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2013 No. 91

February 2013

This document was produced for review by the United States Agency for International Development.

DEMOGRAPHIC
AND
HEALTH
SURVEYS

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ICF International
Calverton, Maryland, USA

February 2013

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ACKNOWLEDGEMENTS

I would like to express appreciation for the guidance and insightful comments from Thomas Pullum, Sarah Bradley, and Shanxiao Wang of ICF International. The study was financially supported by the United States Agency for International Development (USAID) through ICF International's DHS Fellowship Program.

The *DHS Working Papers* series is an unreviewed prepublication series of papers reporting on research in progress that is based on Demographic and Health Surveys (DHS) data. This research is carried out with support provided by the United States Agency for International Development (USAID) through the MEASURE DHS project (#GPO-C-00-08-00008-00). The views expressed are those of the authors and do not necessarily reflect the views of USAID or the United States Government.

MEASURE DHS assists countries worldwide in the collection and use of data to monitor and evaluate population, health, and nutrition programs. Additional information about the MEASURE DHS project can be obtained by contacting MEASURE DHS, ICF International, 11785 Beltsville Drive, Suite 300, Calverton, MD 20705 (telephone: 301-572-0200; fax: 301-572-0999; e-mail: reports@measuredhs.com; internet: www.measuredhs.com).

ABSTRACT

This paper investigates the potential importance of women's autonomy in the reproductive healthcare-seeking behavior of women in Ethiopia. We hypothesized that women's autonomy influences their reproductive healthcare-seeking behavior independent of maternal socio-demographic characteristics. We tested this hypothesis using data from the 2005 Ethiopian Demographic and Health survey (EDHS). Women's autonomy was measured by women's participation in domestic decisionmaking, attitudes toward wife beating, attitudes toward refusing sex with husband, and whether women said that getting permission to seek medical care is a big problem.

Our analysis shows that women's autonomy is an important influence on their reproductive healthcare-seeking behavior. Women's participation in domestic decisionmaking is strongly associated with ever-use of family planning, but not with use of antenatal care, after controlling for socio-demographic factors. In the multivariate model the lack of association between women's participation in decisionmaking and antenatal care is mediated by factors such as women's education and place of residence. Women's attitudes toward refusing sex with husband, an indicator of gender-role attitudes, and the ease of getting permission to seek medical help are significantly associated with both ever-use of contraception and use of antenatal care services, after controlling for the effects of other socio-demographic variables.

These findings suggest that women's autonomy at the household level, including freedom of movement, is important to their use of reproductive health services. Moreover, for both outcome variables, women's education, paid employment, urban residence, exposure to media, and wealth appear as important predictors. The findings highlight the need in Ethiopia for initiatives to improve women's autonomy, to attain both gender equality and wider use of health services. Moreover, improving women's education and employment can play a dual role in enhancing women's autonomy and healthcare-seeking behavior.

INTRODUCTION

In developing countries maternal and child mortality continues to be a major health problem. The World Health Organization (WHO) has estimated that 358,000 maternal deaths occur annually in the world, 99% of them in developing countries (WHO 2010), with sub-Saharan Africa accounting for 57% of these deaths. Ethiopia's maternal mortality is an estimated 470 deaths per 100,000 live births, one of the highest levels in the world, according to a WHO estimate in 2008. The highest mortality rates among children under age 5 also occur in sub-Saharan Africa (UNICEF 2010). Overall, countries in sub-Saharan Africa have made limited progress in achieving the Millennium Development Goals (MDGs) of reducing maternal and child mortality (UNICEF 2010, WHO 2010).

Reducing levels of maternal mortality and morbidity depends on increasing use of reproductive and maternal health services. High rates of maternal, neonatal, and child mortality are associated with inadequate and poor-quality reproductive healthcare, including family planning, antenatal care, skilled attendance at birth, and postnatal care. Hence, achieving the MDG goal on maternal health requires providing high-quality pregnancy and delivery care, including essential obstetric care, and improving women's sexual and reproductive health (WHO 2011).

The benefits of improving healthcare-seeking behavior are tremendous, particularly in settings where social services and public health resources are limited. Family planning, a key component of reproductive healthcare, can help reduce maternal mortality by preventing unintended pregnancies and abortion-related deaths. Moreover, by helping women to space births, family planning can save children's lives (Cleland et al. 2006). Similarly, antenatal care is a key maternal service in improving a wide range of health outcomes for women and children. It is an opportunity to provide interventions for improving maternal nutrition and to encourage skilled attendance at birth and use of facilities for emergency obstetric care (Abou-Zahr and Wardlaw 2003).

However, use of reproductive health services in countries with high maternal and child mortality is very low. The 2005 Ethiopian Demographic and Health Survey (EDHS) reported that only 15% of married women were using family planning and only 28% had received antenatal care for their most recent birth. Skilled assistance at delivery was even lower, at 6% (CSA and ORC Macro 2006).

Although studies have examined factors influencing the use of reproductive healthcare, few have looked at how gender inequalities, particularly women's autonomy within the household, influence use of services (Dharmalingam and Morgan 1996, Furuta and Salway 2006). The objective of this study is to examine the association between women's autonomy and reproductive healthcare-seeking behavior of women in Ethiopia. The study can help inform health planners and program managers in Ethiopia to promote attitudes and practices that favor gender equality, in order to attain wider use of healthcare services among women.

LITERATURE REVIEW

Several studies in developing countries have documented that women's autonomy affects their reproductive health behavior (Beegle et al. 2001, Dharmalingam and Morgan 1996, Hogan et al. 1999, Mason 1987, Upadhyay and Hindin 2005, Woldemicael 2009). In most of the earlier studies, however, women's education and employment were used as proxy measures of women's autonomy (Beegle et al. 2001, Mason 1987, Upadhyay and Karasek 2010). Although these and other socio-demographic proxy indicators are important, it has been suggested that they may not capture all aspects of autonomy and also may understate issues related to power, conflict, and negotiation within the household (Jeffery and Jeffery 1997, Mistry et al. 2009).

