Illness Behaviour: A Social Epidemiological Studyin a Rural Community in Birbhum, West Bengal

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Abstract

A cross-sectional, descriptive study was conducted among adult population residing in the rural areas of Birbhum district of West Bengal, India to assess the illness behaviour i.e. the process of recognizing illness and the care seeking behaviours as well as the socio-economic effect of illness. Out of 251 surveyed households, at least one individual from 60.2% households reported illness in last 30 days and 77.1% used any form of self-treatment. Inability to work, intolerability of symptoms and quick recovery were the main reasons to seek health care. Unqualified health provider was preferred by 28.5% respondents. The median (IQR) days taken to recognize symptom(s) as illness, to contact any health care provider and to contact a qualified doctor were 3.5 (2.6) days, 5.0 (2.0) and 6.0 (2.0) days respectively. Gender and household income were significantly associated with seeking care from a qualified doctor. Financial stress was reported by certain proportion of respondents.

Keywords:

Illness Behaviour;
Symptom experience;
Adult;
Gender;
Socio-economic status.

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1. Introduction

The concept of universal health coverage in India was envisaged to ensure that every Indian should have reasonable access to optimum health care irrespective of their gender, caste, education, economic status or ability to pay (Reddy et al. 2011). However, the scenario delineated by the researchers reveals dismal state in relation to access to health care in India with widespread inequity across gender, caste, education, economic condition

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and geography, particularly in rural India (Balarajan et al. 2011). Many of those variations are attributed to a broad set of social, cultural and behavioral factors. The case of 'inverse care law' which states that people having greatest need for health care face greatest difficulties in accessing that and it is least likely that their health needs are met (Singh et al. 2009; Balarajan, 2011). Moreover, the weaker sections of the society are hit the hardest by the direct and indirect cost of accessing health care. Their access to knowledge, education and information is also limited, which in turn may alter the demand and compliance of health care by influencing health beliefs, perceptions to health and illness and health-seeking behavior(Singh et al. 2009; Balarajan, 2011, Griffiths & Stephenson, 2001).

Here lies the importance of studying the illness behavior including care-seeking behavior of people living in rural areas. Illness behavior was defined as the manner in which individuals interpret the symptoms of illness, process them cognitively and respond to it by seeking no care, self-care or health care (Mechanic D, 1961). Understanding illness behavior may be considered as key for designing and implementation of prevention, promotion & control activities for public health problems as well as to encourage community participation.

However, there is scarcity of data on this aspect from Indian socio-cultural setting. Some studies were undertaken to understand the health-seeking behavior, although the full spectrum of illness behavior starting from recognition of illness through symptoms experience to implication of illness on the individuals and familiesremained mostly unexplored (Balarajan, 2011; Saksena et al., 2010; Ghosh, 2014).

In this context, the present study was conducted among adult population residing in the rural areas of Birbhum district of West Bengal to assess the process of recognizing illness and to find out the care seeking behaviours as well as to identify the socio-economic effect of illness on individual and families.

2. Research Method:
Study design, setting& population:

A community-based, social epdemiological study was conducted among adult population, who were permanent residentsintherural areas of Birbhum district in West Bengal during January- July, 2019 (Honzo, 2004).Peoplewho were critically ill during data collection period, unable to express or mentally incoherent were excluded from the study.Rural area of Birbhum district consisted of 2242 villages under 19 community development blocks with 3.5 million population. Total and female literacy of rural people of Birbhum district were 69.1% and 62.3% respectively. Besides, 29.5% scheduled castes population,6.7% belonged to scheduled tribes. Birbhum was primarily an agrarian district with around 75% of population being dependent on agriculture (Directorate of Census Operations, 2011; State Bureau of Health Intelligence, 2015).

Sample size and sampling: For the survey, due to scarcity of data regarding illness behavior of population in rural areas, the proportion of households reporting symptoms in at least one member in last one month was assumed to be 0.5 with absolute precision of 0.1, as proportion will give rise to highest sample size for any given absolute precision. Considering 95% confidence level, the sample size was 96. Design effect of two was considered for employing multistage sampling along with 20% non-response rate. The final sample size was 231, which was rounded off to 250.

