

Review Article

Diaper use practices among mothers – an urban-rural comparison: a narrative review

Meena^{1*}, Mamta Verma¹, Kumarasamy A. P.²

¹Department of Child Health Nursing, College of Nursing, AIIMS, Bhopal, Madhya Pradesh, India

²Department of Medical and Surgical Nursing, College of Nursing, AIIMS, Bhopal, Madhya Pradesh, India

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*Correspondence:

Meena,

E-mail: merk34655@gmail.com

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ABSTRACT

Diaper usage is a crucial aspect of infant care, yet disparities in maternal knowledge and practices exist across different socio-geographic settings. This narrative review explored and synthesised existing literature on diaper use practices among mothers, focusing specifically on urban-rural differences. Electronic databases, including Google scholar and PubMed, were searched for relevant recent studies using keywords such as “diaper use practices,” “diaper dermatitis,” “infant hygiene,” “urban,” and “rural.” Studies focusing on maternal knowledge and practices were included and analysed thematically. The findings revealed consistent differences between the two demographics: urban mothers generally demonstrated greater awareness of hygiene, optimal diaper-changing frequency, and diaper dermatitis prevention. Conversely, rural mothers exhibited significant knowledge gaps, particularly regarding proper disposal methods and rash prevention. Socioeconomic status, maternal education level, and access to health information emerged as the primary influencing factors driving these disparities. In conclusion, significant urban-rural gaps in maternal diapering practices underscore a critical need for targeted health education interventions, particularly in rural communities. Integrating comprehensive diaper care and hygiene education into routine maternal and child health services could effectively bridge this gap, ultimately improving infant hygiene and health outcomes across diverse populations.

Keywords: Diaper use, Urban–rural mothers, Mothers' knowledge, Infant hygiene, Diaper dermatitis

INTRODUCTION

Diaper use plays a fundamental role in maintaining infant hygiene and preventing skin-related complications during early childhood.¹ The transition from traditional cloth diapers to disposable diapers has significantly influenced childcare practices worldwide, improving convenience but also introducing new dermatological and environmental concerns.² Diaper dermatitis is a multifactorial inflammatory condition caused by prolonged exposure to moisture, friction, and irritants such as urine and feces.³ Evidence suggests that disruption of the skin barrier function, increased skin pH, and microbial colonisation are key contributing factors.^{4,5}

Recent clinical reviews highlight that diaper dermatitis affects a substantial proportion of infants globally, with varying severity depending on hygiene practices and diapering methods.^{5,6}

The use of highly absorbent disposable diapers has been shown to reduce skin overhydration and lower the incidence of dermatitis compared to traditional cloth diapers.⁷ Despite these advancements, disparities in diaper use practices persist, particularly between urban and rural populations, influenced by socioeconomic status, cultural beliefs, and access to healthcare services.⁸ This narrative review aims to comprehensively examine the differences in diaper use practices among mothers in

urban and rural settings, with a focus on understanding variations in knowledge, hygiene behaviours, cultural influences, and access to resources. It further emphasizes the identification of associated health outcomes, particularly diaper dermatitis, and highlights existing gaps in awareness and practices. The review also underscores the importance of appropriate preventive measures and the need for targeted health education to improve infant care practices, especially among populations with limited access to healthcare services.

METHODS

A narrative review approach was adopted. Relevant literature from databases such as PubMed, Google scholar, and indexed journals was reviewed. Studies focusing on diaper use practices, maternal knowledge, diaper dermatitis, and environmental or socioeconomic influences were included. Both primary research studies and reviews were critically analyzed and synthesized into thematic sections.