Women's autonomy can be defined as the capacity and freedom to act independently. It encompasses women's ability to formulate strategic choices, control resources, and participate in decisionmaking. Some of the direct measures of women's autonomy identified by researchers include access to and control over resources, participation in economic decisions, self-esteem, mobility, and freedom from domestic violence (Basu 1992, Bloom et al. 2001, Kishor and Subaiya 2008). Several researchers have suggested that investigations of women's demographic and health outcomes should use direct measures that reflect the degree of control in women's lives (Bloom et al. 2001, Jejeebhoy 1995, Kishor 2005).

In the literature on women's autonomy and reproductive health behavior, women's autonomy has been measured by women's participation in decisionmaking, financial decisionmaking, freedom of movement, and attitudes toward violence, among others. Although women's autonomy has been measured in various ways, studies have documented higher levels of contraceptive use and lower fertility rates among women with more autonomy (Dharmalingam and Morgan 1996, Hogan et al. 1999, Mason 1987, Woldemicael 2009). Most of these studies are from South Asia, where there is more sex segregation than in sub-Saharan Africa. In the context of these Asian countries, women's status and autonomy appear to be among the most important explanatory factors in understanding their reproductive behavior, including more contraceptive use, lower fertility, and fewer number of children desired (Balk 1994, Dharmalingam and Morgan 1996, Mason 1987).

There are few empirical studies on women's autonomy and healthcare-seeking behavior in Africa. In one study in southern Ethiopia, women's involvement in domestic decisionmaking

was found to be an important predictor of husband-wife communication about family planning and contraceptive use (Hogan et al. 1999). A study using data from the 1994 Zimbabwe Demographic and Health Survey (DHS) found that women in households where men dominated household decisions were less likely to approve of contraceptive use and to report ever-use of a modern method (Hindin 2000). Another study using DHS data from four sub-Saharan countries found that in two of the countries having egalitarian gender-role attitudes was associated with having a smaller ideal number of children (Jeffery and Jeffery 1997). A study from Eritrea also showed that women's decisionmaking autonomy was significantly associated with ever-use of modern contraception (Woldemicael 2009).

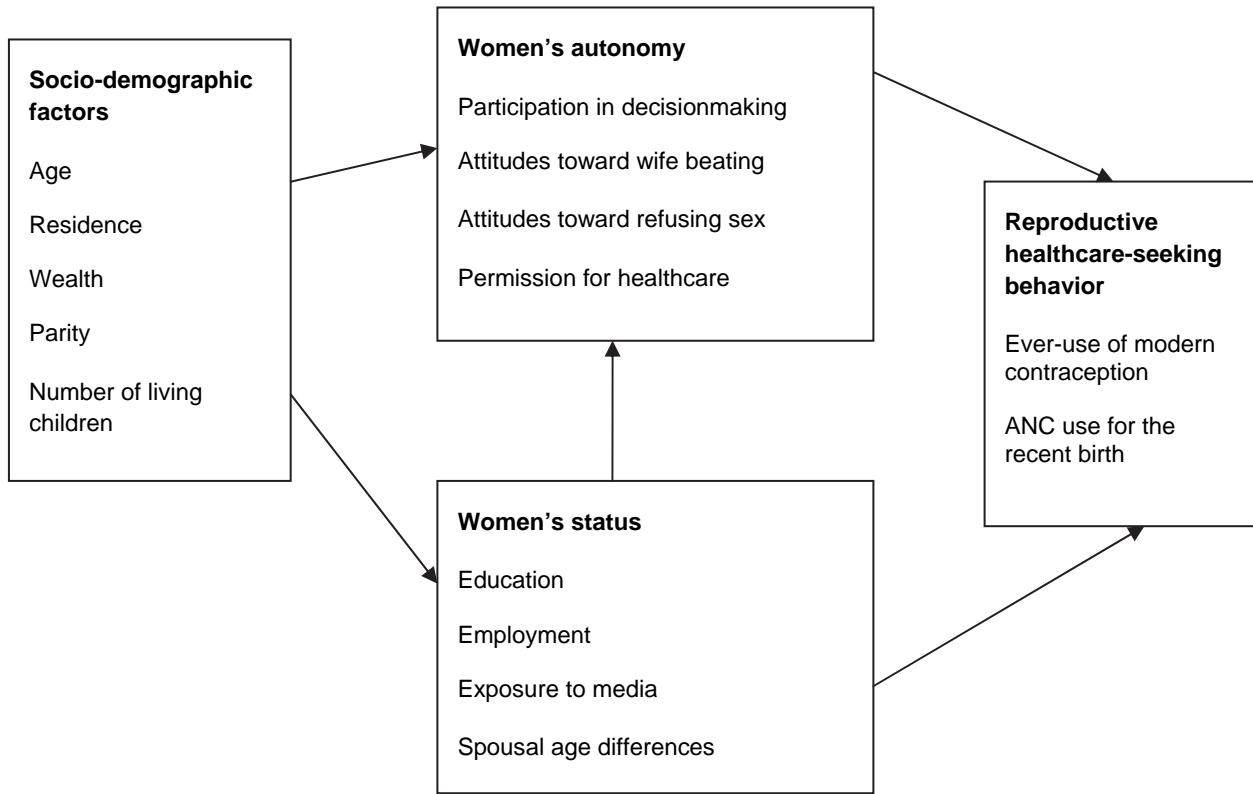
In recent years a number of studies have focused on the relationship between women's autonomy and maternal healthcare use. In Indonesia, Beegle et al. (2001) found that a woman's control over economic resources influenced both antenatal care and use of delivery care. A study from India found that women's autonomy was associated with use of prenatal and postnatal care (Balk 1994). Several studies have reported a lack of association between women's autonomy and reproductive healthcare-seeking behavior. For instance, a study from Guatemala found that women's decisionmaking power was not associated with place of childbirth or with having a postpartum checkup (Becker et al. 2006). A study from Nepal also reported that women's participation in domestic decisionmaking was not associated with use of either antenatal or delivery care (Furuta and Salway 2006). Overall, our review of the literature shows that few studies from sub-Saharan Africa have looked at the relationship between women's autonomy and their reproductive healthcare-seeking behavior. Moreover, findings of these studies are mixed and inconclusive.

