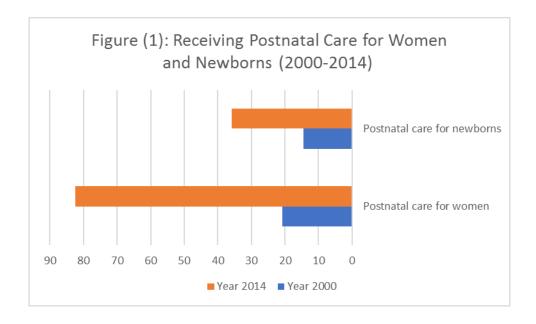Figure (1): Receiving Postnatal Care for Women and Newborns (2000-2014)

Table (1) clarifies the prevalence of postnatal care according to women's background characteristics in 2000 and 2014. Moreover, the significance of the relationship between these characteristics and postnatal care is examined by chi-square test. The findings demonstrate that there is a significant association between receiving postnatal care and wealth index. About 7 and 71 percent of mothers who are in the poorest quintile utilized services of postnatal care,

while this percentage expanded to 16 and 95 percent among mothers who are in the richest quintile in 2000 and 2014 respectively.

Regarding education, there is a significant relationship between education of parents and receiving postnatal care in 2000 and 2014. Data of Table (1) shows that about 6 and 67 percent of mothers who have never gone school received postnatal care, while this percentage expanded to 15 and 93 percent among mothers with university education or higher in 2000 and 2014.

According to Table (1), exposure to the media significantly increases receiving postnatal care for mothers and newborns in 2014. The results show that 74 percent of mothers who do not watch Television utilized postnatal care services, while this percentage expanded to 83 percent among women who watch Television in 2014.

One can observe, from Table (1), that there is a significant association between place of residence and receiving postnatal care for women and newborns in 2014. About 91 percent of women live in urban areas utilized postnatal care services compared 79 percent among women live in rural areas in 2014.

Table (1): Postnatal Care for women and newborns by selected socioeconomic characteristics, EDHS 2000 and 2014

Socioeconomic Characteristics		Postnatal Care for Woman		Postnatal Care for Newborn	
		2000	**2014**	**2000**	**2014**
Women's age 15-24		8.4	83	15.3	38.4*
25-39		7.4	82.5	14.8	35.5*
40-49		7.6	80.2	10.1	30.8*
Terminated pregnancy	No	7.8	82.9**	14.5	34.5*
	Yes	7.4	80.9**	14.6	41.4*
Woman's education					
No education		6.3*	67.2*	13.2**	29.9*
Incomplete primary		8.7*	74.9*	15.2**	28.2*
Complete primary		6.7*	81.5*	16.7**	37.1*
Incomplete secondary		9.3*	81.1*	14.2**	36.7*
Complete secondary		11.2*	86.3*	20.1**	37.5*
Higher		14.8*	93*	7.4**	39.8*
Woman's work	No	7.6	81.8*	14.3	35.5*
	Yes	9	87.8*	17.9	39.6*
Education of Husband					
No education		6.2	72.3*	11.4*	28.6*
Incomplete primary		8.6	77.2*	18.3*	35.5*
Complete primary		7.4	79.7*	11.3*	36.7*
Incomplete secondary		9.2	79.8*	16.6*	37.1*
Complete secondary		8.2	84.1*	15.4*	36.8*
Higher		11.2	91.3*	22.4*	38.3*
Region					
Urban governorates		5.8	93.8*	19.6	27.9*
Urban Lower Egypt		4.3	92.2*	12.9	41.1*
Rural Lower Egypt		6.9	85.2*	13	41.4*
Urban Upper Egypt		10.4	86.1*	16.8	31*
Rural Upper Egypt		8.5	70.1*	15	32*
Frontier governorates		4.7	79.4*	9.1	28*
Place of residence					
Rural		7.8	78.8*	14	37.2*
Urban		7.2	90.5*	16.7	33.2*
Wealth index					
Poorest		6.8***	70.7*	14.3	33.8*
Poorer		8.1***	73.6*	14	36.4*
Middle		7.9***	83*	14.5	38.9*
Richer		7.1***	89*	16	34.9*
Richest		15.5***	95.4*	16.9	34.4*
Listening	No	6.6	81.2*	14.8	35.3*
	Yes	8	87.3*	14.4	38.5*
Watching	No	6.8	73.5*	13.9	26*
	Yes	7.8	82.6*	14.6	36.1*
Reading	No	6.7*	81.2*	13.5*	34.9*
	Yes	12*	90.7*	19.2*	42.6*