Two C.D. blocks of BirbhumnamelySiuri-I and Dubrajpurwereselected randomly. From those blocks, two health sub-centres namely Bansjore and Chinpai were selected randomly.

Two villages with population of 1000 or more from those two sub-centres were selected randomly. A sample of 125households was selected through systematic random sampling from the list of households available in the concerned Health Sub-centre.

Methods of data collection and analysis:

After clearance of regulatory authorities, the data collection was started through house-to-house visits. At the household, after obtaining the written informed consent, the head of the household or any responsible adult member was enquired about the socio-demographic and economic characteristics of the household with a pre-tested, structured questionnaire. She/ he was also asked about occurrence of any illness symptom (irrespective of the severity or status of care-seeking) in that household in last one month. In case of affirmative answer and after applying the exclusion criteria, one household member reporting to have symptom(s) during last one month were interviewed with the structured questionnaire after obtaining the written informed consent. In case of locked/ unwilling households, next household were selected. Individual characteristics of the respondents, the process of recognition of illness including self-treatment, care-seeking behavior and effect of illness were assessed through interview. Presenting symptoms, measures of self-treatment and reason for contact any health care provider were considered in process of recognizing illness. Time in days taken by the respondents with illness symptoms for taking decision to seek any care, to consult any provider and to consult a qualified doctor as well as type of providers were included in care-seeking behavior. Type of provider was categorized as informal (that included quacks and faith healers) and formal (any public health institutions or a qualified doctor). A person with at least graduation in modern medicine was considered as a qualified doctor. Out-of-pocket expenditure for management of illness (travel, diagnosis, fees and medicines etc.) and the coping behavior were considered as social and economic effect of illness.

Data were captured directly through Google Form prepared on the structured questionnaire and the captured dataset was downloaded in MS Excel spreadsheet. The data were checked for consistencies. Descriptive statistics using percentages for categorical data and median (IQR) for continuous data were used. Chi-square and Chi-square for linear trend tests were run to examine bivariate association. Binary logistic regression were appliedto find out association ofrecognition of illness (Yes/ No) and consultation with qualified doctor (Yes/ No) with socio-demographic and economic variables of the person with illness.Adjusted Odds ratios (A.O.R.) with 95% confidence interval (C.I.) were used as the measure of association.

Ethics:

The study followed the ethical standards of a descriptive epidemiological study. The obtained clearance from the Institutional Ethics Committee of College of Medicine and Sagore Dutta Hospital, Kamarhati, Kolkata. Written informed consent was obtained from each respondents after explaining the purpose and methods of the study, confidentiality and anonymity of the presented data, voluntariness of participation with authority to withdraw at any point of time.

3. Results and Analysis (10pt)

Among 250 surveyed households, only 27(10.7%) were home for nuclear families, 87(34.3%) possessed BPL card, 166 (65.6%) had Kutchchahosuse whereas 32 (12.6%) had Pucca house, 81(32.0%) belonged to scheduled caste and 39(15.4%) belonged to scheduled tribe population. Out of 253 household visited, 151 (59.7%) households had at least one person who reported any symptom during last one month. Among those who reported

illness, 63(41.7%) were female and 104 (68.9%) were currently married. Around one-fifth (19.2%) passed school certificate exam and 109(72.2%) read up to primary school. For occupation, 64(42.4%) resorted to agricultural or other manual work and 25 (16.6%) did business or office work. Another 46 (30.5%) were homemaker.

