

ORIGINAL ARTICLE

Delayed medical Attention and care in Monsoon-related illnesses: Causes, Risk factors and Impact on the outcome

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ABSTRACT

Introduction: Monsoon-related illnesses are major cause of morbidity and mortality in children during rainy season in Mumbai. Outcome of these illnesses largely depend on appropriate and timely care. Experience suggests delayed medical attention is a common problem in study population.

Aims & Objectives: Present Study aimed to assess the prevalence, reasons and risk factors for delayed medical attention in children with monsoon-related illnesses as well as the impact on final outcome.

Materials & Methods: This cross-sectional observational study included 220 children (1 month-12 years) hospitalized with monsoon-related illnesses in a tertiary hospital during two seasons (June-September) in 2019-2020. “Delayed medical attention” was pre-defined for study purpose as one or more of the following – a) More than 24 hours delay between onset of symptoms and first visit to qualified medical practitioner, or b) More than 72 hours delay between first consultation and referral to hospitalization, c) More than 24 hours delay after referral and actual hospitalization.

Results: Almost three-fourth of the study children (71.8%) received delayed medical attention with maximum delay at the level of first consultation (44.5%) followed by referral (36.5%). Delayed medical attention was more common in cases with initial self-treatment (p 0.010; OR 38.58 with CI 2.33-638.84), Unqualified first consultations (p 0.003; OR 21.38 with CI 95% 2.87-159.18) and Doctor-shopping (p 0.0004; OR 21.38 with 95% CI 2.69 to 30.28). Older children beyond five years had significantly higher risk of delayed attention than under-five children (p 0.033; OR 1.93 with 95% CI 1.05-3.55) as also those with non-specific febrile illnesses (p 0.048, OR 2.29 with CI 95% 1.00 - 5.21).

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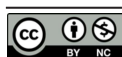
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Conclusion: Delayed medical attention is widely prevalent in children with monsoon-illnesses among study population despite easy access to low-cost public health care in the city, largely due to inappropriate help-seeking behaviour. Older children, non-specific febrile illness, self-treatment, unqualified consultations and doctor-shopping are identified as significant risk factors for the delayed care.

KEYWORDS

- Delayed Medical Attention • Monsoon-Related Illnesses • Self-Medication
- Doctor Shopping • Health-Care Seeking Behaviour

INTRODUCTION

Inappropriate delay in receiving medical attention and care is one of the leading causes of preventable morbidity and mortality in children, especially in developing countries including India.¹ Seeking appropriate and timely health care involves complex interplay of many factors including perceived severity and course of the illness by caretakers as well as accessibility to therapeutic options along with convenience, costs and quality.² Attempts have been made to develop various explanatory models to predict health-care seeking behaviour of a population in order to understand problematic areas and devise appropriate intervention strategies.³ However, very few studies^{4,5} are available in Indian literature to understand the reasons for the delayed medical attention and its impact on the outcome.

Mumbai, second most populated Indian city, witness spurt of many vector-borne, water-borne and air-borne diseases during monsoon season every year due to unfavourable climatic and hygienic conditions e.g., water-logging, vector-breeding, overcrowding etc.

Despite the relatively better-developed public health infrastructure in Mumbai, these monsoon illnesses lead to considerable rise in the hospitalizations and mortality in age groups, especially in children every year.

Present study was designed to explore the problem of delayed medical attention in sick children with monsoon-related illnesses in terms of the magnitude, perceived reasons, probable risk factors and impact on the outcome.

MATERIALS AND METHODS

This study was duly approved by the Institutional Ethics Committee of the study hospital, prior to the commencement and was conducted in accordance with the ethical principles laid down in the Indian Council of Medical Research guidelines on biomedical research and the Declaration of Helsinki.⁶

This cross-sectional observational study included all hospitalized children aged 1 month to 12 years, admitted during two rainy seasons (June-September 2019 and 2020) with monsoon-related illnesses in the pediatric wards and Intensive Care Unit of King Edward Memorial Hospital - a major tertiary care public hospital of the city, provided they consented to interview and inclusion in the study. The study population was largely derived from urban slums with generally overcrowded and unhygienic living conditions, further worsened during monsoon season.⁷

Study enrolled total 220 children aged 1 month to 12 years with laboratory confirmed cases of Malaria, Dengue, Leptospirosis, Enteric fever, Viral Hepatitis or clinically diagnosed cases of Acute Gastroenteritis, Influenza-Like illness and non-specific acute febrile illnesses with high fever for > 3 days. Patients with underlying chronic illnesses e.g. congenital heart disease, nephrotic syndrome etc. were excluded, as well as those who did not consent to participate.