*Sig. < 1%   **Sig.< 5%   ***Sig. < 10%

Table (2) highlights the findings of the logistic regression models to investigate the determinants of receiving postnatal care for women and newborns in 2000 and 2014. It is possible to conclude that each model of the four models is significant with p-value less than 0.01.

With respect to postnatal care for mothers, It is possible to conclude that the final model can predict correctly 78 and 85 percent of the cases in the two surveys. One can observe, from Table (2), that mothers in the richest quintile are two and three times more likely to utilize postnatal care than mothers in the poorest quintile in 2000 and 2014 respectively. Moreover, mothers with higher education are more likely to utilize postnatal care than mothers have never gone school in 2000 and 2014.

According to Table (2), indicators of quality of health services increase receiving postnatal care among mothers in 2000 and 2014. Moreover, mothers from urban Upper Egypt or Lower Egypt are more likely to utilize postnatal care than mothers from urban governorates in only 2000; meanwhile, mothers from Frontier governorates or urban Upper Egypt are less likely to utilize postnatal care than mothers from urban governorates in 2014.

The results reveal that availability of health services increases postnatal care utilization among mothers in only 2000. As indicated in Table (2), mothers who work for cash are more likely to utilize postnatal care than mothers do not work for cash in 2000.

Turning to receiving postnatal care for newborns, It is possible to conclude that the final model can predict correctly 84 and 64 percent of the cases in 2000 and 2014 respectively. One can observe, from Table (2), that newborns live in urban areas are three times more likely to utilize postnatal care services than newborns live in rural areas in 2014.

Table (2): Results of logistic regression (odds ratio) for investigating the determinants of postnatal care for woman and newborn (2000-2014).

Variables	Postnatal Care for Woman		Postnatal Care for Newborn	
	2000	**2014**	**2000**	**2014**
Women's age 15-24(ref.)				
25-39	0.93	0.96	1.17	0.89***
40-49	1.13	1.14	0.72	0.87
Terminated pregnancy				
No(ref)				
Yes	1.07	1.01	0.99	1.29*
Education of woman				
No education(ref)				
Incomplete primary	1.11	1.16	1.02	0.97
Complete primary	0.93	1.50*	1.22	1.19
Incomplete secondary	1.12	1.52*	0.70	1.22***
Complete secondary	1.25***	1.59*	1.05	1.22**
Higher	1.37***	1.77*	0.18**	1.17
Woman's work No(ref)				
Yes	1.19***	0.99	1.41	1.21**
Husband's Education				
No education(ref)				
Incomplete primary	1.39*	0.89	1.51**	1.21
Complete primary	1.36**	1.07	0.84	1.34**
Incomplete secondary	1.17	0.98	1.37	1.14
Complete secondary	1.19	1.06	1.07	1.19***
Higher	1.29***	1.28***	1.97**	1.19
Region				
Urban governorates(ref)				
Urban Lower Egypt	1.24**	0.74	0.50**	1.10
Rural Lower Egypt	1.29	0.61	0.67	4.78*
Urban Upper Egypt	1.71*	0.57*	0.51**	0.83***
Rural Upper Egypt	1.38	0.36***	0.76	3.76*
Frontier governorates	1	0.41**	0.39	0.77***
Place of residence				
Rural(ref)				
Urban	1.02	0.76	1.34	3.42*
Wealth index				
Poorest(ref)				
Poorer	0.84	0.95	0.92	0.95
Middle	1.15	1.12	0.90	0.99
Richer	1.11	1.76*	0.71	0.98
Richest	1.50*	3.44*	0.75	1.29**
Listening No(ref)				
Yes	1.03	1.15***	0.82	0.95
Watching No(ref)				
Yes	0.81	1.18	0.95	1.31
Reading No(ref)				
Yes	1.10	1.12	1.28	1.08
Availability of health services	1.12*	1.01	0.98	0.98
Content of medical care	1.30*	1.25*	1.32*	0.92*
Treatment with complications	1.50*	1.21*	1.59*	1.29*

*Sig. < 1%   **Sig.< 5%   ***Sig. < 10%

The findings indicate that mothers from the richest household are more likely to utilize postnatal care for their newborns than mothers from the poorest household in 2014. Additionally, women with higher age are less likely to use services of postnatal care for their newborns than younger women in 2014.