It was revealed (Table-1) that more than 60.0% respondents reported weakness as the reporting symptoms whereas around 40.0% each reported pain/discomfort and fever as the presenting symptom. Self-treatment was taken as a measure to alleviate symptoms by 77.5% respondents among which 57.0% followed local/ indigenous methods and 20.5% procured over-the-counter (OTC) drugs. Among respondents, 22 (14.5%), who were mostly women, didnot contact for any health care. Those who contacted for any health care, 28.5% contacted an informal health provider like unqualified practitioner of modern medicine and faith healer. More than one-fourth individuals (28.5%) reported intolerability of pain or discomfort as the reason for contacting health care provider whereas inability to work was the cited reasons in 35.7% respondents. Another 31.8% contacted a health care provider for quick recovery. Punamaki and Kokko (1995) revealed that disruption of daily activities, intolerable symptoms and growing worry were the main trigger to visit health care facilities. In Indian context, perceived severity was reported to be the main trigger to seek care (Ngangbam& Roy, 2019; Azhar et al. 2011).Those who sought care, nearly 30% contacted unqualified practitioners of modern medicine or faith healer as the first contact care similar findings among rural population were noted by Chauhan et al. (2015) from south India and Yadav et al. (2022) from north India. Proximity and cost-effectiveness were the cited reasons for seeking care from unqualified providers (Raza et al. 2016; Kanungo, et al., 2015).

Table-1: Process of recognizing illness among adult population in a rural community in Birbhum, West Bengal

Symptoms*	Self-treatment	First Contact	Reasons for contact
Pain/ Discomfort: 47.7%	Indigenous: 57.0%	No: 14.5%	Intolerable: 28.5%
Fever: 40.4%		Informal: 28.5%	Couldn't work: 35.7%
Weakness: 61.6%	OTC drug#: 20.5%	Formal: 57.0%	Quick recovery: 31.8%
Others: 17.9%	No: 22.5%		Fear: 4.0%

* Multiple responses   # OTC= Over the counter

The median (IQR) days taken to recognize symptom(s) as illness, to contact a health care provider and to contact a qualified doctor were 3.5 (2.6) days, 5.0 (2.0) and 6.0 (2.0) days respectively. However, wide variation existed in these three processes.

Table-2: Binary logistic regression to identify association between socio-demographic variables and recognition of illness (n=151)

Variable	Category	Sig.	A.O.R.*	95% C.I. for A.O.R.#	
				Lower	Upper
Family type	Nuclear		1.00		
	Joint	0.915	1.07	0.30	3.79
Gender	Female		1.00		
	Male	0.581	1.28	0.530	3.10
Education	Up to Primary		1.00		
	Secondary	0.279	3.29	0.38	28.24
	School certificate or above	0.303	1.80	0.59	5.52
Marital Status	Married		1.00		
	Unmarried/ Widow	0.402	1.55	0.56	4.31
BPL Card possession	No		1.00		
	Yes	0.235	1.90	0.66	5.46
Age category	< 24 yrs		1.00		
	24-37 yrs	0.439	0.59	0.16	2.25
	> 37 yrs	0.287	0.48	0.13	1.85
Family Income	<Rs. 12000		1.00		
	Rs.12000-14000	0.106	0.36	0.11	1.24
	>Rs. 14000	0.854	1.12	0.33	3.85
Constant		0.002	4.60		

* A.O.R. = Adjusted Odds Ratio   # C.I. = Confidence Interval

In a binary logistic regression, no significant difference was found in recognizing illness based on socio-demographic and economic variables. Hosmer&Lameshow Test statistics (5.073 [p=0.750]), Nagelkerke's R^2 (0.076) and significant Omnibus test of model co-efficient suggested model fit. (Table-3)

Table-3: Binary logistic regression to identify association between socio-demographic variables and consultation with a qualified doctor (n=151)

Variable	Category	Sig.	A.O.R.*	95% C.I. for A.O.R.#	
				Lower	Upper
Family type	Nuclear		1.00		
	Joint	0.388	0.55	0.14	2.13
Gender	Female		**1.00**		
	Male	**0.001**	**4.45**	**1.77**	**11.17**
Education	Up to Primary		1.00		
	Secondary	0.308	0.47	0.11	1.99

