Differentials in Receiving Postpartum Care and its Determinants in Turkey

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1. INTRODUCTION

The most widespread causes of death and disability among women of reproductive age in developing countries are complications during pregnancy, delivery and puerperium. According to the results of Turkey National Maternal Mortality Study 2005, 387 maternal deaths occur in Turkey every year. Although the level of maternal deaths in Turkey is higher than the values for developed regions, it is lower than the estimates for other developing countries (Koç et al, 2006).

Recent studies have identified the factors associated with maternal mortality, its main reasons and critical periods. Although antenatal care is vital for pregnant women, it does not determine whether the woman will have a serious complication during delivery (Fort et al, 2006). 25 percent of maternal deaths and half of neonatal deaths increase to 60 percent and two-thirds, respectively, by the end of first week postpartum (*ibid*). Therefore postpartum care is crucial for maternal and infant health.

For the first time in Turkey, detailed information on postpartum care was collected in Turkey Demographic and Health Survey 2008 (TDHS-2008) (HUIPS, 2009). This paper, as a first, analyzes the determinants of receiving postpartum care by both mothers and infants in Turkey using these data. Therefore a trend analysis in postpartum care is not applicable for Turkey.

This study investigates the health-related, socio-demographic and economic differentials in receiving postpartum care by women and infants in Turkey. Multivariate logistic analyses on determinants of receiving postpartum care by women and infants, taking the complex sample design into consideration, are also carried out to investigate the differentials in a multivariate setting.

2. CONCEPTUAL FRAMEWORK

The conceptual framework used in this study is a modified version of the method developed by Fort et al (2006) (Figure 1). According to this model, variables related to antenatal care and delivery, and correlates of postpartum care all determine the variables related to postpartum care received by the woman. We also employed this model conceptually, whereas we selected the correlates differently and had place of delivery as an explanatory variable in the final model. We also used the same framework for analyzing determinants of postnatal care received by infants since the same factors seem to affect receiving postpartum care by mothers and infants according to our descriptive analyses.

[FIGURE 1 about here]

3. DATA AND METHODOLOGY

Data

This study uses data from Turkey Demographic and Health Survey 2008 (TDHS-2008). In TDHS-2008, of the 13,521 households selected, interviews were completed with 10,525 households. Ever-married

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women aged 15-49, who generally live in the household or slept in the household the night before the interview are accepted as eligible for the individual interview. Interviews were carried out with 7,405 ever-married women aged 15-49 in TDHS-2008. The number of live births of these women for the last five years is 2,984 (which is 2,768 when weighted). The questions on postpartum care received by mothers and infants related to these births constitute the data of this paper.

Method

Multivariate analyses are used to investigate the determinants of (not) receiving postpartum care by women and infants, separately. When the status of receiving postpartum care is determined, as in its conventional way, timing of postpartum care is also taken into consideration: According to Rutstein and Rojas (2006); births, where care is received after 41 days postpartum, should be considered as "births having not received postpartum care".

Multivariate logistic regressions are used and odds ratios are computed to estimate the likelihood of postpartum care not to occur (compared to receiving postpartum care), for each category of independent variables.

The binary dependent variable of postpartum care in the analyses takes the value of "0" for "received" and "1" for "not received". Since the reference category of the dependent variable is defined as "receiving postpartum care", the odds ratios should be interpreted as the relative risk of not receiving relative to receiving postpartum care by women and infants (separately). Among the explanatory variables, relatively better off categories are defined as the reference category of the related variable.

For models of both mothers and infants individually; the model constructions consist of four stages involving introduction of four groups of variables at each stage to see the additive effects of each group of variables on the dependent variable. First model includes the variables of "environmental characteristics", which are urban-rural place of residence and region. Second model additionally has variables linked to the status of the woman, which are woman's and her husband's mother tongue, woman's relationship to husband, attitudes of traditionality on gender roles, educational level of woman and husband, type of marriage and structure of family. Economic characteristics are added further in the third model, which involves the variables of woman's sector of employment, health insurance, household welfare status and social insurance. Differently from previous models, the final model includes health-related variables. Age at birth, birth order, antenatal care and place of delivery are included additionally in this final model.

