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Original research article

FACTORS INFLUENCING INTEGRATED MANAGEMENT OF NEWBORN CHILDHOOD ILLNESSES (IMNCI) UPTAKE AMONG CHILDREN IN CMH GILGIT, PAKISTAN

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Abstract: *In developing countries, about 9 million children die before reaching the age of 5 every year, with 70% of these deaths attributable to five central diseases (measles, diarrhea, pneumonia, malaria, and malnutrition). The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) have recognized the importance of early care-seeking and have developed the "integrated management of childhood illness" to promote proper healthcare practices within families and communities and decrease the mortality rate of children under five in developing countries. This study aimed to improve the health-seeking behaviour of mothers and reduce the burden of disease in children under five, with specific objectives to assess the factors affecting the uptake of integrated management of childhood illness (IMNCI) and the health-seeking behaviour of mothers. Using a structured questionnaire, a hospital-based cross-sectional study was conducted on 156 randomly selected parents of patients at CMH, Gilgit, from August to December 2016. The chi-square test determined associations between different factors and mothers' health-seeking behaviour. The results showed strong associations at p=0.05 and a 95% confidence interval with n=156. Strong associations were found between the first care given and the head of the family (p=0.02) and between health problems and the head of the family (p=0.01). The findings also indicated a strong relationship between the head of the family and restrictions when seeking care for a sick child (p=0.00). Maternal education positively impacts health outcomes, leading to fewer family restrictions, early identification of problems, and improved decision-making when seeking healthcare.*

Keywords: (IMNCI, HSB, Under 05 children, gender equality, mother's literacy).

Introduction

In developing countries, each year, about 9 million children die before celebrating their 5th birthday. Seventy percent of these are because of these five diseases (measles, diarrhea, pneumonia, malaria, malnutrition, and a combination). The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) have recognized the significance of early care seeking, and "integrated management of childhood illness" is developed on proper healthcare practices of families and communities to decrease the mortality of under-five-year-old children in developing countries. Integrated Management of Neonatal and Childhood Illness (IMNCI) is a comprehensive strategy developed by the World Health Organization (WHO) and UNICEF to improve child health outcomes in low-resource settings. It aims to reduce childhood morbidity and mortality by integrating prevention, diagnosis, and treatment of common childhood illnesses. Despite its proven effectiveness, the uptake of IMNCI has varied across different settings. This literature review explores the determinants influencing the uptake of IMNCI, drawing insights from various studies and scholarly articles.

The effectiveness of IMNCI implementation is closely tied to health system factors such as infrastructure, human resources, and health financing. Studies have shown that inadequate infrastructure, a shortage of trained healthcare providers, and limited financial resources can hinder the successful implementation of IMNCI (Adam et al., 2018). Additionally, the availability of essential drugs and supplies is crucial for the sustained delivery of IMNCI services (Goga et al., 2009).

The competency of healthcare providers in implementing IMNCI protocols significantly influences its uptake. Training programs that enhance healthcare providers' knowledge and skills in IMNCI have been associated with improved adherence to guidelines and better patient outcomes (Bari et al., 2011). However, challenges such as high staff turnover and insufficient refresher training may undermine the sustainability of these efforts (Holamo et al., 2023). Community engagement is vital in fostering demand for IMNCI services and promoting adherence to recommended practices. Studies suggest that community health workers (CHWs) can effectively deliver IMNCI interventions at the community level, improving access to care and health-seeking behavior (Kumar et al., 2015). Moreover, community-based educational campaigns and outreach activities have increased awareness and utilization of IMNCI services (Ogundele, 2020).

Socioeconomic and cultural factors exert a significant influence on the uptake of IMNCI. Studies have identified poverty, low maternal education, and cultural beliefs as barriers to accessing and utilizing IMNCI services (Awoonor-Williams et al., 2004). Addressing these barriers requires context-specific interventions that address socioeconomic disparities and cultural norms while

promoting community participation and empowerment (Kaysin, 2017). The presence of supportive policies and effective governance structures is critical for facilitating the scale-up and sustainability of IMNCI programs. Studies have emphasized the importance of political commitment, resource allocation, and stakeholder coordination in driving IMNCI implementation at the national and sub-national levels (Nguyen et al., 2017). Moreover, decentralized decision-making and integration of IMNCI within existing health systems can enhance program effectiveness and efficiency (Shrivastwa et al., 2015).

