Journal of Biosocial Science (2023), 55: 3, 438–448
doi:10.1017/S0021932022000219

CAMBRIDGE UNIVERSITY PRESS

RESEARCH ARTICLE

Exploring the Relationship between Household Structure and Utilisation of Maternal Health Care Services in India

Manas Ranjan Pradhan[1]* and Sourav Mondal[2]

[1]Assistant Professor, Department of Fertility and Social Demography, International Institute for Population Sciences (IIPS), Mumbai, India and [2]Research Scholar, International Institute for Population Sciences (IIPS), Mumbai, India
***Corresponding author.** Email: manasiips@gmail.com

(Received 9 December 2021; revised 27 April 2022; accepted 27 April 2022; first published online 16 May 2022)

Abstract

The role of household structure, especially the mother-in-law (MIL) influencing daughter-in-law's maternal health care (MHC) seeking behaviour, has been a continuing debate due to the former's advantageous position in the household. This study assesses the association of household structure and particularly the presence of MIL with MHC utilisation in India using the National Family Health Survey-4 data (2015-16). The sample of women aged 15-49 years who have given birth during the last five years preceding the survey (n=184,641) was considered for analysis. The outcome variables were full-antenatal care, institutional delivery, and postnatal care. Binary logistic regression was used to check the adjusted effects of the household structure on MHC utilisation. The analyses were done with STATA (version 13) with a significance level of 5%. Adjusting the effects of socio-demographic and economic characteristics, women from non-nuclear households with MIL had higher odds of full-antenatal care (OR= 1.04, CI= 0.99-1.08) and institutional delivery (OR=1.05, CI=1.01- 1.10) than their counterparts from nuclear households. Women from non-nuclear households without MIL had lower chances of postnatal care (OR=0.98, CI=0.96-1.00) than those from nuclear households. The study unearths a very weak association between the presence of MIL in the household and MHC services utilisation of the daughter-in-law, a notable change from the earlier literature often portraying MIL as a barrier.

Keywords: Household Structure; Maternal Health Care; India

Introduction

Family as a social institution play a key role in human life, and family relationships remain the most intense and enduring of all interpersonal and social bonds. Family structure is cyclical and dynamic like from an extended family, after the marriage of a child, a nuclear family is formed and then after the wedding of their children, the extended family again appears (Goode, 1964). Though contemporary families have new and varied structures, the family members have respective roles in their inter-personal relationships governed by social norms (Ratra *et al.*, 2006). The family/household structure often shapes individual behaviour and health to a great extent. Social relationships, found in close families, decrease the chances of the onset of chronic disease, disability, mental illness, and death (George and Durham, 2016). In the absence of people showing concern for their well-being, people living only with a spouse or in a nuclear family had higher physical and mental ill-health probabilities than their extended family counterparts (Turagabeci *et al.*, 2007).

Maternal health care (MHC) services utilisation has been a subject of continuing scientific interest in India due to its implication for maternal and child morbidity and mortality. The

MHC is deemed to be influenced by many household level factors. Evidence suggests that the health outcomes of young married Indian women from nuclear households are not better than their counterparts from patrilocal extended families (Allendorf, 2013). Moreover, irrespective of the type of family, the quality of women's relationships with husbands and in-laws influenced the use of MHC services in Madhya Pradesh, central India (Allendorf, 2010). The presence/absence of in-laws in the household again contributes to the health care utilisation of women in general and MHC in particular (Simkhada, Porter and van Teijlingen, 2010). The role of mother-in-law (MIL) influencing daughter-in-laws' health-seeking behaviour has also been an enduring debate due to the former's advantageous position in the household. Literature often portrays the MIL as an experienced woman with dominance in MHC decision-making (Allendorf, 2010; Allendorf, 2013; Kumar, Bordone and Muttarak, 2016; Raju and Ann, 2000; Saikia and Singh, 2009). The MIL's desired number of children is positively associated with women's preferred family size, though often intermediated by the women's education in Bihar, eastern India (Kumar, Bordone and Muttarak, 2016). The MIL is further found to impact maternal health by restricting the autonomy of the daughter-in-law, especially in patriarchal set-ups (Anukriti *et al.*, 2020; Bloom, Wypij and Das Gupta, 2001).