4. RESULTS

Descriptive Results

Descriptive results point out some differentials in receiving postpartum care among women according to several characteristics. Proportion of women not receiving postpartum care in Turkey is 15 percent and this proportion increases in different subpopulations. Figure 2 indicates these disadvantaged groups of women in terms of receiving postpartum care. The highest proportion is observed among women who gave birth at home or places other than health institutions (non-institutional births) as 87 percent. Among women living in Central East Anatolia region, whose mother tongue is Kurdish and cannot speak Turkish, and who had not received any antenatal care, this proportion rises to over 40 percent.

[FIGURE 2 about here]

11 percent of infants do not receive any postnatal care within 41 days after birth in Turkey. Figure 3 shows the population subgroups in which proportion of infants, who do not receive any postnatal care, is higher than 11 percent which is the percentage for Turkey. These disadvantaged groups in terms of infant postnatal care show large similarities with groups disadvantaged in receiving maternal postpartum care. Whether mother received postpartum care or not seems to be associated with infant receiving postnatal care: Among births where the mother has not received any postpartum care, 39 percent of infants have not received care, either.

[FIGURE 3 about here]

Multivariate Results

Mothers

Complete results regarding all the four models can be seen in Table 1. Results of the final model of determinants of not receiving postpartum care by the mother indicate that place of delivery – whether the birth is institutional or non-institutional- and adequate antenatal care are highly significant determinants of postpartum care received by women. This model has Nagelgerke R-squared of 0.402. The highest odds ratio is of women who had their last birth as a non-institutional birth. These women are almost 40 times more likely not to receive any postpartum care as compared with women with institutional births. Women living in the Eastern region are 1.7 times more likely not to receive any postpartum care than their counterparts living in the Western region. Educational level of the woman is also a significant determinant of postpartum care received by the woman: A woman without any education or with incomplete primary level education is 2.1 times more likely not to receive any postpartum care compared to a woman with high school or higher degree.

[TABLE 1 about here]

Type of health insurance of the mother is also an important determinant: Women with health insurance from Green Card (*Yeşil Kart*) –type of health insurance provided for poor people- or none at all have higher risks of not receiving any postpartum care as compared with women with health insurance from Pension Fund (*Emekli Sandığı*). Household wealth level is also an important determinant, especially when the woman lives in the poorest households: Women living in poorest households are 2.8 times more likely not to receive any postpartum care compared to women living in wealthiest households.

When compared to women whose age at birth is in the middle age group 20-34; the risk of not receiving postpartum care is higher among women whose age at birth is younger than ages of 20-34 with odds ratio of 1.68, this risk is smaller among women whose age at birth is within the 35-49 interval with odds ratio of 0.58.

Variables of region, place of residence and wealth status of the household are not significant in the final model at the variable level. Birth order, employment status (both social insurance and sector of employment), family structure, type of marriage ceremony, relationship to husband, mother tongue, and husband's mother tongue also have insignificant coefficients.

Infants

Variables of urban/rural place of residence and household wealth level are not significant at the variable level in the model for determinants of not receiving any postnatal care among infants as in the model for postpartum care among women.

Infants whose mothers have not received any antenatal care are 1.9 times more likely not to receive any postnatal care compared to infants whose mothers have received antenatal care. This ratio is 1.3 for infants, whose mothers have received *inadequate* antenatal care. The highest odds ratio is of the variable of place of birth: Infants who were born in non-institutional places are 4.4 times more likely not to receive any postnatal care than infants of institutional births. Age at birth of the mother, birth order, social insurance of the mother, household wealth level, husband's level of education, family structure, type of marriage ceremony, traditionality, relationship between mother and father, mother tongue of mother/father, and type of residence have insignificant explanatory powers in the model of postnatal care of infants.

[TABLE 2 about here]

5. CONCLUSION

The results of this study, which analyzed the socioeconomic and bio-demographic differentials in receiving postpartum care by mothers and infants in Turkey, indicate that the most influential variable determining receiving postpartum care is the place of delivery both for the mother and the infant. The likelihood of not receiving any postpartum care increases by 40 times for a mother who had a non-institutional birth compared to a mother with an institutional birth.

When the determinants of receiving postpartum care by mothers and infants are analyzed, same factors appear to be significant for women and babies in general.