The uptake of Integrated Management of Neonatal and Childhood Illness (IMNCI) is influenced by a complex interplay of health system factors, provider competency, community engagement, socioeconomic determinants, and policy considerations. Addressing these determinants requires a multi-faceted approach that involves strengthening health systems, investing in provider training, engaging communities, addressing socioeconomic disparities, and ensuring supportive policy environments. By addressing these challenges, policymakers and stakeholders can enhance the uptake of IMNCI and improve child health outcomes in low-resource settings.

Methodology

A cross-sectional study was carried out at CMH Gilgit between August and December 2016, involving a sample size of 156 participants. With a significance level of 5% and a confidence interval of 95%, random sampling was employed from the roster of admitted patients. The study focused on children under one to five years hospitalized for Integrated Management of Neonatal and Childhood Illnesses (IMNCI). Children below one month and above five years old and those with co-morbid conditions who reside outside Gilgit were excluded. Data were collected using a self-structured questionnaire covering demographics, distance to the facility, treatment-related issues, breastfeeding and immunization practices, and personal/family constraints.

A section of the questionnaire assessed parental health-seeking behavior. Reliability and validity were ensured through pretesting and Cronbach's alpha testing. Independent variables included age, gender, maternal and paternal education levels, family type, and restrictions while health-seeking behavior was the dependent variable. Data collection involved parents, guardians, and close relatives, with informed consent obtained from all participants. Ethical considerations were addressed with internal review board approval from the Health Services Academy, Islamabad, and permission from the CMH Gilgit Commandant. Participants were briefed on the study's purpose, and confidentiality was maintained. Data analysis was performed using SPSS 21, presenting frequencies, percentages, and chi-square association results.

Results

One hundred sixty respondents participated in the study, including occupants of the children's ward and mothers' room for the Neonatal Intensive Care Unit (NICU) at CMH Gilgit. The questionnaire was distributed to all 160 individuals, with only four refusals; however, these were included in the survey, resulting in a response rate of 97.5%. Respondents provided demographic and general characteristic information, revealing a gender distribution of 94 males (60.3%) and 62 females (39.7%). Regarding age distribution, 75 respondents (48.1%) were aged ≤1-12 months, followed by 43 (27.6%) aged 13-36 months, 17 (10.9%) aged 25-36 months, 10
(6.4%) aged 37-48 months, and 11 (7.1%) aged 49≤60 months. When asked about the primary caregiver for the children, the majority identified the mother (148 respondents, 94.9%), while a small proportion mentioned the father (4 respondents, 2.6%), brother/sister (4 respondents, 2.6%), or other relative (4 respondents, 2.6%). Regarding the head of the household, respondents identified the father (104 respondents, 66.7%) and grandfather (52 respondents, 33.3%). The types of families represented were predominantly joint families (80 respondents, 51.3%), followed by single-standard families (74 respondents, 47.4%). Regarding parental education, the majority reported having Matric-FA education (70 respondents, 42.9%), followed by illiteracy (34 respondents, 21.8%), graduation (32 respondents, 20.5%), primary-middle education (19 respondents, 12.2%), and master's or above qualifications (4 respondents, 2.6%). These findings are summarized in (Table 1).