All enrolled cases were managed as per the unit protocol and standard management guidelines without any interference from the researcher. In addition, one of the most reliable parent (or caretaker if no parent accompanied the child) was interviewed by the researcher using a pre-designed questionnaire for

purpose of this study to explore the chronology of medical attention and reasons for the delay, if any.

For the purpose of this study, “*Delayed medical attention*” was defined as one or more of the following (Study-defined criteria):

1. More than 24 hours of delay between onset of symptoms and first medical consultation with a qualified medical practitioner, also termed as “*Delayed first consultation*”. Qualified medical practitioner in this study meant a practitioner with central or state medical council.
2. More than 72 hours of delay between the first consultation and referral advice for hospitalization, termed as “*Delayed referral*”.
3. More than 24 hours of delay after referral advice for hospitalization and actual hospitalization of the child, termed as “*Delayed hospitalization*”.

Demographic characteristics of all cases were recorded to identify risk factors for delayed medical attention. Pre-hospitalization consultation, investigations, diagnosis, and treatment details were collected from case papers/prescriptions and caretaker/s’ interviews to understand reasons for delay. Reasons for delayed medical attention were recorded as open-ended responses and broadly classified as reasons for – a) Delayed first consultation, b) Delayed referral and/or c) Delayed hospitalization.

Outcome of the study cases was recorded as – a) duration of hospitalization, b) need for intensive care, and c) whether patient was discharged or expired during the hospital stay.

Univariate analysis of case characteristics of those with delayed medical attention and with no delay was done to identify risk-factors and outcome differences.

RESULTS

Total 220 cases were enrolled for this study, including 148 in the first monsoon season (June–September 2019) and 72 in next year (June–September 2020).

Dengue was the commonest cause of hospitalizations due to monsoon-related illnesses contributing to about one-fourth (24.1%) of total 220 enrolled cases, followed by Acute gastroenteritis (17.3%) influenza-

like illness (15.0%), Malaria (9.1%) and Leptospirosis (6.4%). Disease like Enteric fever and Viral hepatitis contributed less than 2% of monsoon-related illnesses in children. In 21.8% cases, diagnosis could not be established even after detailed investigations and were termed as Non-specific febrile illnesses of probably viral origin, and treated empirically.

Demographically, nearly half of the enrolled cases (47.7%) cases were in the school age group (5-12 years) with overall male preponderance (61.8% males). Most of study cases were from below poverty line families (62.3%) and from nuclear families (79.6%). Nearly one-third (29.5%) of cases were from outside city limits.

Present study reveals that almost three-fourth of the study cases (71.8%) had some kind of the delayed medical attention as per study-defined criteria mentioned earlier, the commonest type being the delayed first consultation (44.5%), followed by delayed referral (36.5%) and delayed hospitalization (10.9%). Many cases (N 44; 20%) had the delay at multiple levels. (Table 1)

Table 1: Levels of Delayed Medical Attention

	Delayed level	Total cases (N:220)	Percentage
I	No delayed Medical attention	62	28.18%
II	Delayed medical attention	158	71.82%
a)	Delayed first consultation	98	44.55
b)	Delayed referral	81	36.49
c)	Delayed hospitalization	24	10.91

*44 (20%) cases had delayed at multiple levels and hence, the total does not tally

Frequently changing the doctor in case of unsatisfactory response rather than following the previous one i.e. Doctor shopping emerged as the leading cause of delay in receiving appropriate medical attention in 20% cases, closed followed by Unqualified consultations with local quacks or medical shop sellers (17.3%) and Self-treatment (16.8%). Other important causes for delay as emerged from parental interviews were that they did not feel the need to seek urgent medical attention (12.7%) or were not advised by anyone to do so (11.8%). Most of the patients offered multiple reasons for delayed medical attention. Interestingly, logistic factors e.g. No one was at home to look after other kids and economic factors i.e. lack of money were offered as the reason for delayed medical attention by only 2.3% cases each. Table 2 depicts causes of

delayed medical attention at different levels, as identified on the interview of parents and review of the records.