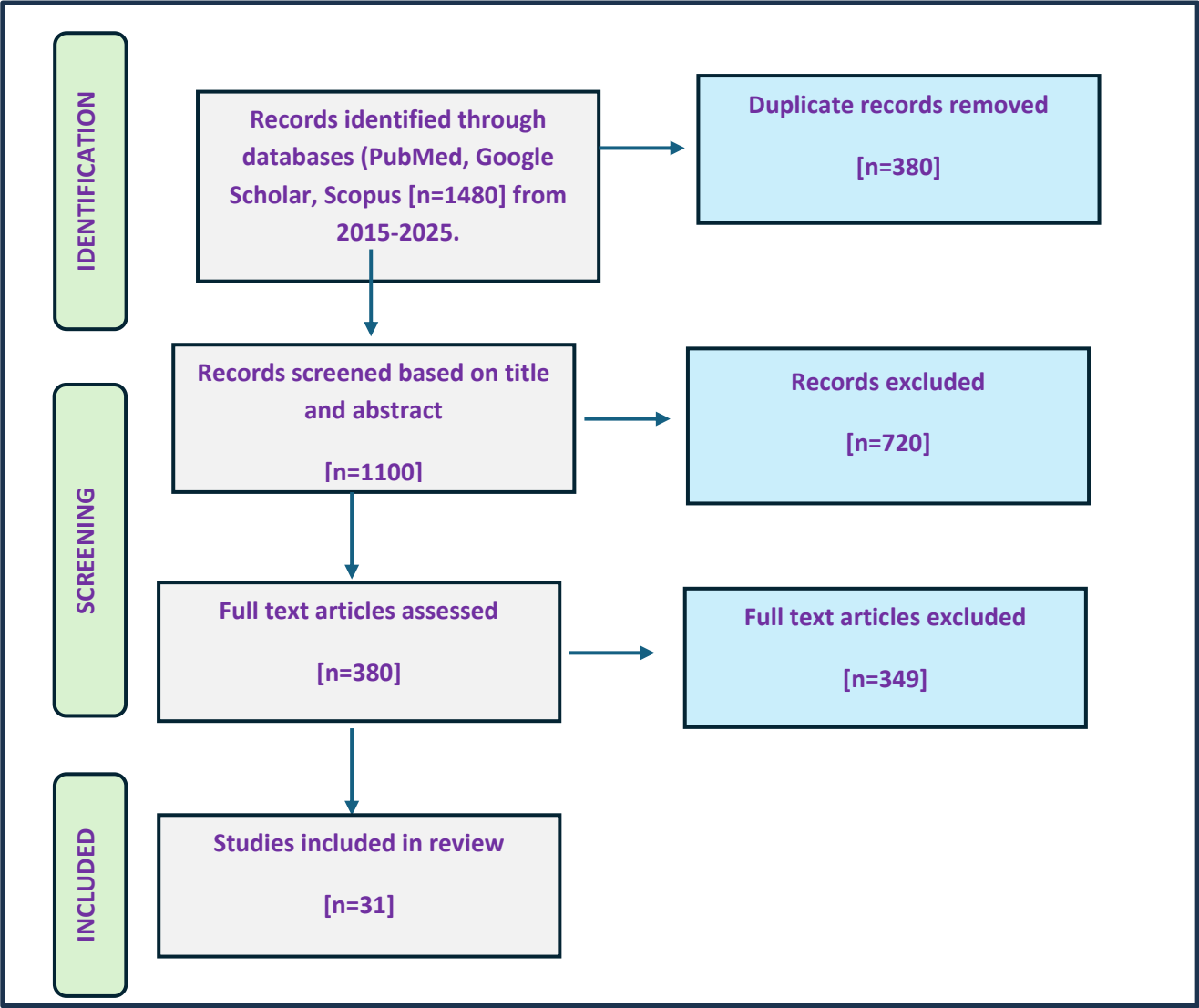


Figure 1: Schematic representation of search strategy for literature review.

URBAN-RURAL DIFFERENCES IN MOTHERS’ DIAPER USE PRACTICES

Maternal knowledge and awareness

Maternal knowledge plays a decisive role in determining diaper hygiene practices. Evidence shows that knowledge regarding diaper dermatitis prevention is often inadequate, with average correct knowledge scores around 59.7% in some populations.⁹ Educational level

and structural awareness programs are vital, as structured health teachings have shown a measurable impact on improving direct diapering practices among postnatal mothers.¹⁰

Urban mothers generally exhibit higher awareness due to better access to healthcare services, digital information, and education.^{8,11} In contrast, rural mothers frequently lack adequate knowledge regarding preventive practices,

early signs of diaper rash, and appropriate management strategies.^{2,12,13}

Studies further highlight that many caregivers rely on informal sources such as the internet or family traditions, which may not always provide evidence-based guidance.¹⁴ This gap emphasises the need to evaluate maternal knowledge against standard child health outcomes.¹⁵

Hygiene practices and diapering behaviour

Appropriate diapering practices are critical in maintaining skin integrity. Studies emphasise that frequent diaper changes, gentle cleansing, and maintaining dryness are key preventive strategies.⁴ Research indicates that prolonged exposure to wet diapers significantly increases skin maceration and susceptibility to irritation.⁵ Additionally, improper cleaning techniques, such as excessive rubbing or the use of irritant substances, can further damage the skin barrier.¹⁶ Clinical trials evaluating diaper types further suggest that proper compliance with changing regimens directly limits cumulative lesion scores.¹⁷