Family power dynamics, including the existing gender inequities, have reduced women's ability to seek health care for sexual and reproductive health concerns (Regmi, Smart and Kottler, 2010), thus putting them at risk of adverse health outcomes. A study in north India found that women with greater freedom of movement have a higher likelihood of utilising antenatal care services and safe delivery care (Bloom, Wypij and Das Gupta, 2001). However, Besides vast regional differences (Kolenda, 1987), the family structure is rapidly transitioning in India (Kapadia, 1986). The percentage of young married women residing in nuclear households has increased during 1992-2016, although most continue to live in non-nuclear households (International Institute for Population Sciences - IIPS/India and ICF, 2017). Several socio-economic factors such as educational, occupational, legal and demographic factors such as population growth, migration and urbanisation have been affecting the family structure in India. Additionally, regulation of sexual behaviour and reproduction, which was often considered a primary function of the family, continues to decline. Enhanced women's status, usually due to modern education and economic independence, a decline in the patriarchal mindset, increased age at marriage, and a host of supply-side avenues, have favoured young women's increased healthcare utilisation. The factors above are also perceived to reduce the influential role of in-laws, specifically, MIL in daughter-in-law's health-seeking. Thus, it is imperative to do an in-depth analysis to assess the association of household structure and, more specifically, the presence of MIL with MHC utilisation using recent representative data in India. Family and household have theoretical difference but has been used interchangeably in the present study.

Methods

Data

The study used data from the fourth round of the National Family Health Survey (NFHS), 2015-16. The NFHS-4 is a nationally representative survey of 601,509 households that provides information for various monitoring and impact evaluation health and nutrition indicators. The survey's sampling design was a stratified two-stage sample with an overall response rate of 98 per cent. The Primary Sampling Unit (PSUs), i.e., the survey villages in rural areas and Census Enumeration Blocks (CEBs) in urban areas, were selected using probability proportional to size (PPS) sampling. Trained research investigators gathered the data using computer-assisted personal interviewing (CAPI). Only those respondents who gave voluntary consent were interviewed in the survey. The survey was approved by the Institutional Review Board of the involved Institutes, and the datasets are available at https://www.dhsprogram.com for broader use in social

https://doi.org/10.1017/S0021932022000219 Published online by Cambridge University Press

research. For the present analysis, the sample of women aged 15-49 years who have given birth during the last five years preceding the survey (n=184,641) was considered.

Outcome variables

The outcome variables used in this study were full-antenatal care (ANC), institutional delivery, and postnatal care (PNC). Full-ANC was constructed with the standard form provided in NFHS-4, i.e., four or more ANC visits, at least one tetanus toxoid (TT) injection, and consumption of iron-folic acid (IFA) tablets/syrup for a minimum of 100 days. Full-ANC was categorised as "yes" for those who received it and "no" for those who did not. Women who had delivered their last child in any health institution (i.e., public or private or NGO) were considered institutional delivery. Women who had a postnatal check-up within 24 hours of their delivery (for institutional delivery) or within 12 hours of their delivery (for home delivery) were considered as received PNC.

Predictor variables

The primary predictor variable used in the analysis was household structure. The household structure was categorised into three groups (1) *Nuclear household*: defined as households comprised of a married couple or a man or a woman living alone or with unmarried children with or without unrelated individuals; (2) *Non-nuclear household without MIL*: defined as household comprised of the married couple and other family members except MIL; (3) *Non-nuclear household with MIL*: defined as household comprised of a married couple and other family members including MIL.

To assess the adjusted effect of household structure on MHC utilisation, selected socio-economic and demographic characteristics of the women such as current age (15-19, 20-24, 25-29, 30-34, 35-39, 40-49), years of schooling (no education, less than ten years of schooling, more than ten years of schooling), parity (1^{st}, 2^{nd}, 3^{rd}, 4^{th} and more), mass-media exposure (yes, no), wealth quintile (poorest, poorer, middle, richer, richest), religion (Hindu, Muslim, Others), social group (Scheduled caste-SC, Scheduled tribe- ST, Other Backward Classes-OBC, Non-SC/ST/OBC), place of residence (rural, urban), and geographical region (north, central, east, northeast, west, south) were included in the analysis. Additionally, the number of ANC visits (no visit, less than four times and four and more times) was used as a predictor variable for institutional delivery and PNC. Place of delivery (health institutions, others) was included as the predictor variable only for PNC. Women with any exposure to television/radio/newspapers were considered to have mass media exposure. The wealth quintile is a measure of a household's living standard and was calculated using data on the household's ownership of selected assets, materials used for housing construction, and types of water access and sanitation facilities. These included socio-economic and demographic variables are well-established factors of MHC utilization (Alemayehu *et al.*, 2020; Barman *et al.*, 2020; Pandey and Karki, 2014; Shahabuddin *et al.*, 2017).