The factors associated with not receiving postpartum care by women are living in the Eastern region; being uneducated; having health insurance from Green Card or Social Insurance Institution or Social Security Organization for Artisans and Craftsmen, or none at all; living in the poorest households; having younger (less than 20) ages at birth; having inadequate antenatal care or none at all; and having a non-institutional birth. The variables, which have the most explanatory power in determining postpartum care of women, are of bio-demographic ones that are directly related to health and/or birth. Following these variables, economic characteristics such as health coverage and education variables are observed to be effective. Socio-cultural variables like mother tongue, type of marriage and family, and the level of traditionality are found to be insignificant in the final model.

When determinants of postnatal care among infants are analyzed, more number of significant variables appear: Having a mother living in East, South or Central region; having an uneducated or fist level primary educated mother; having a mother with Health Insurance from Social Security Organization for Artisans and Craftsmen, or none at all; having a mother who received no antenatal care; and being a non-institutional birth decreases the likelihood of receiving postnatal care among infants. An important finding in this model is that for both mothers and infants, bio-demographic or health-related characteristics and educational level of the mother are found to be the determinants of postpartum care rather than environmental characteristics. In the models, for both mothers and infants, when economic characteristics are controlled for, the variable of place of residence becomes insignificant. Second important finding is that health coverage of the mother determines both the postpartum care received by woman and by the infant.

To conclude, the indicators of postpartum care show that majority of mothers and infants receive postpartum care. However descriptive findings indicate that there are disadvantaged groups in receiving postpartum care as well. These groups can be defined as women (and their babies), who live in the Eastern region, whose mother tongue is Kurdish and cannot speak Turkish, who are uneducated, work without any social security or work in the agricultural sector, who have health insurance as Green Card or none, who live in a poor household, who have received inadequate

antenatal care or none, whose age at motherhood are outside the age group of 20-34, and who had a non-institutional birth. These women and their infants seem to have difficulties in accessing or making use of postpartum care services. In a multivariate setting, receiving antenatal care and its adequacy, place of delivery, mother's health insurance, and mother's education appear to be the most important determinants of receiving postpartum care both by infants and by mothers.

REFERENCES

Fort, A. L., Kothari, M. T. and Abderrahim, N. 2006. *Postpartum Care: Levels and Determinants in Developing Countries*. Calverton, Maryland, USA: Macro International Inc.

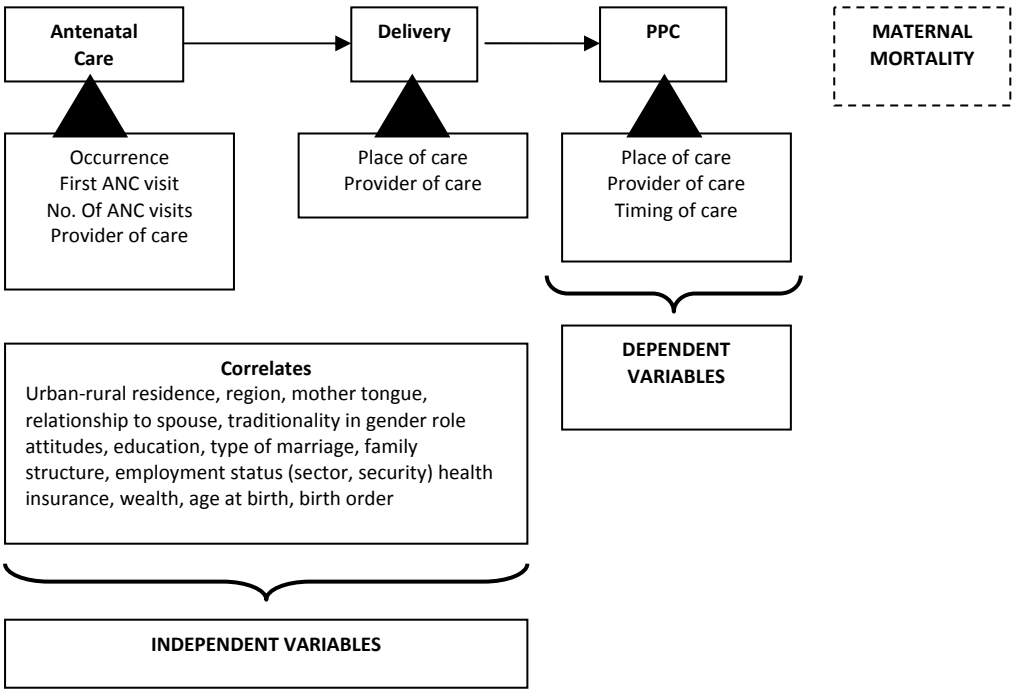
Koç, İ., Schumacher, R., Campbell, O., Türkyılmaz, A. S., Ergöçmen, B. and Yüksel, İ. 2006. *National Maternal Mortality Study 2005.* Hacettepe University Institute of Population Studies, Ministry of Health, General Directorate of Mother and Child Health and Family Planning and Delegation of European Commission to Turkey, Ankara, Turkey

Rutstein, S. O. and Rojas, G. 2006. *Guide to DHS Statistics.* Demographic and Health Surveys ORC Macro.