Table 2: Reasons offered for Delayed Medical Attention at different levels

Delayed Level	Total cases	% Total cases (220) with Delayed medical attention
Delayed First consultation	98	
Unqualified Consultation	38 (38.8%)	17.3%
Self-Treatment	37 (37.7%)	16.8%
No Need Felt	19 (19.4%)	08.6%
No one was at Home	04 (04.1%)	01.8%
Delayed Referral (81)	81	
Changed the Doctor	41 (50.6)	18.6%

Not advised by Doctor	26 (32.1)	11.8%
Not Followed up	14 (17.3)	06.3%
Delayed Hospitalization	24	
No need felt	09 (37.5%)	04.1%
No Money	05 (20.8%)	2.3%
No one was at home	05 (20.8%)	2.3%
Changed the doctor	03 (12.5%)	1.4%
Transportation Number	02 (08.3%)	0.9%

Univariate analysis of risk factors for delayed medical attention identified four major risk factors – (1) Age above 5 years, (b) Non-specific febrile illnesses, (c) Self-medication and (d) Unqualified medical consultation and (e) Doctor shopping (Table 3 & 4).

Table 3: Epidemiological Risk Factors for Delayed Medical Attention

Epidemiological characteristics	Total cases (220)	Delayed Medical attention (158)	P Value	Odd Ratio (95% CI)
Age of the child			0.033	1.93 (1.05-3.55)
<5 yrs	115	76 (66.1%)		
> 5 yrs	105	83 (79.0)		
Gender			0.151	1.58 (0.84-2.95)
Male	136	93 (63.4%)		
Female	84	65 (77.4%)		
Family size			0.111	1.75 (0.07-3.50)
Nuclear	175	130 (74.3%)		
Joint	45	28 (62.2. %)		
Birth order			0.061	1.76 (0.97-3.18)
First	118	091 (77.1%)		
Subsequent	102	067 (65.7%)		
Socioeconomic status			0.619	1.16 (0.64-2.13)
BPL	137	100 (72.3%)		
Above BPL	83	58 (69.9%)		
Father's Educational status			0.107	1.65 (0.90-3.05)
Illiterate	93	72 (77.4%)		
Literate	126	85 (67.5%)		
Mother's Educational status			0.217	1.46 (0.80-2.66)
Illiterate	103	78 (75.7%)		
Literate	113	77 (68.1%)		
Father's Employment status			0.920	0.97 (0.49-1.92)
Yes	165	118 (71.5%)		
No	54	039 (72.2%)		
Mother's Employment status			0.168	1.79 (0.78-4.07)
Yes	28	017 (60.7%)		
No	188	138 (73.4%)		
Proximity to Hosptial			0.259	1.56 (0.72-3.41)
Same municipal ward	33	21 (63.6%)		
Others	187	137 (73.3%)		
Disease Profile			0.048*	2.29 (1.00-5.21)
Non-specific febrile illness	48	40 (83.3%)		
Others (Specific illnesses)	172	118 (68.0%)		

Present study reveals that about 72% of children with monsoon illnesses do not receive appropriate medical attention on time. Similar observations have been made in other studies from India and other developing countries (10–12). In fact, recent NFHS-5 data (2019–2020) reveals that about 31% of under-five children with diarrhoea or fever or acute respiratory infections are not at all taken to a health care provider or health facility.

Moreover, maximum delay in the present study was noticed at the level of first qualified medical consultation that too in a city with relatively well developed public health infrastructure with no Number of accessibility.

From this study, three factors emerge as the most important factors for delayed medical attention - Unqualified consultations, Self-treatment and Doctor shopping, the first two for delayed first consultation and the third one for delayed referral to higher centre.

Unqualified consultations with local quacks or pharmacy-sellers is a common practice in India for initial medical consultation. High dependence on these persons for medical consultations might be understandable in the resource-limited remote locations but not in a big city like Mumbai with easy accessibility of qualified public health care. Perhaps, these unqualified persons are preferred for medical advice in urban slums due to vicinity from the residence, round-the-clock availability and low cost of treatment.