Statistical analysis

Bivariate analysis was conducted to understand the individual association between the predictors and outcome variables. Then Chi-square test was performed to test the significance of the relationship between the variables included in the analysis. Binary logistic regression was used to check the adjusted effects of the predictor variables on MHC utilisation. The regression model's outcome variables were categorised into binary, i.e.,1= yes, 0= no. The list of variables included for regression analysis was finalised after checking multicollinearity among the predictor variables. The VIF (Variable Inflation Factors) test was done to check multicollinearity. All the predictor variables included in the model had a VIF score below two, ruling out multicollinearity. In all the analyses, weights were used to restore the representativeness of the sample. The analyses were done through STATA (version 13) with a significance level of 5%.

https://doi.org/10.1017/S0021932022000219 Published online by Cambridge University Press

Results

MHC utilisation by household structure and socio-demographic factors

Table 1 presents the utilisation of full-ANC, institutional delivery, and PNC among women aged 15-49 by household structure and socio-demographic factors. Of the women, 21% had full-ANC, 79% had institutional delivery, and 60% had PNC. A lower percentage of the women living in nuclear households utilised full-ANC services than those from non-nuclear households. For example-19% of women living in the nuclear household had full-ANC compared with 23% of those from non-nuclear households with MIL and 22% of those from non-nuclear households without MIL. Seventy-four per cent of the women from nuclear households had institutional delivery compared with more than 80% of women from non-nuclear households. Fifty-seven per cent of the women from nuclear households had PNC than 62% of their counterparts from non-nuclear households.

A relatively higher percentage of younger women availed full-ANC, institutional delivery, and PNC than older women. Women with ten or more years of schooling received full-ANC more than four times (34%) than women with no education (8%). For institutional delivery, the corresponding figures were 94% and 62%, respectively, and for PNC, 71% and 47%. The utilisation of the MHC services declined with increasing parity of the women. Of the women with 4+ ANC visits, 91% had institutional delivery, and 71% availed PNC against 57% and 31% of those without ANC visits. Seventy per cent of the women with institutional delivery availed PNC than 17% among women with non-institutional deliveries. The utilisation of MHC services was found much higher among women exposed to mass media, from Non-SC/ST/OBC category, was Non-Hindu/Muslim, and from the urban area than their respective counterparts. MHC utilisation further increased with the economic status of the women.

Determinants of MHC Utilisation

Table 2 presents the result of logistic regression of factors affecting MHC utilisation. Adjusting the effects of socio-demographic and economic characteristics, women from non-nuclear households with MIL had significantly higher odds of full-ANC (OR = 1.04, CI = 0.99-1.08) and institutional delivery (OR= 1.05, CI=1.01- 1.10) than their counterparts from nuclear households. Women from non-nuclear households without MIL had lower chances of PNC (OR =0.98, CI=0.96-1.00) than women from nuclear households. The likelihood of MHC utilisation increased with the increasing age of the women and decreased with higher parity of the women. Compared to women with no education, women with 10+ years of education had a 72% (OR = 1.72, CI = 1.65-1.80) more chance of having full-ANC and 87% (OR = 1.87, CI = 1.79-1.96) more likelihood of institutional delivery. The women with four or more ANC visits had more than four times (OR = 4.09, CI = 3.95-4.24) higher chance to have an institutional delivery and more than three times (OR = 3.51, CI = 3.40-3.63) higher chance to have PNC as against the women without any ANC visit. The women who delivered in a health institution had ten times (OR = 9.93, CI = 9.63-10.25) higher odds of utilising PNC against women with non-institutional delivery. The women with mass-media exposure had respectively 64%, 15%, and 14% more chance to have a full-ANC, institutional delivery, and PNC as against women without any mass-media exposure. Compared to SC women, ST and Non-SC/ST/OBC had higher odds of full-ANC; OBC women had higher chances of institutional delivery; ST, OBC and Non-SC/ST/OBC had lower odds of PNC. Compared with Hindus, Muslims and Non-Hindu/Muslims had a lower probability of full-ANC and institutional delivery but a higher probability of PNC. Compared to poorest women, richest women had more than 2 times (OR = 2.64, CI = 2.49-2.81), more than 3 times (OR = 3.40, CI = 3.16-3.66) and 1.3 times (OR = 1.38, CI = 1.31-1.45) higher chance to have full-ANC, institutional delivery and PNC. Rural women had 10% (OR = 0.90, CI = 0.87-0.93) and 13% (OR = 0.87, CI = 0.83-0.90) less chance to full-ANC and institutional delivery whereas 8%

https://doi.org/10.1017/S0021932022000219 Published online by Cambridge University Press