	School certificate or above	0.347	1.85	0.52	6.61
Marital Status	Married		1.00		
	Unmarried/ Widow	0.563	0.74	0.26	2.07
BPL Card possession	No		**1.00**		
	Yes	**0.001**	**0.19**	**0.07**	**0.52**
Age category	< 24 yrs		1.00		
	24-37 yrs	0.363	0.54	0.14	2.05
	> 37 yrs	0.657	0.74	0.19	2.84
Family Income	<Rs. 12000		**1.00**		
	Rs.12000-14000	**0.019**	**4.16**	**1.26**	**13.71**
	>Rs. 14000	**0.002**	**6.57**	**1.99**	**21.70**
Constant		0.560	1.28		

* A.O.R. = Adjusted Odds Ratio   # C.I. = Confidence Interval

In a binary logistic regression, male were found to be more likely to consult a qualified doctor than the females (A.O.R. = 4.45; p=0.001) after adjusting other variables. Similarly, family income between first quartile and median (Rs. 12000 - 14000) as well as higher than the median (Rs. >Rs. 14000) of this sample was associated with higher consultation. A dose-response relationship was observed between categories family income and consultation with a qualified doctor. Similarly, possessing a BPL card was significantly associated with lower consultation with a qualified doctor. Hosmer&Lameshow Test statistics (2.952 [p=0.937]), Nagelkerke's R2 (0.414) and significant Omnibus test of model co-efficient suggested model fit. (Table-4). People of lower economic condition and female were less likely to consult qualified doctor as noted in earlier studies (Yadav et al.,2022; Hegde et al. 2015; Jana &Basu, 2017; Raza et al. 2016; Kanungo et al. 2015; Sen et al. 2002; Pandey et al. 2002).Lower status of the women in the society as well as lack of appropriate information and affordability made them vulnerable (Sen et al. 2002; Pandey et al. 2002).

The median (IQR) income of the families was Rs. 14000.00 (2000.00); while the median (IQR) cost of treatment in last one month was Rs. 2600.00 (200.00). It means that nearly half of the families spent around one-fifth of their monthly income for the illness.

On enquiry regarding how they managed to afford this expenditure or what perceived effect they had, it was found that 33.8% spent their saved money, 25.2% sold their properties, and 33.1% took debt from relatives / friends to meet the cost of treatment. The proportion of BPL households that took loan (51.0% vs. 24.0%; p=0.001) and sold their asset (39.2% vs. 18.0%; p=0.004) were significantly higher than non-BPL households. Taking loan (Chi-sq for linear trend =24.210; p=0.000001) and selling asset (Chi-sq for linear trend =18.204; p=0.00002) had dose response relationship with categories of family income with highest income group had lowest effect. It was further reported that 26.5% households compromised their diet quality and 43.0% had anxiety on cost overrun. It was observed in most low- and middle-income countries that the first response to financial stress of illness to use available savings followed by reduction in consumption, most often

compromising the quality of food and social life(McIntyre et al., 2006; Russel, 2004). The same was observed in the present study. Other frequent strategies are borrowing from relatives/ friends or money lenders and selling assets. In the present study, around one-fourth sold their assets and one-third took loan to cope with the cost of illness. Sale of assets which are integral part of livelihood of the households may have long term corrosive effect on the wellbeing(McIntyre et al., 2006; Russel, 2004). Those from lower socio-economic stratum were hit in significantly higher proportion than those from higher stratum. This finding was corroborated in a number of earlier researches (Quintussi et al. 2015, Chowdhury et al. 2018).

4. Conclusion (10pt)

Out of total surveyed households, three in every fivehouseholds reported illness of at least one member. Those who presented will symptoms, every three of four resorted to self-treatment and majority consulted a health care provider. Around one-sixth respondents who didn't consult any health care provider were mostly female. Initially more than half contacted formal health care and slightly more than one-fourth contacted quacks or faith healer. Ultimately, nearly than two-third respondents with symptoms consulted one qualified doctor. Male gender, non-possession of BPL card and higher family income were associated with consultation with a qualified doctor. Illness in an adult member in the family had wider socio-economic implication on the family particularly on vulnerable.

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