As shown in Table (2), mothers who work for cash are more likely to utilize postnatal care for their newborns than mothers do not work for cash in 2014. Moreover, quality of health services increases receiving postnatal care among newborns in 2000 and 2014. Additionally, another predictor for receiving of postnatal care for newborns was the education of parents. The findings show that the higher the degree of education of mothers and their husbands, the higher the level of receiving postnatal care.

Discussion

The findings indicate that quality of care increases receiving postnatal care for mothers and newborns in 2000 and 2014. These results agree with the previous study in Nepal which clarified that one of the reasons for preventing mothers from postnatal care utilization may be lack of the quality of health services [4].

Our analysis indicates that availability of health services is positively related with receiving postnatal care in 2000 but it is not associated in 2014. This may be because availability of health services in Egypt becomes relatively better in 2014 than 2000. These findings are similar a previous study conducted in Tanzania which showed that distance from health institution was not related with utilization of postnatal care [6].

The results indicate that mother's age is one of the factors determining the use of postnatal care for newborns. These findings agree with a study in Pakistan which showed that the younger women are more likely to utilize

postnatal care for newborns than older women [20]. Moreover, the findings show that women's age do not be a significant predictor of receiving postnatal care for women. This finding is consistent with a previous study in Tanzania [6], but different previous studies in Bangladesh [7] and Nepal [3] demonstrated that the probability of using postnatal care is influenced by age of mother. This contradiction may be due to the variation in size of sample, analysis method and sociodemographic characteristics.

The findings show that media exposure positively contributed to postnatal care utilization in 2014 only. This result is like to a study in Ethiopia which demonstrated that women who listened to radio were more likely to receive postnatal care contrasted with those who did not listen to radio [8, 2]. Moreover, our study indicates that place of residence appears to be one of the factors associated with receiving postnatal care. This finding is like different studies in Ethiopia [2], Nepal [4] and Bangladesh [7].

Consistent with the general results of earlier researches [1, 4, 7, 6], the education of parents plays a significant role in increasing the utilization of postnatal care. It could be because of a higher degree of education could improve the awareness of women of receiving postnatal care. Moreover, education helps women to be more empowered to make decisions about their reproductive health [9].

It can be concluded from our analysis that the probability of using postnatal care for mothers and their newborns is influenced by the wealth index. These findings agree with the general results of previous researches (Adane et. al., 2020; Khanal et al 2014; Tsawe et. al. 2015; Worku et. al. 2013), which showed that mothers from the richest households are more likely to utilize postnatal care than those from the poorest households.

Conclusion

Healthcare for women and their newborns stays a main challenge particularly in developing countries to the global public health system (WHO, 2014). This paper used cross-sectional data from EDHS in 2000 and 2014 to explore the prevalence of postnatal care utilization among women and their newborns in Egypt. Moreover, Logistic regression model is utilized to explore the most important determinants of postnatal care utilization among women and their babies during the period 2000- 2014.

The results indicate that there has been a rise in postnatal care utilization among mothers and their newborns from 2000 to 2014. Moreover, the findings of this paper demonstrate that quality of health services, education of parents, and wealth index play significant roles in increasing postnatal care utilization among mothers and their newborns. Therefore, more governmental efforts should be made to improve economic status of women and raise their awareness towards receiving postnatal care especially in rural parts.

Further qualitative studies are needed in the future to identify the barriers which may prevent the mothers and their newborns to use postnatal care services. Moreover, this paper highlights research areas that need further study to check whether utilization of antenatal care and postnatal care are simultaneously determined or not in Egypt.

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