Table 1. Full-ANC, institutional delivery and postnatal care among women aged 15-49 years by socio-economic and demographic characteristics, India, 2015-16

Background characteristics	Full-ANC	No. of women	Institutional Delivery	No of births	PNC received	No. of women
Family structure						
Nuclear	18.84	74345	74.35	102004	56.86	73768
Non-nuclear without MIL	22.30	86686	82.84	115942	62.18	86056
Non-nuclear with MIL	22.63	23609	81.31	31863	62.09	23452
Age of women						
15-19	18.82	6285	84.35	7123	59.69	6236
20-24	20.59	57840	82.61	80344	61.43	57443
25-29	22.41	69345	79.87	97317	61.13	68831
30-34	21.36	33860	76.83	43804	59.23	33571
35-39	17.95	12776	69.46	15826	55.67	12700
40-49	11.56	4536	56.44	5395	43.82	4494
Years of schooling						
No education	8.22	51290	61.92	75439	46.63	50964
<10 years	19.10	71145	81.04	97003	60.35	70599
10+ years	33.56	62206	93.68	77367	70.72	61712
Parity						
1	26.44	62002	91.13	61999	66.94	61478
2	24.22	63701	84.70	94292	62.69	63200
3	15.73	30603	72.88	48650	54.37	30412
4+	7.21	28334	57.89	44869	45.08	28187
Number of ANC visits#						
No visits			57.14	30363	31.03	30239
<4 times			77.70	58096	56.83	57726
≥ 4 times			91.37	94541	71.27	93874
Place of delivery#						
Health institution					70.01	149032
Others					16.64	34142
Mass media exposure						
No	6.67	45480	61.16	67130	43.60	45163
Yes	25.62	139160	85.80	182679	65.40	138113
Social group#						
SC	19.27	39059	78.66	53825	59.02	38805
ST	16.34	19002	68.33	26317	53.03	18823
OBC	20.71	80460	80.04	110330	59.97	79901
Non-SC/ST/OBC	25.00	44560	83.18	57152	64.38	44213

(*Continued*)

https://doi.org/10.1017/S0021932022000219 Published online by Cambridge University Press

Table 1. (*Continued*)

Background characteristics	Full-ANC	No. of women	Institutional Delivery	No of births	PNC received	No. of women
Religion						
Hindu	21.02	145617	81.10	196488	60.56	144585
Muslim	17.61	29734	69.45	41367	54.82	29481
Non-Hindu/Muslim	30.47	9289	81.34	11955	68.23	9210
Wealth quintile						
Poorest	6.75	43155	59.95	63343	43.44	42806
Poorer	14.26	39070	75.46	54890	54.95	38783
Middle	22.60	36721	85.25	49541	64.00	36469
Richer	29.21	35066	90.74	45290	69.43	34849
Richest	38.06	30627	95.47	36746	74.32	30368
Place of residence						
Rural	16.66	129794	75.40	179721	56.86	128805
Urban	31.10	54847	88.87	70089	67.51	54472
Region						
North	19.41	24351	83.36	32918	65.88	24226
Central	8.82	47398	71.60	67775	55.19	47186
East	12.21	46980	69.71	63598	51.60	46610
Northeast	18.38	7169	68.22	8834	53.98	6974
West	32.01	24258	89.93	31813	68.99	24170
South	43.38	34482	95.52	44871	68.96	34111
Total	**20.95**	**184641**	**79.18**	**249809**	**60.03**	**183276**

May not add to total due to missing cases

(OR = 1.08, CI = 1.05-1.11) higher chances of PNC compared to urban women. The women of the south region had three times higher chances to have full-ANC, 2.9 times more chances of institutional delivery and 34% lower odds of PNC than their counterparts from the north.

