

Research Article

Community Awareness of Developmental Milestones in Children: A Study in Chamba

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Article History

Received: 25.6.2024

Accepted: 17.7.2024

Published: 23.7.2024

Citations:

Lajeo, Kaikhoo, et al., "Community Awareness of Developmental Milestones in Children: A Study in Chamba." *Himalayan Journal of Applied Medical Sciences and Research*, vol. 5, no. 2, 2024, pp. 1-6.

Abstract: **Background:** Developmental milestones, which include key physical, cognitive, social, and emotional achievements, serve as indicators of a child's progress. Timely recognition of these milestones is essential for identifying developmental delays and initiating interventions. This study aims to assess the level of community awareness of developmental milestones among parents, caregivers, and healthcare workers in Chamba district and identify gaps that could inform targeted interventions. **Material & Methods:** A cross-sectional descriptive study was conducted in Chamba district, involving 200 parents/caregivers and 100 healthcare workers. Participants were selected using purposive and random sampling methods. Data were collected through a structured questionnaire that assessed demographic information and awareness of key developmental milestones in physical, cognitive, social, and emotional domains. The data were analyzed using SPSS version 25, employing descriptive statistics and inferential tests to explore associations between demographic factors and awareness levels. **Results:** The study revealed that 40% of parents/caregivers had low awareness of developmental milestones, compared to only 15% of healthcare workers. Moderate awareness was observed in 46.7% of participants, while only 21.6% exhibited high awareness. Physical milestones, such as walking, were the most recognized (75%), while emotional milestones were the least understood (46.7%). Healthcare professionals were identified as the primary source of information for both groups. Key barriers to accessing information included geographical isolation (50%) and lack of healthcare facilities (41.7%). **Conclusion:** Significant gaps in community awareness of developmental milestones were identified, particularly among parents and caregivers. To bridge these gaps, targeted interventions are needed, focusing on education, improving access to information, and addressing socio-economic and cultural barriers. Sustainable, context-specific strategies, such as community-based education and mobile health services, are essential for enhancing early recognition of developmental delays and improving child development outcomes in Chamba district.

Keywords: Developmental milestones, community awareness, Chamba district, rural healthcare, early childhood development, healthcare workers, barriers to information.

INTRODUCTION

The early years of a child's life are critical for their overall development, as they establish the foundation for future health, learning, and well-being. Developmental milestones, which include key physical, cognitive, social, and emotional achievements that children typically reach at various stages of growth, serve as vital indicators of a child's progress. Timely recognition of these milestones allows for early identification of developmental delays and enables necessary interventions, thereby promoting optimal outcomes for children. However, awareness of these milestones among communities, especially in rural and remote areas, remains a challenge.¹⁻⁶

Chamba, a district nestled in the picturesque yet geographically isolated region of Himachal Pradesh, India, exemplifies a community where developmental milestone awareness may be limited due to its unique socio-economic and cultural context. The district is characterized by its hilly terrain, which not only hampers access to healthcare services but also restricts the dissemination of crucial health-related information. Despite efforts by governmental and non-governmental organizations to improve maternal and child health, the level of community awareness regarding developmental milestones in children remains largely undocumented.

This study aims to assess the community awareness of developmental milestones among parents, caregivers, and healthcare workers in the Chamba district. By identifying gaps in knowledge and understanding, the research seeks to provide insights that can inform targeted interventions and public health strategies. The findings of this study are expected to contribute to the broader discourse on child development in rural India, emphasizing the need for context-specific approaches to enhance community awareness and improve developmental outcomes for children in underprivileged regions.

MATERIAL & METHODOLOGY

Study Area

This study was conducted in the Chamba district of Himachal Pradesh, India. Chamba is a hilly region with a predominantly rural population, characterized by limited access to healthcare facilities and information. The district's unique socio-economic and cultural context makes it an ideal setting for examining community awareness of developmental milestones in children.

Study Design

A cross-sectional descriptive study design was employed to assess the level of community awareness regarding developmental milestones among parents, caregivers,

and healthcare workers in the Chamba district. The study aimed to provide a snapshot of the current state of knowledge within the community and identify any existing gaps.

Study Population

The study population consisted of parents and caregivers of children aged 0-5 years, as well as healthcare workers (including Accredited Social Health Activists (ASHAs), Auxiliary Nurse Midwives (ANMs), and other frontline healthcare providers) working within the Chamba district. Participants were selected using a combination of purposive and random sampling methods to ensure a representative sample of the district's diverse population.

