Profile of Indian adults consulting nurses/midwives for healthcare

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Abstract---The article aims to explore and characterize Indian adults who seek nursing consultations. Nursing professionals constitute two-fifth of the Indian healthcare workforce, but their consultation with patients is limited. Hence investigating the profile of Indian adults who consult nurses is necessary. The study used Secondary data of 72,250 nationally representative adults from the first wave of the Longitudinal Ageing Study of India, which was analyzed for nursing consultation sought by the participants during the 12 months preceding the survey using appropriate statistical methods and weights. Out of 257.1 million adult's ≥45 years old and their spouses, 69.3% had consulted one or more healthcare workers during the last 12 months preceding the survey, and only 1.30% of adults had consulted nurses/midwives. Those, who consulted nurses/midwives,

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16.7%, 26.2%, and 13.3% had consulted at community health facilities such as sub-centers, primary-health-centers, and community-health-centres respectively. Rural residency, female gender, adults with non-chronic diseases, caste, religion, education, and wealth status were found to be significant influencers of nursing consultation. The study concluded that nursing consultation is under-utilized, but serves the need of vulnerable population groups.

Keywords---Nurse, Midwife, Nursing Consultation, Comprehensive Primary Care.

Introduction

Nurses' role in the context of expertise-mix transformations in the health workforce to address provider shortage for primary care with reduced cost and increased access is getting attention. Allocation of advanced practice nursing to bridge the provider gap, management of chronic conditions, and pharmaceutical prescription is transforming the nursing profession across the globe (Adib Hagbaghery et al., 2004). Synthesis of various systematic reviews that assessed nurses' role in primary care found that higher patient satisfaction with nurses and health outcomes are comparable to that of doctors for consultation, diagnosis, management, referral, etc. (Kilpatrick et al., 2014; Martínez-González et al., 2014, 2015). This brings an opportunity to explore the untapped potential of the nursing cadre for the healthcare of people. However Indian evidence in this regard is limited.

In India, nurses constitute the largest proportion (40.62%) of the total of 5.76 million health workers, thereby forming the backbone of the Indian healthcare system (Karan et al., 2021). This makes the nursing profession a symbol of women's participation in the labour market and gender empowerment. In the Indian public health care system, nurses and Auxiliary Nurse midwives are traditionally employed in sub-centers (SCs) or health posts, primary healthcare centers (PHCs), and community health centers (CHCs), to implement reproductive and child health programs. Nurses/Auxiliary Nurse Midwives lead and manage SCs that are primarily located in rural and tribal areas, that bring primary care to the doorstep of people in underserved areas. A total of 1,60,713 SCs in India are managed by Auxiliary Nurse Midwives/Nurses, which form the first and nearest contact point for the people in the community to interact with the public healthcare system (NHM, 2019). Recently most of these SCs are covered by Health & Wellness Centre (Lahariya, 2020), to provide comprehensive primary health care and achieve universal health coverage (Ved et al., 2019). During conversion, there is role shifting of nurses also.

When the healthcare workforce reorganization took place, nurses/Auxiliary Nurse Midwives' involvement in other national health programs was formalized through standards set by Indian Public Health Standards (NHM, 2012; Salve et al., 2015). Recognizing their contribution, they have been placed above pharmacists and their post is upgraded to group B cadre in the sixth pay commission in 2008 (Srivastava A, 2013.; Sharma, 2020). Further, the National Health Policy of India

(2017) has recommended a bridge course for nurses, and the establishment of a Nurse Practitioners and Public Health Nurse cadre, as a complementary human resource strategy for comprehensive primary care in underserved areas (Nair, 2019; MoHFW, 2017).

In this context, where the primary role of nurses has been shifted from reproductive and child health and nursing care to implementing national programs and substitute doctors for comprehensive primary care, it is vital to understand people's preferences for medical consultation. This study explores the socio-demographic profile of adult Indians who consult nurses and nursing consultations for non-reproductive and child health healthcare.

Methods

Study setting and sample

The first wave of the Longitudinal Ageing Study of India collected data from adult's ≥ 45 years old and their spouses. This data is available in the public domain. International Institute for Population Sciences, Mumbai implemented this survey in 2017-18 and collected responses from nationally representative 72,250 adults using a 'multistage stratified area probability cluster sampling strategy'(IIPS, 2020). The survey result is comparable with similar surveys across the globe.