Self-treatment i.e., use of medications without medical consultation is another common problem in India and developing countries with reported prevalence ranging from 30–60%.^{11,13} An outpatient study from Tamil Nadu reported 32% prevalence of self-medication in children, commonly with paracetamol, anticold medications and antibiotics.¹⁴ Most of them used previous prescription to procure the drugs and previous experience on efficacy was the most common reason cited. Older children were more commonly self-medicated than the younger ones ($p = 0.001$). Tibdewal *et al*¹⁵ from Nagpur to evaluate mothers' attitude and practices regarding use of medication in their preschool age children found that 58.9% mothers used self-medications for their children below six years, most commonly for cough & cold. Use of un-prescribed medicines, special prayers and traditional healing were few of the significant predictors of delay for

seeking medical care in a multi-variate logistic regression analysis from Rwanda.¹¹

Doctor-shopping i.e., consulting multiple doctors for same health problem, often in quick succession, is a common practice in developed countries with reported prevalence of as high as 25%.^{16,17} Changing doctors for the same illness episode without a referral not only breaks the link in appropriate treatment but also affects healthcare providers' ability to ensure effective treatment and leads to delay in appropriate medical care. While This practice of doctor shopping is not uncommon in India, documentation is often difficult due to poor record keeping. In a Kenyan study¹⁸ it was seen that caregivers usually consulted on an average 3.8 health providers for the same illness. In a cross-sectional study from Hong-Kong¹⁹ persistence of symptoms was the commonest reason provided for the doctor-shopping in 73.3% cases, apart from others e.g., distrust on the medications prescribed by previous doctors (21.1%), seeking a second opinion (20.5%), unavailability of service in the previous medical facility (14.3%), and advice from family or friends (11.2%). Although justified in some cases, doctor-shopping for the persistence of symptoms may also lead to delay in appropriate medical attention.

In present study, delayed medical attention was significantly more common in older and school-going children above 5 years of age. Many other studies^{10,17} have also that health care is less likely to be sought or sought late in older children than in younger ones, probably due to the fact that parents as well as unqualified health workers consider young children as high-risk and are often reluctant to medicate them on their own. Naaraayanan *et al*.¹⁴ reported that older children were significantly more commonly self-medicated than the younger one, which could delay the appropriate medical attention.

Delayed medical attention was also significantly more common in the cases with non-specific febrile illnesses rather than in those with specific clinical signs or diagnosis. Most of these illnesses were likely to be viral and absence of localizing signs often leads to underestimation of the severity of illness and delayed seeking of medical attention.

Many other risk factors¹⁷ have also been identified in previous studies e.g., perceived severity of the illness, previous experience,

parental illiteracy, mixed illness etc. Parental literacy is considered as a favourable factor for early medical attention as in Kerala, an Indian state with highest literacy rate, 90.8% of the parents took their sick children immediately to the health care facility.²⁰

While this study did not find a significant impact of delayed medical care on mortality and hospital stay, many other have reported notable detrimental effects.^{11,13}

To conclude, present study underscores the widely prevalent problem of delayed medical attention in monsoon illnesses even in population with easy access to no-cost or low-cost public health services. It also identifies risk factors e.g. older age, non-specific febrile illnesses, self-treatment, unqualified consultations and Doctor-shopping, which need to be addressed to ensure appropriate health care to all, in time.

One major limitation of the study is the effect of Covid pandemic on health-care seeking behaviour during covid pandemic in second year of the study.