Discussion

The household structure, in general, had a fragile association with a woman's use of MHC services in India. Specifically, the presence of MIL had a weak association with DIL's utilisation of MHC services, viz. full-ANC, institutional delivery and PNC. A relatively higher probability of full-ANC among women staying in households with MIL conforms to past studies (Allendorf, 2013; Matsumura and Gubhaju, 2001). Women in non-nuclear households probably get more support in household work besides guidance on the importance of ANC. They thus are in a better position to avail themselves of the ANC services. As found in an earlier study (Speizer *et al.*, 2015), this study also found that women residing in a non-nuclear household with MIL are more likely to deliver in health institutions than those from nuclear households. However, the difference between the rate at which the women in different household types used institutional delivery services was minimal. Another past study (Allendorf, 2013) revealed that Indian extended families were more advantageous in delivery assistance than nuclear families. Evidence also suggests that

https://doi.org/10.1017/S0021932022000219 Published online by Cambridge University Press

Table 2. Adjusted Odds Ratio (AOR) of socio-economic and demographic predictors of full-ANC, institutional delivery and postnatal care, India, 2015-16

Background characteristics	Full-ANC AOR (95% CI)	Institutional Delivery AOR (95% CI)	PNC received AOR (95% CI)
Family structure			
Nuclear ©			
Non-nuclear without MIL	0.99 (0.96-1.02)	1.00 (0.98-1.03)	0.98* (0.96-1.00)
Non-nuclear with MIL	1.04* (0.99-1.08)	1.05*** (1.01-1.10)	1.00 (0.97-1.04)
Age of women			
15-19 ©			
20-24	1.14*** (1.05-1.23)	1.06* (0.98-1.14)	1.05* (0.99-1.12)
25-29	1.35*** (1.25-1.46)	1.21*** (1.12-1.31)	1.14*** (1.07-1.22)
30-34	1.54*** (1.42-1.68)	1.42*** (1.30-1.54)	1.17*** (1.09-1.25)
35-39	1.63*** (1.49-1.79)	1.44*** (1.31-1.57)	1.21*** (1.12-1.30)
40-49	1.59*** (1.42-1.79)	1.18*** (1.07-1.30)	1.22*** (1.11-1.33)
Years of schooling			
No education ©			
<10 years	1.43*** (1.37-1.49)	1.30*** (1.26-1.34)	0.96*** (0.93-0.99)
10+ years	1.72*** (1.65-1.80)	1.87*** (1.79-1.96)	0.97 (0.94-1.01)
Parity			
1 ©			
2	0.82*** (0.79-0.84)	0.56*** (0.54-0.58)	0.96*** (0.94-0.99)
3	0.65*** (0.63-0.68)	0.41*** (0.39-0.43)	0.92*** (0.89-0.96)
4+	0.46*** (0.43-0.48)	0.33*** (0.31-0.34)	0.92*** (0.88-0.96)
Number of ANC visits			
No visits ©			
<4 times		2.15*** (2.08-2.21)	2.23*** (2.16-2.31)
≥ 4 times		4.09*** (3.95-4.24)	3.51*** (3.40-3.63)
Place of delivery			
Health institution			9.93*** (9.63-10.25)
Others ©			
Mass media exposure			
No ©			
Yes	1.64*** (1.56-1.71)	1.15*** (1.12-1.19)	1.14*** (1.11-1.17)
Social group			
SC ©			
ST	1.19*** (1.14-1.25)	0.69*** (0.66-0.72)	0.92*** (0.88-0.95)
OBC	0.94*** (0.91-0.98)	1.10*** (1.07-1.15)	0.96*** (0.93-0.98)
Non-SC/ST/OBC	1.11*** (1.07-1.16)	1.01 (0.97-1.06)	0.97* (0.94-1.01)

(*Continued*)

https://doi.org/10.1017/S0021932022000219 Published online by Cambridge University Press

Table 2. (*Continued*)

Background characteristics	Full-ANC AOR (95% CI)	Institutional Delivery AOR (95% CI)	PNC received AOR (95% CI)
Religion			
Hindu ©			
Muslim	0.86*** (0.83-0.90)	0.57*** (0.55-0.59)	1.02* (0.99-1.06)
Non-Hindu/Muslim	0.93** (0.89-0.98)	0.63*** (0.60-0.66)	1.05** (1.00-1.09)
Wealth quintile			
Poorest ©			
Poorer	1.25*** (1.19-1.32)	1.29*** (1.24-1.33)	1.03* (1.00-1.07)
Middle	1.55*** (1.47-1.63)	1.66*** (1.60-1.74)	1.14*** (1.10-1.19)
Richer	1.85*** (1.75-1.96)	2.17*** (2.06-2.29)	1.26*** (1.21-1.32)
Richest	2.64*** (2.49-2.81)	3.40*** (3.16-3.66)	1.38*** (1.31-1.45)
Place of residence			
Urban ©			
Rural	0.90*** (0.87-0.93)	0.87*** (0.83-0.90)	1.08*** (1.05-1.11)
Region			
North ©			
Central	0.64*** (0.62-0.67)	0.85*** (0.81-0.88)	0.95*** (0.92-0.98)
East	1.00 (0.95-1.04)	0.98 (0.94-1.02)	0.96** (0.92-0.99)
Northeast	1.28*** (1.22-1.34)	0.61*** (0.58-0.64)	0.77*** (0.74-0.80)
West	2.00*** (1.91-2.10)	1.42*** (1.32-1.51)	0.83*** (0.79-0.87)
South	3.02*** (2.90-3.15)	2.89*** (2.66-3.14)	0.66*** (0.63-0.68)