CONCEPTUAL FRAMEWORK

This study seeks to examine the association between women's autonomy and reproductive healthcare-seeking behavior of women in Ethiopia. We hypothesize that women's autonomy affects their behavior independent of maternal socio-demographic characteristics. This hypothesis is based on the assumption that increased women's autonomy may increase their decisionmaking power and access to resources to enable them to seek healthcare.

Figure 1 shows the conceptual framework of the study. Variables of women's autonomy, which include participation in domestic decisionmaking, attitudes toward wife beating, attitudes toward refusing sex, and difficulty of getting permission to seek healthcare are seen as proximate determinants for the use of reproductive health services, including family planning and antenatal care. Moreover, such indicators as women's education, employment, access to media, and spousal age differences are believed to affect their health-seeking behavior. Demographic and socioeconomic factors such as age, parity, wealth, and rural-urban residence may also influence women's reproductive healthcare-seeking behavior, although not as directly as women's autonomy and status.

Figure 1. Conceptual framework of the relationship between women’s autonomy and reproductive healthcare-seeking behavior



DATA AND METHODS

Data Source

This study uses data from the 2005 Ethiopian Demographic and Health Survey (EDHS), which was conducted by the Ethiopian Central Statistical Authority (CSA) and ORC Macro International. The DHS uses a two-stage cluster sampling design in which clusters are selected at the first stage followed by households. The 2005 EDHS covered a sample of 14,500 households and 14,070 women age 15-49 in Ethiopia. It is a nationally representative household survey. The survey collected detailed information on women's background characteristics, fertility, family planning, and maternal healthcare behaviors including use of antenatal, delivery, and postnatal care. The survey also collected information from all married women on their decisionmaking autonomy and other status measures.

Variables

Dependent Variables

The main dependent variables of the study include two measures of women's reproductive healthcare-seeking behavior: ever-use of modern contraception, and use of antenatal care for the most recent birth. In the DHS, women were asked whether they have ever used contraception, with their responses coded as 1 for yes and 2 for no. Women who gave birth in the five years before the survey were also asked whether they received antenatal care for their most recent birth, how many times they received care, and where they got the service. In this case the outcome measure is any antenatal care use from a health professional, where a dichotomous measure was constructed of whether or not a woman had received any antenatal care from a health professional during her last pregnancy. The study uses a weighted sub-sample of 9,066 married women age 15-49 (for contraceptive use), and 6,772 of these married women with a live birth in the five years preceding the survey (for antenatal care). The reported sample sizes in this analysis are therefore weighted samples.

Independent Variables

In this study the key explanatory variable, women's autonomy, is measured by women's participation in household decisionmaking, attitudes toward wife beating, attitudes toward refusing sex with her husband, and whether getting permission to seek medical care is a big problem. As mentioned, researchers who study women's empowerment have used these variables to measure women's autonomy (Balk 1994, Hogan et al. 1999, Mason 1987). The DHS asks several questions on these indicators. The variable, women's participation in household decisionmaking, comes from the question "Who in your family makes decisions about (1) healthcare for yourself, (2) large household purchases, (3) household purchases for daily needs and (4) visits to family and/or relatives?"

Responses are coded as: respondent; husband/partner; respondent and husband/partner jointly; someone else; respondent and someone else jointly; decision not made/not applicable. These responses are first dichotomized to create dummy variables for each of the four decisionmaking domains. For each domain, the variable is coded as 1 if the wife had any say in that decision, and 0 if the wife had no say. Then, a composite index is constructed by grouping women into two categories: women who have any say (alone or jointly) in all four household decisions, indicating a higher level of empowerment, and women who do not have any say in one or more decisions.

There are two other indicators of empowerment: women's attitudes toward wife beating, and attitudes toward refusing sex with husband. The variable, attitudes toward wife beating, comes from the question: "Sometimes a husband is annoyed or angered by things that his wife does. In your opinion, is a husband justified in hitting or beating his wife in the following situations: (1) if she goes out without telling him; (2) if she neglects the children; (3) if she argues with him; (4) if she refuses to have sex with him; and (5) if she burns the food?"

Responses are coded as 1 for yes, and 0 for no. Then, a single composite variable, attitude toward wife beating, is constructed by grouping women into two categories: women who agree to at least one reason justifying wife beating, indicating a lower level of empowerment; and women who do not agree with any of the reasons, indicating higher levels of autonomy.

Similarly, the variable, attitudes toward refusing sex with husband, comes from the question "Husbands and wives do not always agree on everything. Please tell me if you think a

wife is justified in refusing to have sex with her husband when: (1) she knows her husband has a sexually transmitted disease; (2) she knows her husband has sex with other women; (3) she has recently given birth; (4) she is tired or not in the mood". Responses are coded as 1 for yes, and 0 for no. This variable is also combined by grouping women into two categories: women who agree to all reasons for refusing sex, indicating higher autonomy; and women who disagree to any reasons for refusing sex, indicating a lower level of autonomy.

Moreover, the DHS asks other questions that assess women's autonomy in the healthcare domain, particularly whether getting permission to go for medical treatment is a big problem or not. In this regard, the DHS asks "When you are sick and want to get medical advice or treatment, is each of the following a big problem or not?" The question is followed by several factors that might interfere with the respondent's ability to seek healthcare. Responses are dichotomized into two categories: women who report that a specific factor is not a big problem, indicating a higher level of autonomy; and women who report that the factor is a big problem, indicating a lower level of autonomy. This variable may also indicate women's freedom of movement.

Additional gender-related variables that can serve as a proxy for empowerment or women's status examined in the study include spousal age difference, women's employment, educational status, and exposure to mass media. The variable, spousal age difference, is computed from the reported age of the husband (reported by women) and the age of the women. It is then recoded into two categories based on approximately equal proportion of women in each category. The variable, exposure to media, is constructed from questions in the EDHS on whether a woman listens to radio, watches television, or reads newspapers and magazines. A dummy variable is created from these three questions measuring exposure to media, and coded as 1 if a woman has exposure to at least one of the three, and 0 if she has no exposure to any of the three. Socio-demographic variables such as age, parity, wealth, and place of residence are also included to assess the independent effects of the autonomy and women's status variables on the outcomes of interest.