Hacettepe University Institute of Population Studies (HUIPS). 2009. *Turkey Demographic and Health Survey, 2008*. Hacettepe University Institute of Population Studies, Ministry of Health General Directorate of Mother and Child Health and Family Planning, T.R. Prime Ministry Undersecretary of State Planning Organization and TÜBİTAK, Ankara, Turkey.

TABLES AND FIGURES

Figure 1. Conceptual framework for the study on determinants of Postpartum Care (PPC)



Note: *Influenced by Fort et al (2006: 5), who have the original framework.*

Figure 2. Subgroups of population where proportions of not receiving postpartum care among mothers are higher than the proportion for the total

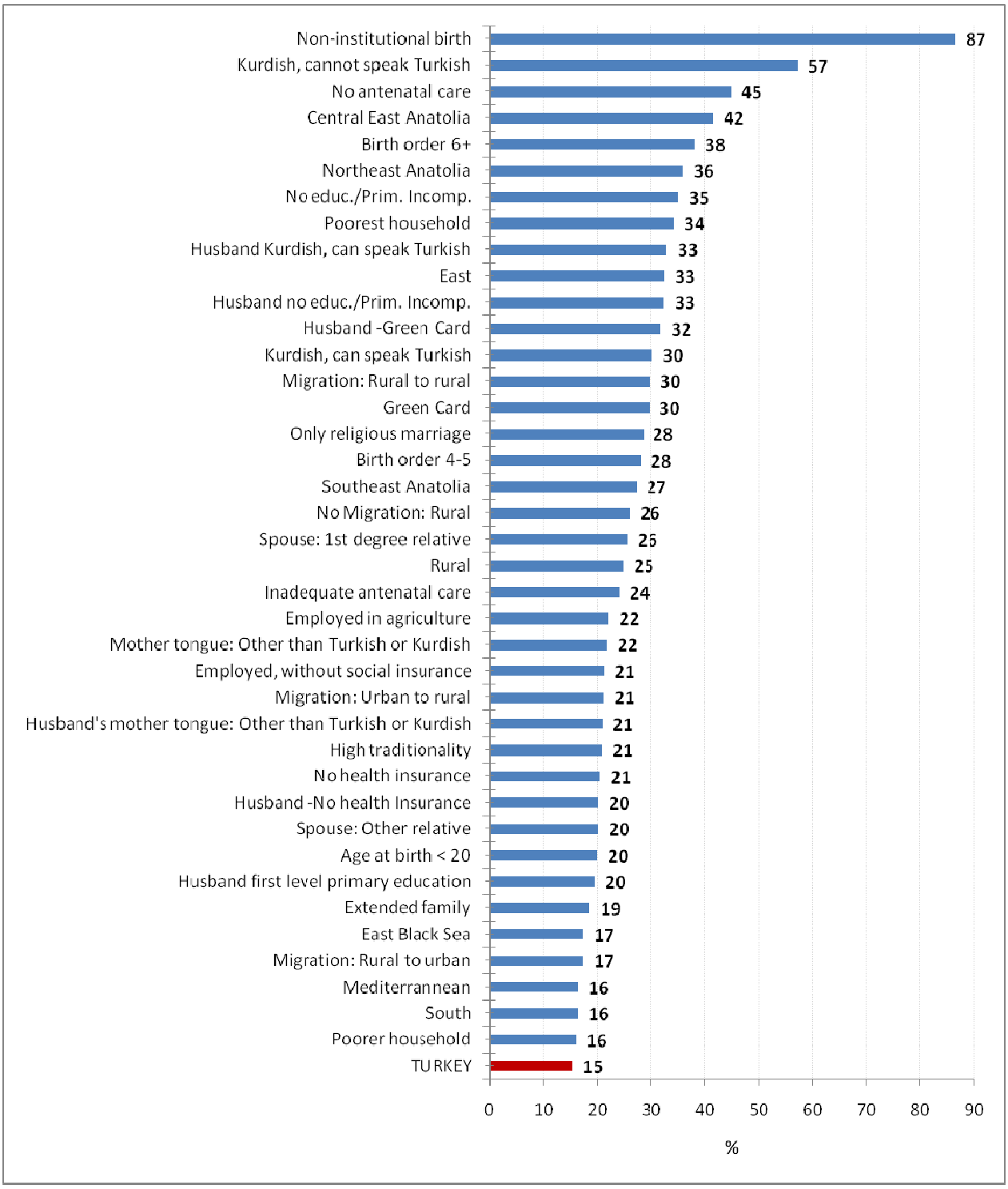


Figure 3. Subgroups of population where proportions of not receiving postpartum care among infants are higher than the proportion for the total

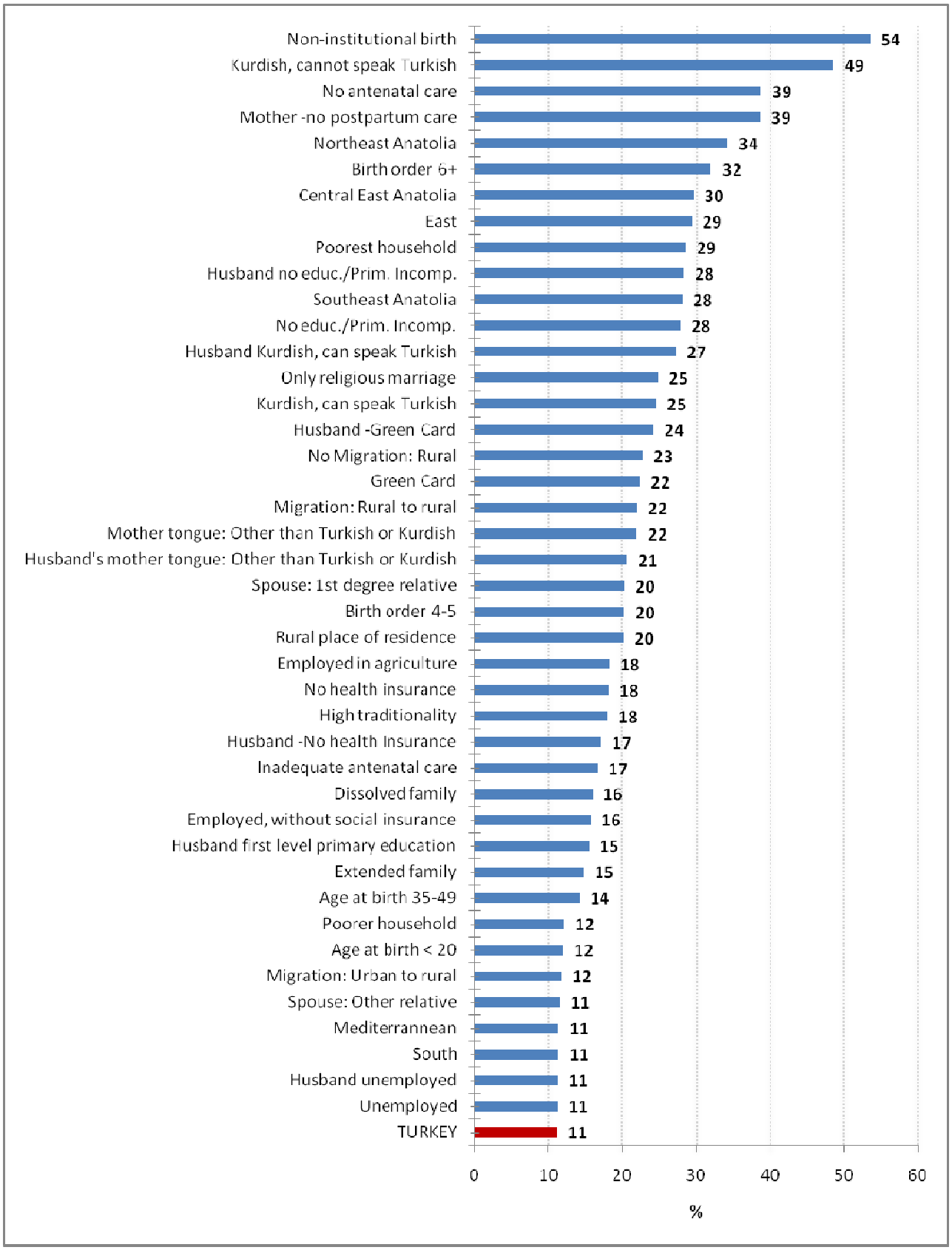


Table 1. Determinants of not receiving any postpartum care by mother according to logistic regression results