© Reference category, *$p<0.10$; **$p<0.05$; ***$p<0.01$.

the relationship between the MIL and DIL is shaped by shifting physical, social and economic dependencies and future expectations, sometimes leading to DIL appeasement by MIL (Vera-Sanso, 1999). Women from a non-nuclear household without MIL were also found to have lower PNC, perhaps owing to a higher percentage lacking assistance from family for PNC.

Nevertheless, this study's findings of no or weak association between the presence of MIL and DIL's MHC utilisation contradicts many past studies in India and abroad, which often portrays the MIL as a barrier. A qualitative study in Nepal found that MIL has a strong, often negative influence on ANC uptake (Simkhada, Porter and van Teijlingen, 2010). Dominating MIL has also been a barrier to institutional delivery in Nepal (Shrestha *et al.*, 2012). A similar inverse association between the presence of MIL and institutional delivery was revealed in another study in Mali (White *et al.*, 2013). Family members, including MIL's unwillingness for institutional delivery, have also been found as the reason for home delivery in another study in West Bengal, India (Gorain *et al.*, 2017).

An earlier study using NFHS-2 data assessed the association between the presence of in-laws with MHC services utilisation of the DIL (Saikia and Singh 2009). It classified the household structure into three categories, i.e. viz., nuclear households, joint households with in-laws and joint households without in-laws. In contrast, the specific aim of this study was to understand the role of MIL in DIL's utilisation of MHC services; thus, the household structure was classified into three

https://doi.org/10.1017/S0021932022000219 Published online by Cambridge University Press

categories: nuclear household, non-nuclear with MIL and non-nuclear without MIL. The outcome variables used in this analysis were full-ANC, institutional delivery and postnatal care; however, the earlier study considered antenatal visits in the first trimester and safe delivery besides use or non-use of contraception and BMI as the outcome variables. This study found that women from a non-nuclear household with MIL had a relatively higher chance of full-ANC than their counterparts from nuclear households, although the association is weak. However, the earlier study revealed that the odds of first trimester ANC were higher among women from nuclear households than those from joint households. The study found a relatively higher chance of institutional delivery among women from non-nuclear households with MIL than the earlier study that found a higher probability of safe delivery among nuclear households. The earlier study indicates the dynamics of household type and DIL's health-seeking behaviour in 1998-99. This study's finding relates to 2015-16, thus presenting the current scenario and indicating the changing dynamics between MIL and DIL over time. The full-ANC is also a more robust indicator than the antenatal visit in the first trimester. Again, the earlier study did not capture the association between household structure and PNC, which this paper has covered.

The outcome variables are also found to be significantly associated. The utilisation of full-ANC was a significant determinant of institutional delivery, and women with full-ANC and institutional delivery had higher chances of seeking PNC. Many past studies also found similar results (Barman *et al*., 2020; Mishra and Retherford, 2008; Rai, Singh and Singh, 2012; Shahabuddin *et al*., 2017; Thind *et al*., 2008), while a few studies have not assessed this association (Allendorf, 2013; Saikia and Singh, 2009). Additionally, in conformity with earlier studies, this study also found age, education, parity, caste, place of residence, religion, wealth status, mass-media exposure, and the region as significant factors associated with MHC services utilization (Alemayehu *et al*., 2020; Barman *et al*., 2020; Chaka *et al*., 2019; Pandey and Karki, 2014; Rai, Singh and Singh, 2012; Shahabuddin *et al*., 2017; Singh, Singh and Singh, 2021; Thind *et al*., 2008; Zhou *et al*., 2020).