Table 1 General Characteristics frequencies and percentages (n=156)

Variables		Frequency	Percentage
Gender	Male	94	60.3
	Female	62	39.7
Age	≤1-12 months	75	48.1
	13-36 months	43	27.6
	25-36 months	17	10.9
	37-48 months	10	6.4
	49≤60 Months	11	7.1
Primary caregiver for the children	Mother	148	94.9
	Father	04	2.6
	Brother/sister	04	2.6
	Relative	04	2.6
Head of household	Father	104	66.7
	Grandfather	52	33.3
	Others	-	-
Type of Family	Joint family	80	51.3
	Single standard	74	47.4

Respondents were informed about the mode of transport they use to reach the health facility. Most respondents use Public transport 64(41%). Others were using Own vehicle 37(23.7%), Rent a car 35(22.4%), by walk 17(10.9%) and Ambulance 03(1.9%) like wise**. (Figure 1)**

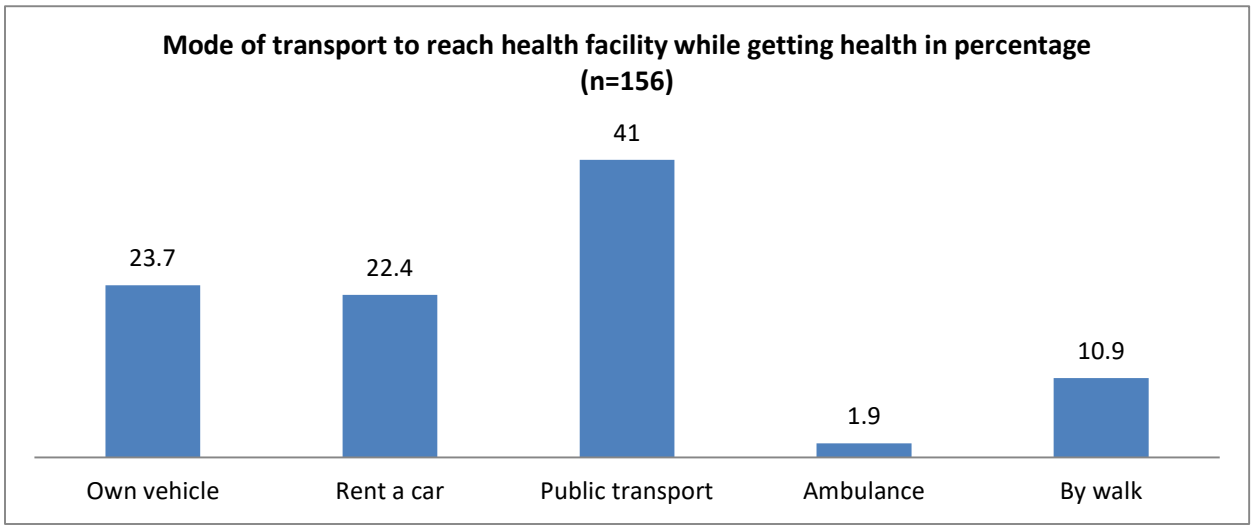

Figure 1 Mode of transport to reach health facility while getting health services in the condition of sickness for children in percentages (n=156)

Table 2 shows the initial care-seeking behaviors of participants. Among respondents, seeking medical care for their child was the most common response, reported by 61 individuals (39.1%). Counter medicine was chosen by 33 respondents (21.2%), while 32 respondents (20.5%) opted for self-treatment. Traditional healer consultations were reported by 30 respondents (19.2%). Additionally, participants provided insights into travel time to the government primary health clinic, with over half of respondents (50.6%) reporting less than 30-minute travel times. Thirty-two respondents (20.5%) reported travel times of 30 minutes to 1 hour, 23 respondents (14.7%) reported travel times of 1 hour to 1 ½ hours, and 22 respondents (14.7%) reported travel times of 2 hours or more. Regarding the average waiting time to see medical staff, most respondents (44.9%) reported waiting times of 30 minutes to 1 hour. Thirty-four percent reported waiting times of less than 30 minutes, 12.8% reported waiting times of 1 hour to 1 ½ hours, and 8.3% reported waiting times of 2 hours or more.