	Models			
Additional group of variables	**Model 1** Environmental Characteristics	**Model 2** Women's Characteristics	**Model 3** Economic Characteristics	**Model 4** Health-related Characteristics
Variables				
Place of Residence	**	**		
Urban	*1.000*	*1.000*	*1.000*	*1.000*
Rural	1.856*	1.483**	1.116	1.066
Region	**	**	*	
West	*1.000*	*1.000*	*1.000*	*1.000*
South	1.637*	1.502	1.340	1.278
Central	0.735	0.937	0.977	0.919
North	1.225	1.499	1.533	1.563
East	3.847**	2.097**	1.838**	1.661*
Woman's Mother Tongue				
Turkish		*1.000*	*1.000*	*1.000*
Kurdish		1.393	1.307	0.871
Other		1.789	1.775	1.888
Husband's Mother Tongue				
Turkish		*1.000*	*1.000*	*1.000*
Kurdish		1.155	1.226	0.802
Other		0.559	0.547	0.362
Relationship to Spouse				
No relationship		*1.000*	*1.000*	*1.000*
First degree relative		1.161	1.141	1.237
Other relative		1.251	1.237	1.397
Level of traditionality as Attitudes towards Gender Roles				
Low		*1.000*	*1.000*	*1.000*
Medium		0.932	0.876	0.806
High		0.967	0.885	0.744
Woman's Level of Education		**	**	*
None/Primary Incomplete		3.519**	2.580*	2.061*
First Level Primary		1.910*	1.517	1.286
Second Level Primary		1.513	1.256	1.063
High School or Higher		*1.000*	*1.000*	*1.000*
Husband's Level of Education				
None/Primary Incomplete		1.268	0.802	0.757
First Level Primary		1.291	0.922	0.764
Second Level Primary		0.992	0.791	0.758
High School or Higher		*1.000*	*1.000*	*1.000*
Type of Marriage Ceremony				
Had Official Ceremony		*1.000*	*1.000*	*1.000*
Only religious ceremony or none		1.063	0.919	0.725
Family Structure				
Nuclear		*1.000*	*1.000*	*1.000*
Extended		0.985	0.902	0.962
Dissolved		0.585	0.584	0.570

** Significance level p<0.05; ** Significance level p<0.01;*
Insignificant otherwise.

Table 1. Determinants of not receiving any postpartum care by mother according to logistic regression results (Continued)

	Models			
Additional group of variables	**Model 1** Environmental Characteristics	**Model 2** Women's Characteristics	**Model 3** Economic Characteristics	**Model 4** Health-related Characteristics
Variables				
Woman's Sector of Employment				
Unemployed			0.495*	0.558
Agriculture			0.525*	0.479*
Industry			0.671	0.780
Services			*1.000*	*1.000*
Woman's Health Insurance			**	**
None			8.554**	8.246**
Social Insurance Institution			5.920**	7.521**
Pension Fund			*1.000*	*1.000*
Social Security Organization for Artisans and Craftsmen			7.643**	7.953**
Green Card			7.602**	8.780**
Other			9.242**	16.415**
Household Wealth Level			**	
Poorest			3.771**	2.806*
Poorer			2.080	2.162
Middle			1.957	2.278
Richer			1.795	2.297
Richest			*1.000*	*1.000*
Woman's Employment Status (insurance)				
Unemployed			1.000	1.000
Employed, without social insurance			0.861	0.844
Employed, with social insurance			*1.000*	*1.000*
Age at Birth				**
<20				1.684*
20-34				*1.000*
35-49				0.572*
Birth Order				
1				*1.000*
2-3				0.882
4-5				1.530
6+				1.051
Antenatal Care				**
None				2.361**
Inadequate				1.951**
Adequate				*1.000*
Place of Delivery				**
Institutional				*1.000*
Non-Institutional				38.884**
Nagelkerke R^2	0.122	0.173	0.204	0.402
Wald F Model	30.733	13.376	11.193	13.287