There are several strengths of this study. It is the first study to analyse the role of household structure in utilising MHC services holistically as against past studies assessing only some components of MHC services. Secondly, this study uses the recent large-scale, nationally representative data of NFHS-4 with a robust sampling design; thus, the results are contemporary and relevant. Thirdly, the role of MIL in MHC utilisation is analysed with great importance. There are some limitations also. Firstly, this study is based on cross-sectional data, and hence inferences drawn on the causal association between the predictor and outcome variables should be carefully studied. Again, other socio-cultural factors may influence the utilisation of MHC services, which could not be considered in this study due to a lack of data.

The household structure and, more precisely, the presence of MIL had a very weak association with a woman's use of MHC services in India. The weak association between the presence of MIL and DIL's MHC utilisation is a notable change from the earlier literature often portraying the former as a barrier.

Funding. This research received no specific grant from any funding agency, commercial entity, or not-for-profit organisation.

Conflicts of Interest. The authors have no conflicts of interest to declare.

Ethical Approval. The NFHS-4 was approved by the Institutional Review Board of the Institutions involved, and the datasets are available at https://www.dhsprogram.com for broader use in social research. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

References

Alemayehu, M., Gebrehiwot, T. G., Medhanyie, A. A., Desta, A., Alemu, T., Abrha, A. & Godefy, H. (2020) Utilization and factors associated with antenatal, delivery and postnatal Care Services in Tigray Region, Ethiopia: a community-based cross-sectional study. *BMC Pregnancy Childbirth* **20**(1), 334. DOI: 10.1186/s12884-020-03031-6.

Allendorf, K. (2010) The Quality of Family Relationships and Use of Maternal Health-care Services in India. *Stud Fam Plann* **41**(4), 263–276.

Allendorf, K. (2013) Going nuclear? Family structure and young women's health in India, 1992-2006. *Demography* **50**(3), 853–880. DOI: 10.1007/s13524-012-0173-1.

Anukriti, S., Herrera-Almanza, C., Pathak, P. K. & Karra, M. (2020) Curse of the Mummy-ji: The Influence of Mothers-in-Law on Women in India†. *American Journal of Agricultural Economics* **102**(5), 1328–1351. DOI: https://doi.org/10.1111/ajae.12114.

Barman, B., Roy, A., Zaveri, A., Saha, J. & Chouhan, P. (2020) Determining factors of institutional delivery in India: A study from National Family Health Survey-4 (201U 16). *Clinical Epidemiology and Global Health* **8**, 1335–1340.

Bloom, S. S., Wypij, D. & Das Gupta, M. (2001) Dimensions of women's autonomy and the influence on maternal health care utilization in a north Indian city. *Demography* **38**(1), 67–78. DOI: 10.1353/dem.2001.0001.

Chaka, E. E., Abdurahman, A. A., Nedjat, S. & Majdzadeh, R. (2019) Utilization and Determinants of Postnatal Care Services in Ethiopia: A Systematic Review and Meta-Analysis. *Ethiop J Health Sci* **29**(1), 935–944. DOI: 10.4314/ejhs.v29i1.16.

George, L. K. & Durham, N. (2016) The health-promoting effects of social bonds.

Goode, W. J. (1964) *The family : (by) william J. Goode. Englewood Cliffs*, Nj: Prentice-Hall.

Gorain, A., Barik, A., Chowdhury, A. & Rai, R. K. (2017) Preference in place of delivery among rural Indian women. *PLoS One* **12**(12), e0190117. DOI: 10.1371/journal.pone.0190117.

International Institute for Population Sciences - IIPS/India & ICF (2017) India National Family Health Survey NFHS-4 2015-16. IIPS and ICF Mumbai, India,

Kapadia, K. M. (1986) *Marriage and family in India : K.M. Kapadia*. London; Calcutta: New York ; Oxford University Press.

Kolenda, P. (1987) *Regional differences in family structure in India*. Jaipur: Rawat Publications.

Kumar, A., Bordone, V. & Muttarak, R. (2016) Like Mother(-in-Law) Like Daughter? Influence of the Older Generation's Fertility Behaviours on Women's Desired Family Size in Bihar, India. *Eur J Popul* **32**(5), 629–660. DOI: 10.1007/s10680-016-9379-z.

Matsumura, M. & Gubhaju, B. (2001) Women's status, household structure and the utilization of maternal health services in Nepal. *Asia-Pacific Population Journal* **16**, 23–44. DOI: 10.18356/e8a4c9ed-en.

Mishra, V. & Retherford, R. D. (2008) The Effect of Antenatal Care on Professional Assistance at Delivery in Rural India. *Population Research and Policy Review* **27**(3), 307–320. DOI: http://dx.doi.org/10.1007/s11113-007-9064-3.