Ethical considerations

This study used anonymized secondary data which is available in the public domain. Data used here can't re-identify individuals, as statistical estimates were group/strata specific. The government agency collected the data and did not stipulate additional ethics committee review for research based on this data. Therefore, the ethical review was not considered.

Outcome variable

The consultation with Nurses/Midwives was the outcome variable. It was assessed using the question HC003 –"In the past 12 months, have you consulted any health care provider- nurse/midwife". It was coded as binary (Yes/No).

Explanatory variables

The key explanatory variables were age group, residence, gender, caste, religion, education level, working status, monthly per capita consumption expenditure (mpce_quintile), and self-reported disease conditions. All the explanatory variables were categorical variables. Considering < 25 unweighted samples in disease conditions, for the purpose regression model, diseases were clubbed into chronic and other disease conditions.

Statistical approach

Descriptive statistics with the weighted number and the percentage were estimated to estimate the HCP consultations. During bivariate analysis, unweighted numbers with weighted percentages were used to profile older adults consulting nurses/midwives. Considering the categorical nature of both, outcome and explanatory variables, the chi-square test in the bivariate analysis was used to see if there were any intergroup differences. Association between explanatory variables and adults' consultation with nurse/midwife was modeled using logistic regression method. The findings are given as an OR with a 95% confidence interval. The r-studio (v. 4.1.2) was used to perform statistical analysis.

Results

Out of 257.1 million adults ≥45 years old and their spouses, 178.17 million (69.3%) consulted one or more HCPs during the last 12 months preceding the LASI survey resulting in a total of 213.01 million consultations. Among the adults who consulted any HCPs, 1.3% (2.31 million) had consulted nurses/midwives. (Figure-1) Among the older adults consulting nurses/midwives, 16.7%, 26.2%, and 13.3% had consulted at SCs, PHCs, and CHCs respectively that provide primary care in the community.
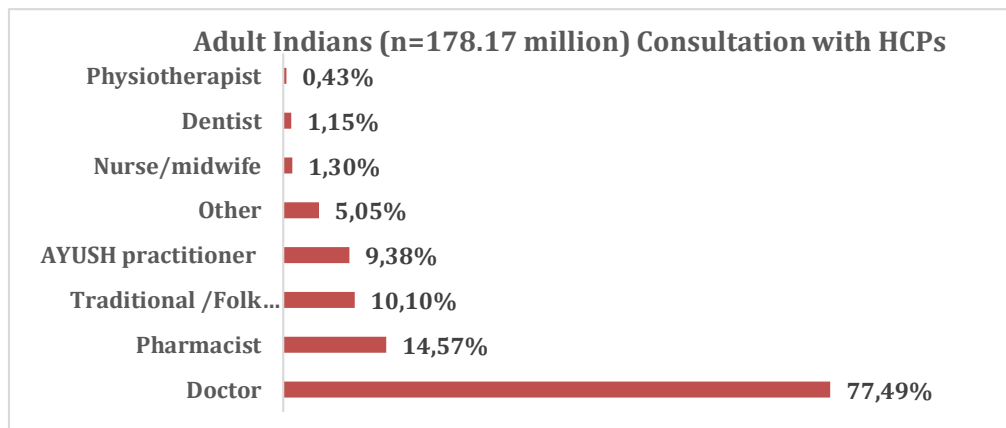

Fig 1: Adult consultation with healthcare providers (HCPs) in the last year

Table 1 represents the general characteristics of adults consulting nurses/midwives. Nearly half of the consulting adults were in the age group of ≥ 60 years, two-thirds were female, six in seven clients were from a rural background, and two-thirds belonged to the Poorer/Middle/Rich mpce quintile group. Six in 10 clients were illiterate, the majority of clients were Hindu (87.4%), and half of the clients were from other backward castes. Though 54.1% of clients were either never working or currently not working, the difference was not statistically significant. Other than working conditions, other covariates had significant intergroup differences.