REFERENCES

- Högberg U. The World Health Report 2005: "Make every mother and child count" – including Africans. *Scand J Public Health*. 2005 Dec 1;33(6):409–11.
- Ahmed SM, Adams AM, Chowdhury M, Bhuiya A. Changing health-seeking behaviour in Matlab, Bangladesh: do development interventions matter? *Health Policy Plan*. 2003 Sep;18(3):306–15.
- Hausmann-Muela S, Ribera J, Nyamongo I. No. 14 Health-seeking behaviour and the health system response. In 2003 [cited 2024 Aug 24]. Available from: <https://www.semanticscholar.org/paper/No.-14-Health-seeking-behaviour-and-the-health-Hausmann-Muela-Ribera/35116a3c0a88898a531ce214e4448861ae00e320>.
- Chokshi M, Patil B, Khanna R, Neogi SB, Sharma J, Paul VK, et al. Health systems in India. *J Perinatol*. 2016 Dec;36(s3):S9–12.
- Das A, Ravindran TS. Factors affecting treatment-seeking for febrile illness in a malaria endemic block in Boudh district, Orissa, India: policy implications for malaria control. *Malaria Journal*. 2010 Dec 30;9(1):377.
- Mathur R, Swaminathan S. National ethical guidelines for biomedical & health research involving human participants, 2017: A commentary. *Indian J Med Res*. 2018 Sep;148(3):279–83.
- Office of the Registrar General & Census Commissioner, India Ministry of Home Affairs, Government of India. Census of India 2011, Maharashtra, District Census Handbook, Mumbai, Series 28, Part XII-B. Mumbai: Directorate of Census Operations Maharashtra. 2014.
- Dávalos A. Thrombolysis in acute ischemic stroke: successes, failures, and new hopes. *Cerebrovasc Dis*. 2005;20 Suppl 2:135–9.
- Arndt V, Stürmer T, Stegmaier C, Ziegler H, Dhom G, Brenner H. Patient delay and stage of diagnosis among breast cancer patients in Germany -- a population based study. *Br J Cancer*. 2002 Apr 8;86(7):1034–40.
- Kassile T, Lokina R, Mujinja P, Mmbando BP. Determinants of delay in care seeking among children under five with fever in Dodoma region, central Tanzania: a cross-sectional study. *Malar J*. 2014 Sep 3;13:348.
- Umuhzoza C, Karambizi AC, Tuyisenge L, Cartledge P. Caregiver delay in seeking healthcare during the acute phase of pediatric illness, Kigali, Rwanda. *The Pan African Medical Journal*. 2018 Jun 22;30:160.
- Kamat VR. "I thought it was only ordinary fever!" cultural knowledge and the micropolitics of therapy seeking for childhood febrile illness in Tanzania. *Soc Sci Med*. 2006 Jun;62(12):2945–59.
- Irimu, Wamalwa, Njai. Factors Associated With Late Presentation To Kenyatta National Hospital For Acute Severe Illness In Children Aged 2-59 Months. In 2016 [cited 2025 Jan 2]. Available from: <https://www.semanticscholar.org/paper/Factors-Associated-With-Late-Presentation-To-For-In-Irimu-Wamalwa/6415d40dbd50882beb6a3672a8100117fa15ea89>
- Naaraayan SA, Rathinabalan I, Seetha V. Self-medication pattern among children attending a tertiary hospital in South India: a cross-sectional study. *International Journal of Contemporary Pediatrics*. 2016 Dec 22;3(4):1267–71.
- Tibdewal S, Gupta M. Mother's use of medication in their children of preschool age. *Indian J Public Health*. 2005;49(1):27–9.
- Biernikiewicz M, Taieb V, Toumi M. Characteristics of doctor-shoppers: a systematic literature review. *Journal of Market Access & Health Policy*. 2019 Mar 27;7(1):1595953.
- Lungu EA, Darker C, Biesma R. Determinants of healthcare seeking for childhood illnesses among caregivers of under-five children in urban slums in Malawi: a population-based cross-sectional study. *BMC Pediatr*. 2020 Jan 17;20(1):20.

18. Garg R, Omwomo W, Witte JM, Lee LA, Deming MS. Care seeking during fatal childhood illnesses: Siaya District, Kenya, 1998. *Am J Public Health*. 2001 Oct;91(10):1611-3.
19. Hariman KW, Lam SC, Lam YWS, Luk KHK, Poon KK, Li AM. Fever as a predictor of doctor shopping in the paediatric population. *Hong Kong Med J*. 2013 Feb;19(1):6-12.
20. Padmaja K, Dr. Mary JT. An evaluation of Primary health care system in Kerala. In 2003 [cited 2025 Jan 5]. Available from: <https://www.semanticscholar.org/paper/An-evaluation-of-Primary-health-care-system-in-Padmaja-Dr.Mary/c5fe0975091ba0379427437a9a2ea59e81d8bb05>