Modern diaper technology, including superabsorbent polymers, has been shown to reduce moisture retention and maintain a more favourable skin environment.⁷ Innovations in material science focus heavily on enhancing structural cores to optimise skin dryness, and clinical assessments confirm that targeted modifications in diaper design can actively minimise diaper dermatitis severity.^{18,19} However, such products are more commonly used in urban settings due to better affordability and accessibility.²⁰

In contrast, rural populations often rely on reusable cloth diapers, which may retain moisture for longer periods and increase the risk of dermatitis if not changed frequently.^{21,22}

Cultural beliefs and traditional practices

Cultural practices strongly influence infant care behaviours, particularly in rural communities. Traditional remedies, such as applying powders, oils, or herbal substances, are commonly used to manage diaper rash.¹³

While some practices may provide temporary relief, others can exacerbate skin irritation or delay appropriate treatment. For example, the use of talcum powder has been associated with increased risk of diaper dermatitis.⁹ Furthermore, delayed treatment due to traditional misconceptions can sometimes mask underlying systemic conditions that present as persistent rashes.²³

Urban populations are comparatively more inclined toward evidence-based interventions, including the use of topical barrier creams, specialised hydrocolloid dressings for severe cases, and early medical consultation.^{8,24,25}

Global diapering habits also reflect distinct regional paradigms, where westernised, evidence-based skin guidelines contrast sharply with traditional practices.²⁶

Economic and accessibility factors

Socioeconomic status significantly determines diaper use patterns. Disposable diapers, though effective at controlling moisture, are often unaffordable for families in low-income rural settings.²⁷ This "diaper need" creates a major socio-economic barrier, directly linking financial strain to poor pediatric health outcomes and basic hygiene deprivation.²⁸

Urban families, with greater purchasing power, are more likely to use technologically advanced diapers that reduce skin humidity and irritation.^{20,29} Studies also show that urban residence is associated with a lower risk of diaper dermatitis, likely due to better hygiene practices and more frequent diaper changes.³⁰

Limited access to healthcare facilities and poor home management strategies in rural areas further delay treatment and increase the risk of complications.³¹

Environmental and disposal practices

Disposal of used diapers is a growing environmental concern. Rural areas often lack structured waste management systems, leading to unsafe disposal practices such as open dumping.^{22,32}

In urban settings, although waste management systems are better organised, increased use of disposable diapers contributes to environmental burden due to non-biodegradable waste.³³

Improper disposal practices can also lead to contamination and public health risks.³⁴

Health implications of diaper use practices

Diaper dermatitis is one of the most common dermatological conditions in infancy, resulting from a combination of physical, chemical, and microbial factors.⁶ The pathophysiology involves increased skin hydration, frictional damage, and exposure to irritants, leading to breakdown of the epidermal barrier.⁴ Secondary infections with candida albicans and bacteria are common complications in severe cases.⁵

Clinical evidence indicates that preventive measures such as frequent diaper changes, use of barrier creams, and breathable diapers significantly reduce the incidence and severity of diaper dermatitis.^{6,7} Furthermore, inappropriate diapering practices have also been associated with broader health concerns, including discomfort, sleep disturbances, and increased caregiver burden.²⁹