** Significance level p<0.05; ** Significance level p<0.01; Insignificant otherwise.*

Table 2. Determinants of not receiving any postpartum care by infant according to logistic regression results

	Models			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Additional group of variables	Environmental Characteristics	Women's Characteristics	Economic Characteristics	Health-related Characteristics
Variables				
Place of Residence	**	*		
Urban	*1.000*	*1.000*	*1.000*	*1.000*
Rural	2.093**	1.390*	0.983	0.929
Region	**	**	**	**
West	*1.000*	*1.000*	*1.000*	*1.000*
South	2.549**	2.358**	2.178**	2.209**
Central	1.288	1.861*	1.855*	1.810*
North	0.867	1.220	1.246	1.114
East	8.017**	4.973**	4.680**	4.287**
Woman's Mother Tongue				
Turkish		*1.000*	*1.000*	*1.000*
Kurdish		1.140	1.162	0.965
Other		2.597*	2.685*	1.958
Husband's Mother Tongue				
Turkish		*1.000*	*1.000*	*1.000*
Kurdish		1.407	1.369	1.232
Other		0.550	0.501	0.609
Relationship to Spouse				
No relationship		*1.000*	*1.000*	*1.000*
First degree relative		0.999	0.970	0.915
Other relative		0.725	0.728	0.733
Level of traditionality as Attitudes towards Gender Roles		*		
Low		*1.000*	*1.000*	*1.000*
Medium		1.001	0.966	0.997
High		1.437*	1.355	1.398
Woman's Level of Education		**	**	**
None/Primary Incomplete		6.563**	4.452**	3.244**
First Level Primary		5.325**	3.854**	3.159**
Second Level Primary		2.419*	1.878	1.647
High School or Higher		*1.000*	*1.000*	*1.000*
Husband's Level of Education		**		
None/Primary Incomplete		1.912*	1.350	1.261
First Level Primary		1.970**	1.513	1.388
Second Level Primary		1.235	1.031	0.989
High School or Higher		*1.000*	*1.000*	*1.000*
Type of Marriage Ceremony				
Had Official Ceremony		*1.000*	*1.000*	*1.000*
Only religious ceremony or none		1.184	0.944	0.802
Family Structure				
Nuclear		*1.000*	*1.000*	*1.000*
Extended		1.118	1.047	1.104
Dissolved		1.640	1.628	1.813

** Significance level p<0.05; ** Significance level p<0.01;*
Insignificant otherwise.

Table 2. Determinants of not receiving any postpartum care by infant according to logistic regression results (Continued)

	Models			
Additional group of variables	**Model 1** Environmental Characteristics	**Model 2** Women's Characteristics	**Model 3** Economic Characteristics	**Model 4** Health-related Characteristics
Variables				
Woman's Sector of Employment			**	**
Unemployed			2,016	2.150
Agriculture			0.762	0.888
Industry			0.000**	0.000**
Services			*1.000*	*1.000*
Woman's Health Insurance			**	**
None			3.267*	2.960*
Social Insurance Institution			1.808	1.935
Pension Fund			*1.000*	*1.000*
Social Security Organization for Artisans and Craftsmen			3.112*	2.886*
Green Card			1.875	1.878
Other			0.000**	0.000**
Household Wealth Level			**	
Poorest			2.402*	2.383
Poorer			1.314	1.623
Middle			1.153	1.563
Richer			0.955	1.271
Richest			*1.000*	*1.000*
Woman's Employment Status (insurance)				
Unemployed			1.000	1.000
Employed, without social insurance			2.601	2.270
Employed, with social insurance			*1.000*	*1.000*
Age at Birth				
<20				1.337
20-34				*1.000*
35-49				0.911
Birth Order				
1				*1.000*
2-3				1.261
4-5				1.355
6+				1.084
Antenatal Care				**
None				1.914**
Inadequate				1.304
Adequate				*1.000*
Place of Delivery				**
Institutional				*1.000*
Non-Institutional				4.403**
Nagelkerke R^2	0.191	0.265	0.289	0.338
Wald F Model	43.600	20.582	148.617	160.523

** Significance level p<0.05; ** Significance level p<0.01; Insignificant otherwise.*