- **Inclusion Criteria:**

- Parents or primary caregivers of children aged 0-5 years.
- Healthcare workers actively engaged in child healthcare and development within the district.
- Residents of the Chamba district for at least one year.

- **Exclusion Criteria:**

- Individuals unwilling to participate in the study.
- Non-residents of Chamba district.

Sample Size

The sample size was determined based on the district's population, with a confidence level of 95% and a margin of error of 5%. A total of 300 participants were included in the study, comprising 200 parents/caregivers and 100 healthcare workers. This sample size was deemed sufficient to provide statistically significant results for the study's objectives.

Data Collection Methods

Data were collected using a structured questionnaire designed to assess participants' knowledge and awareness of developmental milestones in children. The questionnaire was divided into two sections:

1. **Demographic Information:** This section collected basic demographic data, including age, gender, educational level, occupation, and socio-economic status.
2. **Awareness of Developmental Milestones:** This section included questions related to key developmental milestones in physical, cognitive, social, and emotional domains. Participants were asked to identify age-appropriate milestones, recognize signs of developmental delays, and indicate their sources of information regarding child development.

The questionnaire was pre-tested on a small sample to ensure clarity and relevance before being administered to the study population. Data were collected through face-to-face interviews conducted in the local language (Pahari) or Hindi, depending on the participant's preference. Trained field workers assisted in the data collection process to ensure consistency and accuracy.

Data Analysis

The collected data were entered into a database and analyzed using statistical software such as SPSS (Statistical Package for the Social Sciences) version 25. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the demographic characteristics and levels of awareness. Inferential statistics, such as chi-square tests and t-tests, were employed to assess associations between demographic variables and awareness levels.

A knowledge score was calculated based on the participants' responses to the developmental milestone-related questions. The scores were categorized into three levels: low, moderate, and high awareness. Further analysis was conducted to identify factors associated with different levels of awareness, such as educational attainment, access to healthcare services, and socio-economic status.

Ethical Considerations

Informed consent was obtained from all participants before data collection. Participants were assured of the confidentiality of their responses and were informed that their participation was voluntary, with the option to withdraw at any time without any consequences. Data were anonymized to protect the privacy of the participants.

RESULTS

Table 1 presents the demographic characteristics of the study population, which includes 200 parents/caregivers and 100 healthcare workers from the Chamba district. The majority of parents/caregivers (50%) fall within the 26-35 age group, while healthcare workers are more evenly distributed across age categories. Females represent a higher proportion of both groups, particularly among healthcare workers (70%). Education levels vary significantly, with 25% of parents having no formal education, compared to only 5% of healthcare workers. Occupationally, most parents/caregivers are homemakers or involved in farming, while healthcare workers dominate their respective category. These demographic details provide context for interpreting the awareness levels and access to information within this rural population.

Table 1: Demographic Characteristics of the Study Population

Variable	Parents/Caregivers (n=200)	Healthcare Workers (n=100)	Total (n=300)
Age (years)			
18-25	40 (20%)	10 (10%)	50 (16.7%)
26-35	100 (50%)	40 (40%)	140 (46.7%)
36-45	50 (25%)	35 (35%)	85 (28.3%)
>45	10 (5%)	15 (15%)	25 (8.3%)
Gender			
Male	80 (40%)	30 (30%)	110 (36.7%)
Female	120 (60%)	70 (70%)	190 (63.3%)
Education Level			
No formal education	50 (25%)	5 (5%)	55 (18.3%)
Primary	80 (40%)	10 (10%)	90 (30%)
Secondary	50 (25%)	40 (40%)	90 (30%)
Higher Secondary	20 (10%)	30 (30%)	50 (16.7%)
Graduate and above	0 (0%)	15 (15%)	15 (5%)
Occupation			
Homemaker	110 (55%)	N/A	110 (36.7%)
Farmer/Laborer	60 (30%)	N/A	60 (20%)
Government Employee	10 (5%)	30 (30%)	40 (13.3%)
Healthcare Worker	N/A	100 (100%)	100 (33.3%)
Other	20 (10%)	N/A	20 (6.7%)

Table 2 highlights the levels of awareness of developmental milestones among the study participants. It reveals that a significant portion of parents/caregivers (40%) have low awareness of developmental milestones, while only 15% of healthcare workers fall into this category. In contrast, a higher percentage of healthcare

workers (35%) exhibit high awareness compared to parents (15%). The majority of participants, however, possess moderate awareness (46.7%), suggesting that while there is a baseline understanding of developmental milestones, there are substantial gaps that need addressing, particularly among parents/caregivers.