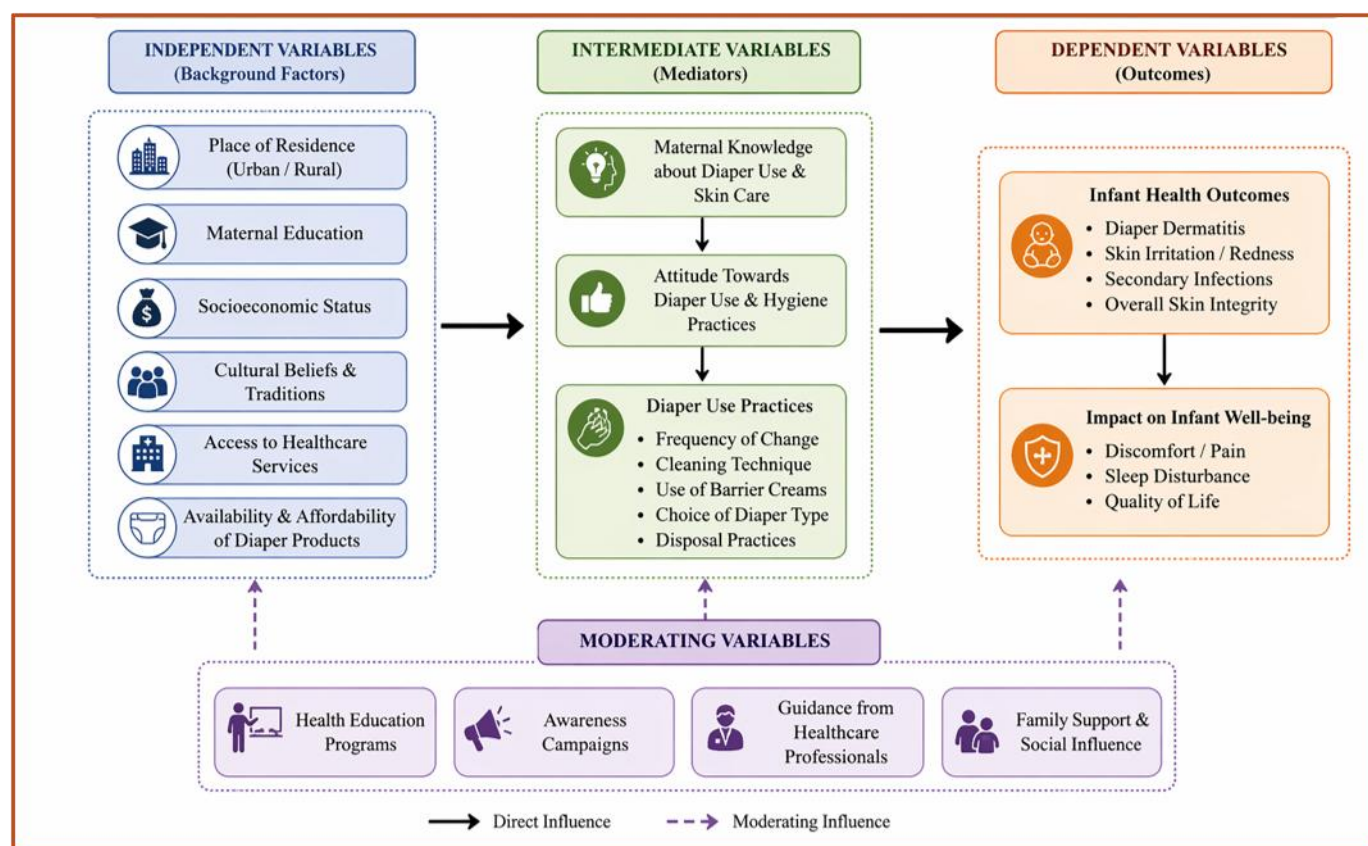


Figure 2: Overview of factors influencing diaper use practices and associated outcomes among urban and rural mothers.

Figure 2 illustrates the key factors affecting diaper use practices among mothers in urban and rural areas. Socio-demographic characteristics such as residence, education, and economic status influence maternal knowledge and attitudes towards diaper use.

These factors subsequently determine practices such as diaper changing frequency, hygiene maintenance, and disposal methods. Such practices play an important role in influencing infant health outcomes, including diaper dermatitis and overall well-being. Moreover, external factors such as health education and family support may modify these practices.

Challenges and gaps

Despite significant advancements in diaper technology and their widespread utility, several challenges in their appropriate use and management still persist. Inadequate maternal knowledge, particularly in rural areas, along with cultural misconceptions and reliance on traditional remedies, significantly contribute to suboptimal infant care practices.

Economic barriers that limit access to quality diaper products further compound the problem. In addition, the lack of structured health education programs and poor sanitation and waste disposal systems worsen the

situation. Together, these gaps contribute to preventable health complications among infants.

CONCLUSION

In conclusion, improving diaper use practices among mothers requires a multifaceted approach. Strengthening maternal knowledge through community-based health education programs is essential to promoting appropriate practices. There is also a need to integrate diaper care education into routine antenatal and postnatal services to ensure early awareness.

Additionally, making diaper products more affordable and accessible can help overcome the economic barriers many families face. Promoting evidence-based hygiene practices is crucial to preventing skin-related complications in infants. Furthermore, improving waste management systems is necessary to ensure safe and hygienic disposal of used diapers. Collectively, these measures can improve infant health outcomes and overall well-being.

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