Data Analysis

Data was analyzed using STATA software version 11 (STATA corporation 2009), and both bivariate and multivariate statistical analysis were applied. First, we described the characteristics of the study population and cross-tabulated our dependant variables with the explanatory variables. A chi square test was done to test the association between the dependant and independent variables. Variables were then included in the multi-variate analysis based on the association at the bivariate level. Multivariate logistic regression analysis was done to identify the independent effects of explanatory variables on the outcomes of interest. Statistical tests for significance were done at the 5% level of significance. Odds ratios and 95% confidence intervals are reported in the study. There are three models shown at the multivariate level. Model 1 contains autonomy variables only; model 2 contains autonomy and socio-demographic variables; and model 3 includes all explanatory variables. Since the DHS follows a complex survey design to collect the data, we used STATA's survey commands (SVY) to account for the design by incorporating women's sampling weights and adjusting the standard errors for the cluster sampling of primary sampling units.

Variable Definition

Variables	Definitions
Dependent variables	
Ever-use of modern contraception	Never used; Ever used
ANC use from a health professional	Not used; Used
Autonomy variables	
Participation in decisionmaking	Have any say in all four decisions; No say in all four decisions
Attitudes toward wife beating	Accepts any of the reasons of wife beating; Does not accept all reasons of wife beating
Attitudes toward refusing sex	Accepts any of the reasons for refusing sex; Does not accept all reasons for refusing sex
Permission to get healthcare	Getting permission for healthcare is not a big problem; Getting permission for healthcare is a big problem
Women's status variables	
Education	No education; Primary; Secondary and above
Employment	Not employed; Employed not for cash; Employed for cash
Exposure to media (radio, television, newspaper)	At least one source; None
Spousal age difference	<10 years old; >10 years older
Demographic variables	
Current Age	15-24; 25-34; 35+
Residence	Urban; Rural
Wealth	Poor; Middle; Rich
Parity	1; 2-3; 4-5; 6+
Number of living children	0; 1-2; 3-4; 5+

HEALTHCARE-SEEKING BEHAVIOR

Background Characteristics and Reproductive Healthcare-Seeking Behavior

Table 1 presents the characteristics of married women age 15-49 in Ethiopia. One-fourth of the women (25%) are age 15-24, 40% are age 25-34, and the remaining 35% are over age 35. Seventy-eight percent of women have no formal education. Nine women in every ten (90%) reside in rural areas. Nearly two-thirds of the women (61%) have no access to media, and 75% were not employed at the time of the survey.

Table 1. Percent distribution of women by selected socio-demographic characteristics, Ethiopia 2005

Socio-demographic variables	Number	Percent
Age		
15-24	2,284	25.2
25-34	3,617	39.9
35+	3,165	34.9
Educational status		
No education	7,094	78.2
Primary	1,402	15.5
Secondary and above	570	6.3
Residence		
Rural	8,107	89.4
Urban	959	10.6
Wealth index		
Poor	3,651	40.3
Middle	1,903	21.0
Rich	3,512	38.7
Exposure to media		
None	5,514	60.8
At least one source	3,552	39.2
Employment		
Not employed	6,822	75.3
Employed not for cash	1,564	17.3
Employed for cash	680	7.5
Total	9,066	100.0

Table 2 shows women's ever-use of modern contraception according to selected socio-demographic characteristics. Less than one-quarter of women (23%) have ever used modern contraception. Ever-use of modern contraception does not vary by age, but does vary by education. Women with a secondary and above level of education are most likely to use modern contraception (75%). The proportion of women who have ever-used contraception is much higher in urban areas than rural areas (89% versus 11%). Moreover, ever-use of modern contraception is highest among women in the wealthiest households (38%), women with exposure to media (36%), and women employed for cash (47%). Across regions of the country, ever-use of contraception is highest in Addis Ababa (75%) and lowest in Somali region (4%) (see Figure 2).

Table 2. Percent distribution of currently married women by ever-use of modern contraception, according to selected socio-demographic characteristics, Ethiopia 2005

Socio-demographic variables	Ever used modern contraception	Number of women
Age		
15-24	21.6	2,284
25-34	25.5	3,617
35+	21.8	3,165
Educational status		
No education	16.7	7,094
Primary	35.3	1,402
Secondary and above	75.2	570
Residence		
Rural	18.1	8,107
Urban	66.8	959
Wealth index		
Poor	10.3	3,651
Middle	20.1	1,903
Rich	38.4	3,512
Exposure to media		
None	14.8	5,514
At least one source	36.4	3,552
Employment		
Not employed	20.8	6,822
Employed not for cash	23.7	1,564
Employed for cash	46.5	680
Total	23.2	9,066