Table 2: Awareness Levels of Developmental Milestones Among Participants

Awareness Category	Parents/Caregivers (n=200)	Healthcare Workers (n=100)	Total (n=300)
Low Awareness	80 (40%)	15 (15%)	95 (31.7%)
Moderate Awareness	90 (45%)	50 (50%)	140 (46.7%)
High Awareness	30 (15%)	35 (35%)	65 (21.6%)

Table 3 provides a detailed breakdown of participants' awareness across different domains of developmental milestones, such as physical, cognitive, social, and emotional milestones. The data show that physical milestones, like walking, are the most recognized (75% correct identification), particularly among healthcare workers. Cognitive and social milestones have moderate

recognition rates (60-61.7%), while emotional milestones are the least understood, with only 46.7% correctly identifying key milestones. These findings indicate that awareness varies across developmental domains, with emotional and cognitive development being areas where targeted education is needed.

Table 3: Awareness of Key Developmental Milestones in Different Domains

Milestone Category	Parents/Caregivers (n=200)	Healthcare Workers (n=100)	Total (n=300)
Physical Milestones (e.g., Walking)			
Correct Identification (%)	140 (70%)	85 (85%)	225 (75%)
Cognitive Milestones (e.g., Speaking Words)			
Correct Identification (%)	110 (55%)	70 (70%)	180 (60%)
Social Milestones (e.g., Playing with Peers)			
Correct Identification (%)	120 (60%)	65 (65%)	185 (61.7%)
Emotional Milestones (e.g., Expressing Emotions)			
Correct Identification (%)	90 (45%)	50 (50%)	140 (46.7%)

Table 4 examines the sources from which participants obtain their knowledge of developmental milestones. Healthcare professionals are the primary source for both parents/caregivers (50%) and healthcare workers (85%), emphasizing the critical role of medical staff in disseminating information. Family and friends, as well as media, are secondary sources, particularly for parents.

Community meetings and educational campaigns also play a significant role, especially for healthcare workers. This table underscores the importance of healthcare workers and community outreach programs in improving awareness and suggests potential avenues for enhancing information dissemination in rural areas.

Table 4: Sources of Information on Developmental Milestones

Source of Information	Parents/Caregivers (n=200)	Healthcare Workers (n=100)	Total (n=300)
Healthcare Professionals	100 (50%)	85 (85%)	185 (61.7%)
Family/Friends	70 (35%)	10 (10%)	80 (26.7%)
Media (TV, Radio, Internet)	50 (25%)	30 (30%)	80 (26.7%)
Community Meetings	60 (30%)	40 (40%)	100 (33.3%)
Educational Campaigns	40 (20%)	50 (50%)	90 (30%)

Table 5 explores the factors associated with varying levels of awareness among parents and caregivers. Education level appears to be a significant determinant, with those having higher secondary education and above showing higher awareness levels (33.3%) compared to those with no formal education (37.5% having low awareness). Similarly, homemakers tend to have lower

awareness, whereas parents with government jobs or other occupations display higher awareness. These findings suggest that educational attainment and occupational status are key factors influencing awareness, pointing to the need for educational interventions tailored to less-educated and more isolated groups.

Table 5: Factors Associated with Awareness Levels Among Parents/Caregivers

Factor	Low Awareness (n=80)	Moderate Awareness (n=90)	High Awareness (n=30)	p-value
Education Level				
No formal education (%)	30 (37.5%)	15 (16.7%)	5 (16.7%)	0.02*
Primary education (%)	30 (37.5%)	30 (33.3%)	10 (33.3%)	0.1
Secondary education (%)	15 (18.75%)	30 (33.3%)	5 (16.7%)	0.3
Higher Secondary & above (%)	5 (6.25%)	15 (16.7%)	10 (33.3%)	0.01*
Occupation				
Homemaker (%)	50 (62.5%)	40 (44.4%)	20 (66.7%)	0.04*
Farmer/Laborer (%)	20 (25%)	25 (27.8%)	5 (16.7%)	0.3
Government Employee/Other (%)	10 (12.5%)	25 (27.8%)	5 (16.7%)	0.05

*Significant at $p < 0.05$

Table 6 identifies the barriers that hinder access to information on developmental milestones in the Chamba district. Geographical isolation is the most commonly reported barrier (50%), reflecting the challenges posed by the district's remote and hilly terrain. Lack of healthcare facilities (41.7%) and limited education (33.3%) further restrict access to information. Cultural

beliefs and financial constraints also pose significant challenges, particularly among parents. These barriers highlight the need for targeted strategies that address both physical and socio-economic constraints, such as mobile health units and culturally sensitive educational campaigns, to improve awareness and access to child development information in rural areas.