Table 1: Socio-demographic profile of older adults consulting nurse/midwife

Variables		Nurse/midwife consultation	Percentage Weighted	Chi-square P value
Age (in Years)	<45*	90	13.8	0.006
	45-60	316	41.9	
	>60	319	44.3	
Residence	Rural	595	84.7	<0.001
	Urban	130	15.3	
Gender	Male	246	33.6	<0.001
	Female	479	66.4	
mpce_quintile (*Monthly per capita consumption expenditure*)	Poorest	104	16.9	<0.001
	Poorer	149	22.6	
	Middle	122	19.5	
	Richer	172	23.5	
	Richest	178	17.5	
Education	Illiterate	401	59.1	<0.001
	Less than primary	69	9.4	
	Secondary	202	24.8	
	Higher Secondary & above	53	6.6	
Religion	Hindu	541	87.4	<0.001
	Muslim	44	5.8	
	Christian	82	1.7	
	Others	58	5.1	
Caste	Scheduled Caste	127	19.5	0.003
	Scheduled Tribe	158	14.3	
	Other Backward Caste	289	51.4	
	Forward Caste	148	14.8	
Working Status	Never worked	199	26.5	0.428
	Currently not working	181	27.6	
	Working	345	45.9	

Among the adults who consulted a nurse/midwife, one in four had diabetes, two in ten had Diarrhoea, one in seven had malaria, and one in ten had hypertension. Among the clients with various disease conditions, 38.6% had chronic disease conditions and the rest had anemia, accident, and other infectious diseases. (Table-2)

Table 2: Health profile of adults consulting nurse/midwife

Disease Conditions	Nurse/midwife Consultation (N)	Percentage (%)Weighted	Chi-square P value
Hypertension	206	24.6	0.647
Diabetes	82	9.9	0.557
Cancer	9	0.8	-
COPD	39	6.1	1
CHD	17	2.5	-
Stroke	11	1.7	0.823

Arthritis	96	13.0	0.531
Neurological	20	2.5	-
Cholesterol	14	0.8	0.041
Jaundice	31	3.7	0.045
Tuberculosis	9	0.8	-
Malaria	106	15.2	<0.001
Diarrhoea	148	20.0	<0.001
Typhoid	46	6.7	0.224
UTI	13	1.8	-
Anaemia	40	5.5	0.062
Chikungunya	34	5.2	<0.001
Dengue	12	2.0	-
Injury/violence	30	4.1	0.458
Chronic Diseases	193	38.6	<0.001
Other Diseases	281	61.4	

Note: For n<25, the statistical significance test for intergroup variation was not considered

COPD: Chronic Obstructive Pulmonary Disease, CHD: Coronary Heart Disease, UTI: Urinary Tract Infection

In the multivariate logistic regression model, it was found that rural adults (AOR=2.01), adult females (AOR=1.27), poorer adults (AOR1.4), richest adults (1.46), adults with non-chronic diseases (AOR1.45), and adults from scheduled tribes (AOR=1.53) had preferred more for nursing consultation than their respective counterparts. (Table-3) Less than primary educated had a 29% lower chance of consulting to nurse/midwife than illiterate adults. Muslims preferred 45% less nursing consultation than their Hindu counterparts. However, adults from 'other' religions preferred 2.03 times more nursing consultation. Scheduled tribe adults (1.53) preferred more nursing consultation over scheduled castes.

Discussions

Nurse/Midwives work as community-based health workers in India's public health system, providing services such as family planning, immunizations, and prenatal care (Malik, 2009). A principal finding from this study is that among the adults who consulted any HCPs, 1.3% (2.31 million) had consulted nurses/midwives. Nurse/Midwife healthcare providers provide health services at many primary care facilities, where trained doctors are scarce. The present study shows that among all nursing/midwife consultations among Indian adults, 16.7%, 26.2%, and 3.3% of consultations happened at the SC, PHC, and CHC respectively.

In addition, the doctor-nurse ratio at the international level is 1:3 ratios, whilst in India; it has a 1:1 ratio. To fulfill the increased demand, the country requires 2.4 million nurses (Stephen & Vijay, 2019). However, none of the studies in lower and middle-income countries have examined the proportion of adults consulting nurses/midwives (Abudu-Birresborn et al., 2019).