Figure 2. Ever-use of modern contraception, by region, Ethiopia 2005

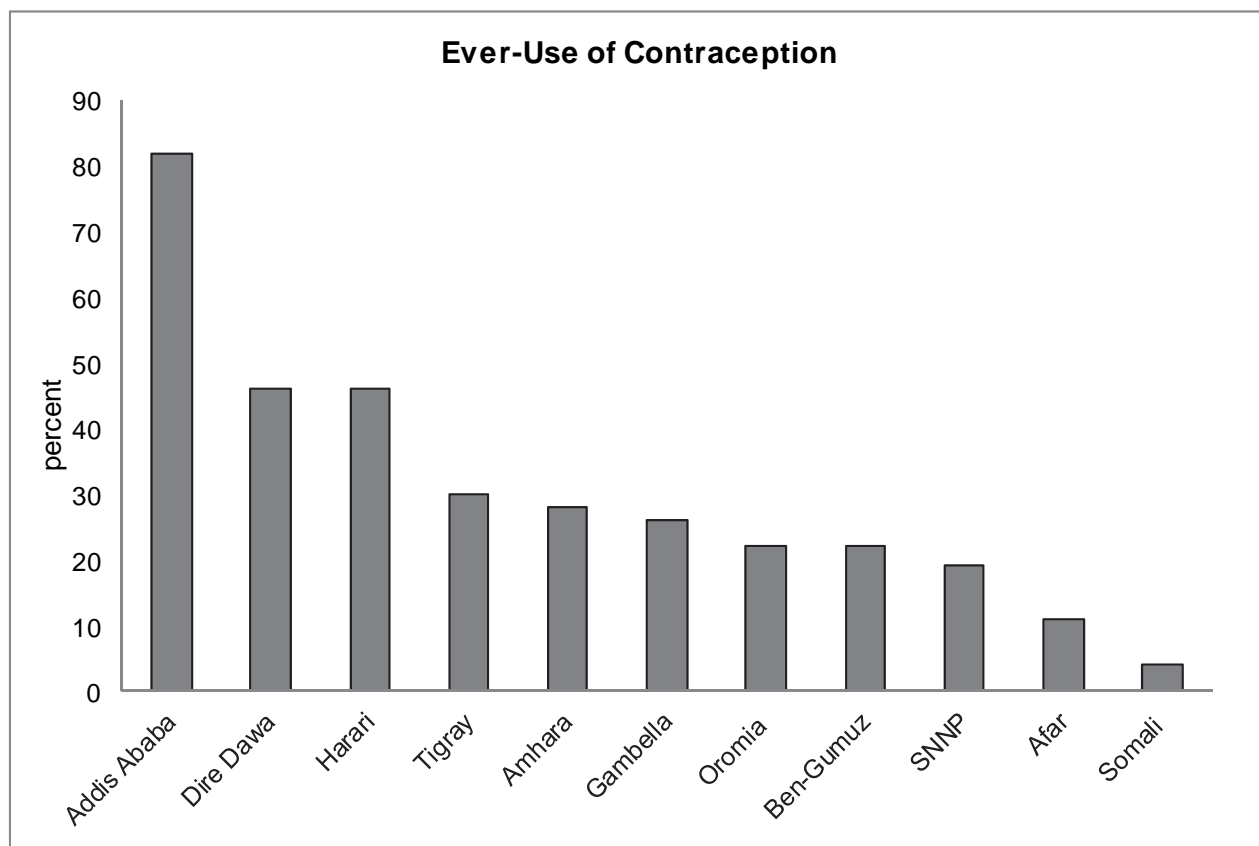


Table 3 shows women’s use of antenatal care (ANC) from a health professional for their most recent birth, according to selected socio-demographic variables. Twenty-seven percent of women received antenatal care from a health professional for their most recent birth during the five years before the survey. There are few differences in ANC use by mother’s age at birth. ANC use differs by education: mothers with secondary and above education are much more likely to use ANC (81%) than women with no education (22%) and women with primary education (40%).

ANC use differs substantially between urban and rural areas. Seventy-two percent of urban women received ANC services from a health professional compared with 24% of rural women. ANC use also varies by wealth. Women in the richest wealth quintile are more likely to receive ANC than women in the poorest households (59% versus 13%). Women with exposure

to media and women employed for cash are more likely to use ANC services compared with women with no media exposure and women who do not work for cash.

Figure 3 shows remarkable regional variation in ANC use. Women living in dominantly urban regions receive ANC from health professional more often than women in dominantly rural regions, from 93% in Addis Ababa to just 7% in Somali region.

Table 3. Percent distribution of currently married women with a live birth in the five years preceding the survey by use of antenatal care (ANC) from a health professional, according to background characteristics, Ethiopia 2005

Background characteristics	ANC by health professional	Number of women
Age at birth		
<20	25.9	735
20-34	29.2	4,614
35+	22.5	1,423
Educational status		
No education	21.5	5,338
Primary	40.1	1,099
Secondary and above	80.6	335
Residence		
Rural	23.7	6,242
Urban	71.6	530
Wealth index		
Poor	15.5	2,842
Middle	24.3	1,489
Rich	43.2	2,441
Exposure to media		
None	20.1	4,253
At least one source	39.7	2,519
Employment		
Not employed	25.9	5,176
Employed not for cash	24.8	1,154
Employed for cash	51.4	442
Total	27.4	6,772

It is also important to examine whether women receive sufficient antenatal care—a minimum of four antenatal visits according to the WHO recommendation—and start antenatal care early in pregnancy. Table 4 shows that only 12% of women in the 2005 EDHS made four or more ANC visits to a health facility for their most recent birth, while 72% of women made no ANC visits at all, and 16% made from one to three visits. Most women who received any ANC did not start early in their pregnancy. Only 22% of ANC users made their first ANC visit before four months in their pregnancy.

Figure 3. Antenatal care use from a health professional, by region, Ethiopia 2005