Pandey, S. & Karki, S. (2014) Socio-economic and Demographic Determinants of Antenatal Care Services Utilization in Central Nepal. *Int J MCH AIDS* **2**(2), 212–219.

Rai, R. K., Singh, P. K. & Singh, L. (2012) Utilization of maternal health care services among married adolescent women: insights from the Nigeria Demographic and Health Survey, 2008. *Womens Health Issues* **22**(4), e407–414. DOI: 10.1016/j.whi.2012.05.001.

Raju, S. & Ann, L. (2000) *Men as supportive partners in reproductive health: moving from rhetoric to reality*. Population Council, South and East Asia Regional Office.

Ratra, A. Kaur, P. & Chikkara, S. (2006) *Marriage and family in diverse and changing scenario*. New Delhi: Deep & Deep Publications.

Regmi, K., Smart, R. & Kottler, J. (2010) Understanding gender and power dynamics within the family: A qualitative study of Nepali women's experience. *ANZJFT Australian and New Zealand Journal of Family Therapy* **31**(2), 191–201. DOI: 10.1375/anft.31.2.191.

Saikia, N. & Singh, A. (2009) Does type of household affect maternal health? Evidence from India. *J Biosoc Sci* **41**(3), 329–353. DOI: 10.1017/s0021932008003209.

Shahabuddin, A. S. M., De Brouwere, V., Adhikari, R., Delamou, A., Bardaj, A. & Delvaux, T. (2017) Determinants of institutional delivery among young married women in Nepal: Evidence from the Nepal Demographic and Health Survey, 2011. *BMJ Open* **7**(4), e012446. DOI: 10.1136/bmjopen-2016-012446.

Shrestha, S. K., Banu, B., Khanom, K., Ali, L., Thapa, N., Stray-Pedersen, B. & Devkota, B. (2012) Changing trends on the place of delivery: why do Nepali women give birth at home? *Reproductive Health* **9**(1), 25. DOI: 10.1186/1742-4755-9-25.

Simkhada, B., Porter, M. A. & Van Teijlingen, E. R. (2010) The role of mothers-in-law in antenatal care decision-making in Nepal: a qualitative study. *BMC Pregnancy Childbirth* **10**(1), 34. DOI: 10.1186/1471-2393-10-34.

Singh, P., Singh, K. K. & Singh, P. (2021) Maternal health care service utilization among young married women in India, 1992–2016: trends and determinants. *BMC Pregnancy Childbirth* **21**(1), 122. DOI: 10.1186/s12884-021-03607-w.

Speizer, I. S., Lance, P., Verma, R. & Benson, A. (2015) Descriptive study of the role of household type and household composition on women's reproductive health outcomes in urban Uttar Pradesh, India. *Reproductive Health* **12**(1), 4. DOI: 10.1186/1742-4755-12-4.

Thind, A., Mohani, A., Banerjee, K. & Hagigi, F. (2008) Where to deliver? Analysis of choice of delivery location from a national survey in India. *BMC Public Health* **8**(1), 29. DOI: 10.1186/1471-2458-8-29.

Turagabeci, A. R., Nakamura, K., Kizuki, M. & Takano, T. (2007) Family structure and health, how companionship acts as a buffer against ill health. *Health Qual Life Outcomes* **5**, 61. DOI: 10.1186/1477-7525-5-61.

Vera-Sanso, P. (1999) Dominant Daughters-in-Law and Submissive Mothers-in-Law? Cooperation and Conflict in South India. *The Journal of the Royal Anthropological Institute* **5**, 577. DOI: 10.2307/2661149.

White, D., Dynes, M., Rubardt, M., Sissoko, K. & Stephenson, R. (2013) The Influence of Intrafamilial Power on Maternal Health Care in Mali: Perspectives of Women, Men And Mothers-in-Law. *International perspectives on sexual and reproductive health* **39**, 58–68. DOI: 10.1363/3905813.

Zhou, D., Zhou, Z., Yang, C., Ji, L., Ghose, B. & Tang, S. (2020) Sociodemographic characteristics associated with the utilization of maternal health services in Cambodia. *BMC Health Services Research* **20**(1), 781. DOI: 10.1186/s12913-020-05652-1.

Cite this article: Pradhan MR and Mondal S (2023). Exploring the Relationship between Household Structure and Utilisation of Maternal Health Care Services in India. *Journal of Biosocial Science* **55**, 438–448. https://doi.org/10.1017/S0021932022000219