At the same time, the older adults' nursing consultation may represent nurses' services are available at the doorstep and also it may represent nurses are being

consulted for non-reproductive healthcare. Since the study population is ≥45 years, consultation for reproductive health is expected to be minimal. However, based on the finding of this study it was seen that nearly half of the consulting adults were in the age group of 60 years and above. Yet findings from a scoping review reported that nurses have insufficient skills for geriatric care. This requires nurses to enhance specific knowledge to address the increased demand for social and health care services by the aging population (Abudu-Birresborn et al., 2019).

Table 3: Independent influencers of adults' consultation with Nurse/Midwife healthcare providers

Variables		Unadjusted OR (LCL-UCL)	Adjusted OR(LCL-UCL)
Age (in Years)	< 45	Ref.	
	45-60	0.68(0.54-0.87)	0.76(0.55-1.08)
	> 60	0.74(0.59-0.95)	0.78(0.56-1.11)
Residence	Urban	Ref.	
	Rural	2.53 (2.10 -3.07)	2.01*** (1.58-2.58)
Gender	Male	Ref.	
	Female	1.42(1.22-1.66)	1.27* (1.03-1.56)
MPCE_quintile	Poorest	Ref.	
(*Monthly per*	Poorer	1.39(1.08-1.80)	1.40*(1.03-1.91)
capita	Middle	1.14(0.87-1.48)	1.02(0.73-1.42)
consumption	Richer	1.59(1.25-2.04)	1.33. (0.98-1.83)
expenditure)	Richest	1.69(1.33-2.17)	1.46*(1.07-2.00)
Education	Illiterate	Ref.	
	Less than primary	0.70(0.54-0.90)	0.71* (0.50-0.98)
	Secondary	0.70(0.59-0.83)	0.84(0.66-1.07)
	Higher Secondary & above	0.59(0.44-0.78)	0.90(0.59-1.32)
Religion	Hindu	Ref.	
	Muslim	0.49(0.35-0.66)	0.55** (0.36-0.80)
	Christian	1.10(0.87-1.39)	1.18(0.84-1.65)
	Others	1.68(1.27-2.19)	2.03*** (1.46-2.76)
Caste	Scheduled Caste	Ref.	
	Scheduled Tribe	1.20(0.94-1.52)	1.53** (1.11-2.11)
	Other Backward Caste	1.01(0.82-1.25)	1.24(0.95-1.64)
	Forward Caste	0.78(0.61-0.99)	0.95(0.69-1.30)
Disease	Chronic Disease	Ref.	
	Others Diseases	1.78 (1.48-2.14)	1.45(1.20-1.76)***

The majority of adults who consulted nurses represent the female gender, illiterate, backward castes, and rural adults, all representing vulnerable populations. Therefore, the inclusion of the nursing/midwife cadre is vital for achieving "health for all". This finding is consistent with National Health Workforce Account (NHWA) 2018 and NSSO 2017–2018 data (Karan et al., 2021). As far as the wealth quintile is concerned both the poorest and richest are consulted nurses more than their counterparts. It may represent two different paradigms, for the poor, it may be a physically and financially viable option, and for the rich, they might be buying the service of nurses.

However various contextual constraints such as lower pay and respect within the HCP cadre limit the potential of nurses to provide services in India (Adib Hagbaghery et al., 2004; Adib Hajbaghery & Salsali, 2005). Despite odds, adults with various disease conditions such as diabetes, diarrhoea, malaria, hypertension, etc., have consulted a nurse/midwife. The finding of the study indicates among the clients with various disease conditions, two-fifths had consulted a nurse/midwife for chronic disease conditions and the rest had anaemia, accident, and other infectious diseases. Nurses are expected to be able to push for a larger role in the health sector as a result of their providing health promotion and disease prevention programs at SCs, PHCs, and CHCs. In India, the scope of nurse/midwife is broad, and its potential is not fully realized. Nurse shortages and their influence on India's healthcare delivery system are still a serious concern. In addition to the aforementioned issue, there is a shortage of qualified nurses/midwives (Nanda & Anilkumar, 2021).

Conclusions

Nurses represent two-fifth of healthcare providers, yet limited people consult them, highlighting the underutilization of nursing consultation. Nursing consultations are being utilized by marginalized vulnerable population groups. Nursing consultations are for various disease conditions and are not limited to reproductive and child health services. This represents a window of opportunity to skill and engages nurses for comprehensive primary care.

Conflict of interest
The authors declare that there are no conflicts of interest.

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