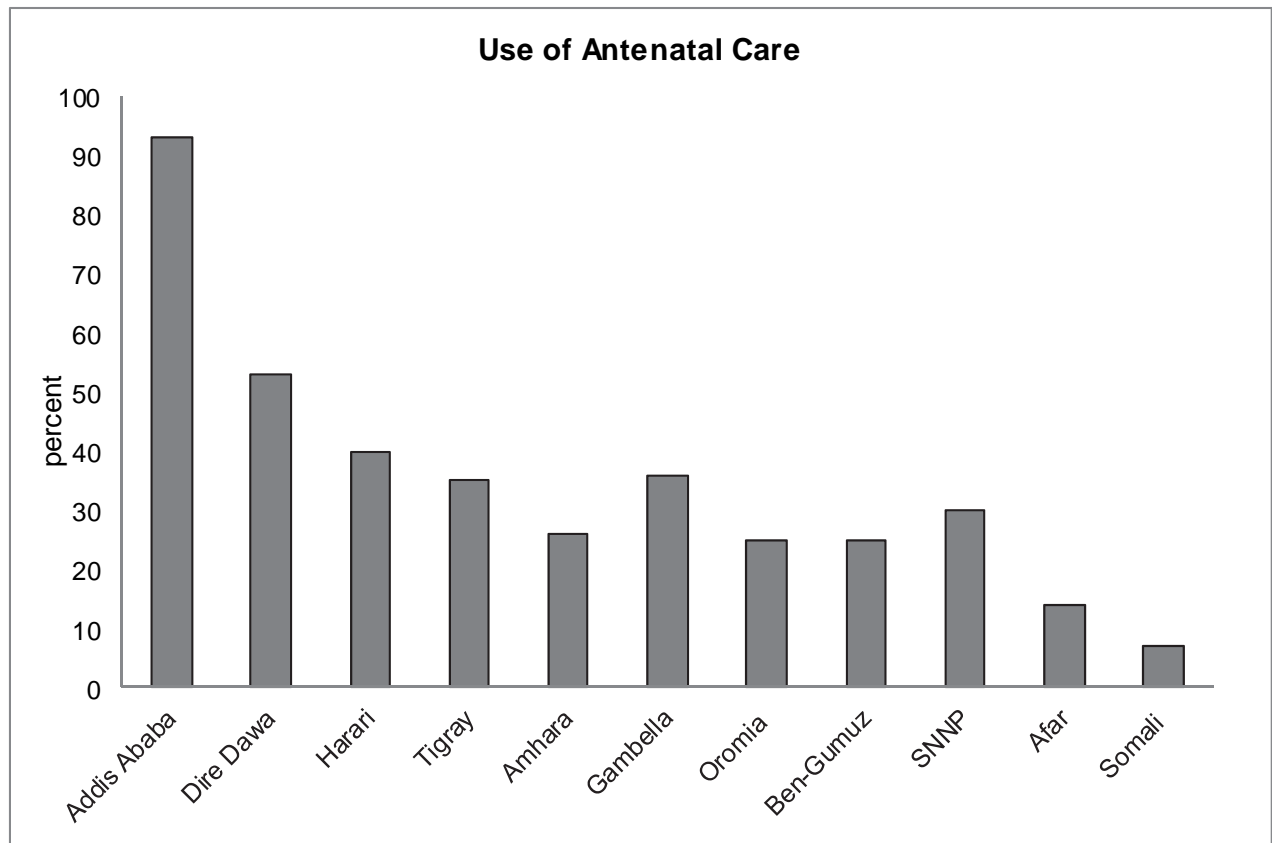


Table 4. Percent distribution of married women who had a live birth in the five years preceding the survey by number of antenatal care visits for the most recent birth, and by timing of the first ANC visit, Ethiopia 2005

Number and timing of ANC visits	Number	Percent
Number of ANC visits		
None	4,682	71.8
1-3 visits	1,081	16.0
4+	800	11.8
Don't know/missing	30	0.4
Total	6,772	100.0
Timing of first ANC visit**		
<4 months	414	21.6
4-6 months	1,006	52.6
7-9 months	460	24.1
Don't know/missing	32	1.7
Total	1,911	100.0

** - timing of ANC visit is computed only for ANC users

Women's Autonomy and Reproductive Healthcare Use

Table 5 shows the distribution of women across the indices of autonomy. About 44% of women participate in domestic decisionmaking. The proportion varies with women's socio-demographic characteristics such as education, place of residence, wealth index, employment, and exposure to media. Women with a secondary and higher education, women living in urban areas, women from the richest households, women employed for cash, and women with exposure to media are more likely than others to participate in household decisionmaking.

Overall, only 15% of women disagree with all reasons justifying wife beating, indicating a high overall acceptance of unequal gender roles. However, higher than average proportions of women with secondary and above education, urban women, women in the richest wealth quintile, women employed for cash, and women with exposure to media disagree with all reasons for wife beating.

Overall, 60% of women agree with all reasons for refusing sex, and an even higher proportion (64%) say that getting permission to seek medical care is not a big problem. Again, women with higher education, urban women, the richest women, women with exposure to media, and women employed for cash are more likely than others to agree with reasons of refusing sex, and to say that getting permission to seek medical care is not a big problem.

Table 5. Percentage of currently married women by affirmative answers to each of the Autonomy Indices, according to selected socio- demographic characteristics, Ethiopia 2005

Socio-demographic variables	Participation in decisionmaking	Disagrees with all reasons for wife beating	Agrees with all reasons for refusing sex	Getting permission is not a big problem	Number of women
Age					
15-24	40.1	14.7	62.3	64.3	2,284
25-34	42.6	15.5	59.2	64.1	3,617
35+	47.1	15.0	59.8	63.5	3,165
	P<0.001	P >0.05	P >0.05	P >0.05	
Educational status					
No education	41.1	12.5	57.4	61.6	7,094
Primary	43.7	15.8	67.2	66.6	1,402
Secondary and above	73.7	46.8	77.1	86.6	570
	P<0.001	P<0.001	P<0.001	P<0.001	
Residence					
Rural	41.0	12.7	58.6	61.5	8,107
Urban	64.8	35.5	73.8	84.3	959
	P<0.001	P<0.001	P<0.001	P<0.001	
Wealth index					
Poor	37.1	11.7	55.0	61.9	3,651
Middle	41.1	12.8	59.3	60.1	1,903
Rich	51.6	19.9	66.1	68.1	3,512
	P<0.001	P<0.001	P<0.001	P<0.001	
Exposure to media					
None	39.1	11.8	57.1	61.5	5,514
At least one source	50.4	20.4	65.0	67.7	3,552
	P<0.001	P<0.001	P<0.001	P<0.001	
Employment					
Not employed	39.5	12.9	58.5	64.2	6,822
Employed not for cash	53.8	18.5	64.8	56.2	1,564
Employed for cash	61.0	29.5	65.7	78.7	680
	P<0.001	P<0.001	P<.05	P<0.001	
Total	43.5	15.1	60.2	63.9	9,066

Women’s use of reproductive health services varies significantly with their participation in decisionmaking, attitudes toward wife beating, attitudes toward refusing sex with husband, and ease of getting permission to seek medical care. Table 6 shows women’s use of reproductive health services according to indicators of women’s autonomy. Levels of ever-use of modern contraception and use of antenatal care services for their most recent birth are higher among women who participate in domestic decisionmaking compared with women who do not participate in household decisions. Use of ANC services is also higher among women who disapprove of wife beating and who agree with the reasons for refusing sex with husband. Similarly, levels of contraceptive use and antenatal care are higher among women who report that getting permission to seek medical care is not a big problem (Table 6).