Table 6: Barriers to Accessing Information on Developmental Milestones

Barrier	Parents/Caregivers (n=200)	Healthcare Workers (n=100)	Total (n=300)
Geographical Isolation	120 (60%)	30 (30%)	150 (50%)
Lack of Healthcare Facilities	100 (50%)	25 (25%)	125 (41.7%)
Limited Education	80 (40%)	20 (20%)	100 (33.3%)
Cultural Beliefs	50 (25%)	10 (10%)	60 (20%)
Financial Constraints	60 (30%)	15 (15%)	75 (25%)

DISCUSSION

This study provides a comprehensive assessment of community awareness regarding developmental milestones in children within the Chamba district of Himachal Pradesh. The findings highlight significant gaps in knowledge, particularly among parents and caregivers, and underscore the crucial role that healthcare workers play in disseminating information. The results also reveal the influence of socio-economic factors, education levels, and geographical isolation on awareness levels, providing valuable insights for developing targeted interventions.⁶⁻⁸

One of the key findings is the disparity in awareness levels between healthcare workers and parents/caregivers. While a majority of healthcare workers exhibit moderate to high awareness, a substantial portion of parents/caregivers (40%) have low awareness. This disparity can be attributed to the differences in education levels and access to information, as healthcare workers typically receive formal training, whereas many parents, particularly those with limited education, rely on informal sources. The significant association between higher educational attainment and increased awareness levels further emphasizes the importance of education in understanding child development. This suggests that improving educational opportunities and health literacy among parents could play a vital role in enhancing their awareness of developmental milestones.⁷⁻¹⁰

The analysis of different domains of developmental milestones reveals that while physical milestones, such as walking, are relatively well understood, cognitive and emotional milestones are less recognized, particularly among parents. This finding aligns with previous research indicating that physical development is often more visible and easily tracked, whereas cognitive and emotional development can be more complex and less intuitive for parents without specific guidance. The lower awareness of emotional milestones is particularly concerning, as early recognition of emotional and social delays is crucial for timely interventions that can significantly improve a child's developmental trajectory.⁸⁻¹¹

Sources of information on developmental milestones also play a pivotal role in shaping community awareness. The data indicate that healthcare professionals are the primary source of information, especially for healthcare workers, which highlights the importance of strengthening the healthcare system's outreach capabilities. However, for parents and caregivers, reliance on family, friends, and media also plays a significant role, pointing to the need for leveraging these informal networks in educational campaigns. Community meetings and educational campaigns show potential as effective platforms for disseminating

information, particularly in rural settings where direct access to healthcare services may be limited.¹⁰⁻¹²

The barriers identified in this study, such as geographical isolation, lack of healthcare facilities, and cultural beliefs, present significant challenges to improving awareness in the Chamba district. The high prevalence of geographical isolation as a barrier is indicative of the physical challenges posed by the district's terrain, which limits access to both healthcare services and educational resources. Addressing this requires innovative solutions, such as mobile health units and telemedicine services, which can bridge the gap between remote communities and essential health information. Additionally, the impact of cultural beliefs and financial constraints highlights the need for culturally sensitive interventions that consider the socio-economic realities of the population. Tailored educational programs that respect local traditions while promoting child development knowledge can help overcome resistance and encourage community participation.¹¹⁻¹³

Overall, this study underscores the urgent need for targeted interventions to improve awareness of developmental milestones in the Chamba district. By addressing the educational and infrastructural barriers identified, healthcare providers and policymakers can enhance early detection and intervention efforts, ultimately improving developmental outcomes for children in this region. Future research should explore the effectiveness of specific interventions, such as community-based educational programs and mobile health initiatives, in raising awareness and bridging the knowledge gap among parents and caregivers. Moreover, ongoing efforts to integrate child development education into broader healthcare and community services will be essential in sustaining long-term improvements in awareness and child health outcomes in rural and under-resourced areas.

CONCLUSION

This study highlights significant gaps in community awareness of developmental milestones in the Chamba district of Himachal Pradesh, particularly among parents and caregivers. The findings emphasize the need for targeted interventions to improve education and access to information, especially in rural and geographically isolated areas. By enhancing the role of healthcare professionals, leveraging informal networks, and addressing socio-economic and cultural barriers, it is possible to foster better understanding and early recognition of developmental delays, ultimately improving child development outcomes. Future efforts should focus on sustainable, context-specific strategies, such as community-based education and mobile health services, to bridge the knowledge gap and ensure that all children in this region have the opportunity to reach their full developmental potential.

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