Table 2 First care, travelling time, and waiting time for medical care

Determinants	Frequency (number)	Percentage %)
Sought any medical care	61	39.1
Took counter medicine	33	21.2
Used self-treatment	32	20.5
Dam Darood /traditional healer	30	19.2
Time taken to travel by drive to the government primary health clinic		
< 30 min	79	50.6
30min-1hour	32	20.5
1 hour to 1 ½ hours	23	14.7
Two and above hours	22	14.7
The average amount of time they are waiting to see medical staff.		
< 30 min	53	34
30 min. to 1 hour	70	44.9
1 hour to 1 ½ hours	20	12.8
Two and above hours	13	8.3

Figure 2 Respondents were inquired about the most significant health problem of the child they replied to the majority of them Cough and fever 92(59.0%), Cough 36(23.1%) second, Malnutrition 8(5.1%), Diarrhea 6(3.8%) and Fever 14 (9.0%).

Table 3. Showed significant associations between parental education levels and healthcare-seeking behaviors. For instance, primary care seeking varied across educational backgrounds, with the highest percentages among those with Matric-FA (29.5%) and Illiterate (29.5%) parents. Similarly, the use of counter-medicine was prominent among individuals with Matric-FA education (63.6%), while self-treatment was more prevalent among those with Matric-FA (37.5%) and Graduation (21.9%) backgrounds. Consulting traditional healers showed similar trends, with

higher rates observed among individuals with Matric-FA education (53.3%).

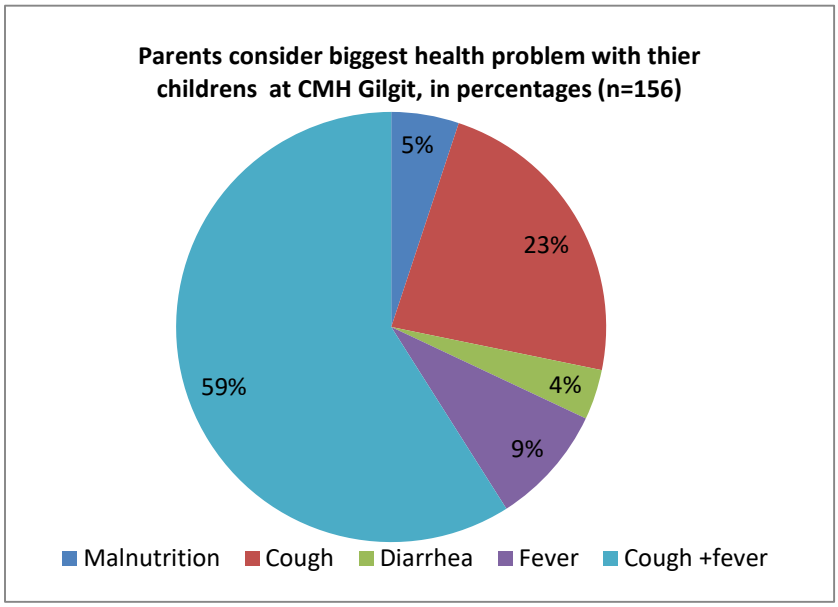

Figure 2 Biggest health problem of children (n=156)

Strong associations were observed regarding parental education's relationship with symptom recognition, family head restrictions, and mass media exposure. Higher levels of education correlated with greater symptom recognition, with Matric-FA (46.8%) and Graduation (25.5%) parents demonstrating higher rates. Family head restrictions were more prevalent among individuals with Matric-FA education (45.8%), while mass media exposure was higher among Matric-FA (52.3%) and Graduation (26.2%) parents. Overall, the distribution of literacy levels varied, with the majority having Matric-FA education (42.9%), followed by Graduation (20.5%) and Illiterate (21.8%) backgrounds.

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Table 3. Associations of different factors with the education level of the parents.