Table 6. Percentage of currently married women by use of reproductive health services, according to indicators of women’s Autonomy, Ethiopia 2005

Autonomy variables	Ever-use of contraception N=9,066	P-value	ANC use from a health professional N=6,773	P-value
Participation in decisionmaking				
No	18.3	P<0.001	23.7	P<.001
Yes	29.7		32.6	
Attitudes toward wife beating				
Accepts any of the reasons	21.4	P<0.01	25.7	P<0.001
Doesn’t accept all reasons	33.6		37.5	
Attitudes toward refusing sex with husband				
Accepts any of the reasons	30.4	P<0.001	26.5	P<0.001
Doesn’t accept all reasons	22.9		18.3	
Permission to go for medical care				
Big problem	17.1	P<0.001	20.7	P<0.001
Not a big problem	26.7		31.4	
Total	56.7		43.3	

Multivariate Analysis

Table 7 shows results of the logistic regression analysis of women's ever-use of modern contraception. In model I, which contains only the autonomy variables, all four variables—women's participation in decisionmaking, disapproving wife beating, approving the right to refuse sex with husband, and ease of permission to get medical help—are significantly associated with ever-use of modern contraception. The odds of ever using modern contraception are higher for women who participate in household decisionmaking, who disapprove wife beating, who agree with the reasons for refusing sex with husband, and who say permission to seek medical care is not a big problem, compared with the odds of ever-use among women who do not participate in decisionmaking, who accept wife beating, who disapprove refusing sex with husband, and who say permission is a big problem.

Table 7. Odds ratios from logistic regressions showing factors associated with ever-use of modern contraception among married women, Ethiopia 2005 (n=9,066)

Variables	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95%CI)
Autonomy variables			
Participation in decisionmaking	1.75 (1.58- 1.94)**	1.41 (1.19- 1.65)**	1.32 (1.12- 1.56)**
Wife beating not acceptable	1.96 (1.74- 2.20)**	1.16 (0.95- 1.43)	1.02 (0.83- 1.28)
Right to refuse sex for any reason	1.84 (1.65- 2.05)**	1.30 (1.09- 1.55)**	1.25 (1.05- 1.48)**
Getting permission is not a big problem	1.98 (1.75- 2.23)**	1.38 (1.13- 1.67)**	1.41 (1.16- 1.73)**
Women's-status variables			
Exposure to media			1.57 (1.32- 1.86)**
Education (ref= no education)			
<i>Primary education</i>			1.86 (1.49- 2.31)**
<i>Secondary and above education</i>			6.42 (4.85- 8.48)**
Employment (ref= not employed)			
<i>Employed not for cash</i>			1.26 (0.96- 1.64)
<i>Employed for cash</i>			1.71 (1.30- 2.23)**
Spousal age difference of >10 years			0.87 (0.73- 1.04)
Socio-demographic variables			
Age (ref=15-24 years)			
<i>Age 25-34 years</i>		0.89 (0.73- 1.10)	0.91 (0.74- 1.14)
<i>Age above 35 years</i>		0.57 (0.44- 0.73)**	0.71 (0.54- 0.94)
Urban residence		5.20 (4.17- 6.50)**	3.01 (2.38- 3.79)**
Wealth (ref= poor)			
<i>Middle</i>		2.17 (1.74- 2.70)**	1.97 (1.57- 2.46)**
<i>Rich</i>		3.26 (2.65- 3.99)**	2.45 (2.00- 3.01)**
Number of living children (ref= none)			
1-2 living children		1.99 (1.32- 3.01)**	2.27 (1.64- 3.15)**
3-4 living children		2.36 (1.65- 3.36)**	2.84 (1.97- 4.08)**
5+ living children		3.15 (2.13- 4.67)**	4.01 (2.67- 6.01)**

* -significant at p< 0.05; ** -significant at p< 0.01

Three of these four autonomy variables remain significant in the multivariate model (model III) containing socio-demographic controls (age, wealth, place of residence, and number of living children) and women's-status variables (education, exposure to media, employment, and spousal age differences). One variable, attitude toward wife beating, is not significant in the full model controlled for other socio-demographic variables. Other variables indicating women's status, such as education, exposure to media, and employment, are stronger predictors of modern contraceptive use at the multivariate level. The odds of ever using modern contraception are higher for women with secondary and above education, for women employed for cash, and for women with exposure to media.

Also, the socio-demographic variables urban residence, wealth, and number of living children are associated with ever-use of modern contraception. The odds of ever using modern contraception are higher for urban women than for rural women, and for women from wealthy households compared with women from poor households. Similarly, the odds of ever using modern contraception increase as the number of living children increases (see Table 7).

Table 8 shows results of the logistic regression analysis of women's use of antenatal care from a health professional for their most recent birth in the five years before the survey. In model I, which contains only the four autonomy-related variables, all four are significantly associated with use of antenatal care from a health professional. Two of these variables, attitudes toward refusing sex with husband and ease of permission to seek medical help, are significant after controlling for the effects of socio-demographic factors (age, residence, parity, and wealth) and women's-status variables (education, employment, exposure to media, and spousal age difference). The odds of receiving antenatal care from a health professional are 34% higher for women who say that permission to go for medical care is not a big problem compared with women who say that getting permission is a big problem. Women who approve all reasons for refusing sex with husband are more likely to use ANC from a health professional compared with women who disapprove refusing sex with husband.

In the full model, other indicators of women's status, such as education, exposure to media, and employment appear as important predictors of antenatal care use. The odds of receiving ANC from a health professional are higher for women with secondary and above education, for women employed for cash income, and for women with exposure to media

compared with women with no formal education, women not employed for cash, and women with no exposure to media. Among socio-demographic variables, wealth and place of residence are associated with use of antenatal care from a health professional during the most recent birth. Urban women are more likely than rural women to receive antenatal care. The odds of using antenatal care increase as wealth increases. We also considered the effect of distance from a health facility, a proximate determinant of maternal healthcare use, and found that women who report that distance to a health facility is not a big problem are nearly 57% more likely to use antenatal care than women who report that distance is a problem (Table 8).

Table 8. Odds ratios from logistic regressions predicting factors associated with antenatal care use among married women with a birth in last five years, Ethiopia 2005 (n= 6,772)

Variables	Model I OR (95% CI)	Model II OR (95% CI)	Model III OR (95%CI)
Autonomy variables			
Participation in decisionmaking	1.38 (1.16- 1.64)**	1.17 (0.97- 1.39)	1.11 (0.93- 1.33)
Wife beating not acceptable	1.61 (1.30- 1.99)**	1.30 (1.02- 1.65)*	1.17 (0.91- 1.50)
Right to refuse sex for any reason	1.41 (1.19- 1.67)**	1.24 (1.05- 1.47)*	1.20 (1.01- 1.42)*
Getting permission is not a big problem	1.66 (1.37- 2.08)**	1.38 (1.12- 1.70)**	1.34 (1.09- 1.64)**
Women's-status variables			
Exposure to media			1.28 (1.03-1.60)**
Education (ref= no education)			
<i>Primary education</i>			1.66 (1.28- 2.16)**
<i>Secondary and above education</i>			3.77 (2.28- 6.22)**
Employment (ref= not employed)			
<i>Employed not for cash</i>			1.00 (0.74- 1.34)
<i>Employed for cash</i>			1.63 (1.20- 2.22)**
Spousal age difference of >10 years			0.91 (0.74- 1.12)
Socio-demographic variables			
Wealth (ref= poorest)			
<i>Middle</i>		1.68 (1.32- 2.14)**	1.72 (1.21- 2.43)**
<i>Rich</i>		2.82 (2.22- 3.59)**	2.26 (1.60- 3.20)**
Age at birth (ref=< 20 years)			
<i>20-34 years</i>		1.12 (0.83- 1.49)	0.80 (0.45- 1.44)
<i>>35 years</i>		0.82 (0.57- 1.15)	0.60 (0.26- 1.38)
Urban residence (ref= rural)		5.32 (2.59- 10.9)**	2.76 (1.23- 6.23)**
Distance from facility not a big problem		1.62 (1.32- 1.99)**	1.57 (1.28- 1.93)**

* -significant at p< 0.05; ** - significant at p< 0.01

DISCUSSION

In this study we assessed the effects of women's autonomy on the reproductive healthcare-seeking behavior of women in Ethiopia. Two measures of women's reproductive health seeking behavior were considered: ever-use of modern contraception and antenatal care use for the most recent birth. We measured women's autonomy by women's participation in domestic decisionmaking, attitudes toward wife beating, attitudes toward refusing sex with husband, and whether seeking permission to get medical help is a big problem. Our analysis found that in Ethiopia both the level of women's autonomy as measured by these indicators and use of reproductive healthcare are very low.

Findings of this study reveal diverse relationships between the outcomes of interest and women's autonomy. First, in the model containing autonomy variables only, there is a statistically significant association between women's autonomy variables and ever-use of modern contraception, as well as antenatal care use. After adjusting for socio-demographic variables, three of the four autonomy variables (participation in decisionmaking, refusing sex with husband, and the ease of getting permission) are significantly associated with ever-use of modern contraception. This finding is consistent with findings of several previous studies that reported strong association between women's autonomy, particularly women's participation in decisionmaking, and contraceptive use (Beegle et al. 2001, Mason 1987, Upadhyay and Hindin 2005, Woldemicael 2009).

The association between women's participation in decisionmaking and antenatal care weakens once socio-demographic variables are controlled for in the model. This relationship is likely mediated by other factors, such as women's level of education, which is associated with both women's participation in decisionmaking and ANC use. The variables concerning decisionmaking and attitudes toward wife beating are not significant for antenatal care use, even after recoding them as continuous variables. But permission to seek medical care is significantly associated with both ever-use of modern contraception and antenatal care use, even after adjusting for socio-demographic factors. This finding may reflect the fact that women's freedom of movement is important to use of reproductive healthcare services. Several other studies have found that freedom of movement is an important predictor for women's reproductive healthcare-seeking behavior (Bloom et al. 2001, Dharmalingam and Morgan 1996).

Our findings indicate that direct measures of women's autonomy, such as participation in decisionmaking, are important determinants of women's reproductive healthcare-seeking behavior. Moreover, conventional measures of women's status—women's education, employment for cash, and exposure to media—remain important factors associated with reproductive healthcare use. Women's level of education shows a particularly strong association with both ever-use of modern contraception and antenatal care. This finding confirms findings of other studies in developing countries (Furuta and Salway 2006, Mistry et al. 2009). Our findings also show that women's employment for cash income has a strong association with their reproductive health-seeking behavior. Women who are employed for earnings may be exposed to information, knowledge, and new attitudes about modern healthcare at their workplaces or through the media. This relationship between employment for cash and use of healthcare indicates that interventions aimed at improving women's employment opportunities may also generate healthcare benefits. Increasing women's exposure to the media is also important to provide information related to healthy behavior and healthcare services.

The fact that women in urban areas are much more likely than rural women to receive reproductive healthcare services shows that health service provision in Ethiopia still has an urban bias, even though 86% of the population lives in rural areas. Health and education infrastructures are highly concentrated in urban areas. In this regard, the recent initiative by the Ethiopian government to reach the rural population through the Health Extension Program needs to be strengthened, to bridge the huge gap between rural and urban areas. Moreover, the finding of a strong association between women's perception that distance to a health care facility is a problem and their use of antenatal care suggests that access to health services remains a major barrier in delivery of maternal health services in Ethiopia.

CONCLUSION

The findings highlight the need for initiatives to improve women's position in Ethiopia, both to attain gender equality and to promote women's reproductive health. Improving women's education and employment status can play a dual role in enhancing both women's autonomy and healthcare-seeking behavior. Disparities in the use of reproductive healthcare services by rural-urban residence, region of the country, and wealth status should also be addressed by increasing access to basic health services among the rural and poor sections of the society. We also recommend additional research using stronger design and a qualitative study to assess the effects of women's autonomy on reproductive healthcare-seeking behavior, recognizing that the data in our study is from a cross-sectional survey and thus can establish associations but cannot establish causality.

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