Factors	Primary-middle	Matric-FA	Graduation	Masters and above	Illiterate	P value
Sought any medical care	04(6.6%)	18(29.5%)	19(31.1%)	02(3.3%)	18 (29.5%)	0.00
Took counter medicine	01(3.0%)	21(63.6%)	04(12.1%)	02(6.1%)	05 (15.2%)	
Used self-treatment	06(18.8%)	12(37.5%)	07(21.9%)	00(0.0%)	07 (21.9%)	
Damdarood traditional healers	08(26.7%)	16(53.3%)	02(6.7%)	00(0.0%)	04 (13.3%)	
Recognition of symptoms	07(7.4%)	44(46.8%)	24(25.5%)	04(4.3%)	15(16.0%)	0.00
Family Head restrictions	14(9.9%)	65(45.8%)	30(21.1%)	04(2.8%)	29(20.4%)	0.02
Media exposure	06(5.6%)	56(52.3%)	28(26.2%)	04(2.6%)	13(12.1%)	0.00

Discussion

In our patient cohort, acute respiratory infections (ARI) accounted for 60% of all cases. ARI incidence is notably high among children aged 0-12 months, constituting the most vulnerable group. The study area, situated in the northern region of Pakistan, is characterized by a predominantly self-employed population and rugged, sparsely populated mountainous terrain, estimated at 27% in 2008. The maternal literacy rate in our study stood at 77% (Bulkow et al., 2002).

Globally, a significant proportion of childhood ARI cases occur in low-income countries, with an annual incidence rate of approximately 0.28 events per year (Bulkow et al., 2002). Barriers to service utilization include illiteracy, lack of awareness, adherence to customs and beliefs, trust in traditional healers, the reputation of healthcare providers, and obstacles related to geographical, socioeconomic, and gender factors (Murray et al., 1996; Omotoso, 2010). Health-seeking behaviors vary across demographics, with differences often reflecting regional illness patterns (Ahmed et al., 2000; Sodemann et al., 1997). In our findings, consulting traditional healers was the minor joint action, followed by self-treatment and over-the-counter medication purchase as initial responses (Islam et al., 1996). Caregivers with at least a high school education demonstrated a higher likelihood of seeking medical care than those who were illiterate (Ahmed et al., 2000). Maternal education positively correlates with health knowledge, healthy habits, and understanding of health education messages through mass media. Healthcare-seeking behavior plays a critical role in individual and community well-being. Traditionally viewed as a sequence of remedial actions, it now encompasses a broader perspective, including proactive health-promoting behaviors. Our study underscores the association between parental education, particularly

maternal literacy, and factors influencing IMNCI uptake (Drèze and Murthi, 2001).

With greater exposure to media and health awareness, literate mothers encounter fewer restrictions in seeking healthcare for their children. Consistent with prior research, our findings reveal a significant link between women's education, gender bias, and health-seeking behavior for their children, highlighting the positive impact of maternal education on child health outcomes. Overcoming barriers to healthcare access, particularly among impoverished households, requires gender equality efforts facilitated through various media channels. Notably, our study identifies a strong association between solitary healthcare-seeking and social, cultural, personal, and familial constraints, with religious restrictions exerting less influence in the study region (Ghosh et al., 2013).

Conclusion

Maternal education significantly impacts children's health outcomes, facilitating fewer family restrictions, early problem identification, and informed decision-making regarding healthcare seeking for their children. Family heads' decision-making regarding the importance of timely and suitable healthcare seeking, both for preventive and curative measures, is pivotal for achieving desired health outcomes and favorable health indicators. This study sheds light on the factors influencing parental health-seeking behaviors, addressing a research gap, particularly in Pakistan, especially in the demographically similar region of Gilgit.

Limitations

A notable limitation of this study is its potential lack of generalizability due to its single-hospital setting, limited sample size, short duration, urban study area, and non-randomized sampling.

Declarations

Data Availability statement
All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate.
It is approved by the department concerned.
Consent for publication
Approved
Funding
Not applicable

Conflict of interest

The authors declared an absence of conflict of interest.

Recommendations

It is recommended that counselling sessions be conducted with influential community members and heads of families to underscore the advantages of timely and appropriate healthcare seeking, emphasizing preventive and curative aspects. Additionally, raising awareness through mass media campaigns promoting gender equality and increasing female literacy can significantly improve healthcare-seeking behaviors within the community.

Authors Contribution

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Final Approval of version

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