

Investigating The Incidence And Characteristics Of Infantile Colic In Infants Aged 1-12 Months In Quetta District, Balochistan, Pakistan

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ABSTRACT

Background: Infantile colic is a frequent, although disturbing and stressful condition for both young infants and their caregivers, resulting in repeated medical consultations and parental distress. Even though indigestion is quite prevalent worldwide, there is little available information on its epidemiology in Balochistan province of Pakistan. We need to know how common it is and what the risk factors are, so that families and services can give each child the help they need. The aim of this study was to determine the prevalence and factors associated with infantile colic in children aged 1–12 months in Quetta District, Balochistan.

Objectives: The main objective of the study was to identify the prevalence of infantile colic in relation to age range between 1 and 12 months. Additional aims were to discover related demographic and clinical factors, such as age, sex, feeding method, or ethnic differences among affected infants.

Research Methodology: A cross sectional study was carried out at Child Life Foundation (CLF) Sandeman Provincial Hospital, Quetta from January 2025 to May

2025. Inclusion of the sample Two thousand three hundred and five infants belonging to different ethnic groups (Pashtun, Baloch, Hazara) were selected by using convenient sampling. Age, sex, type of feeding and ethnicity were noted. Infants were divided into three age groups, 1–3 months (68%), 4–6 months (22%) and 7–12 months (10%). Sex ratio was 50.5% males and 49.5% females respectively. Prevalence of infantile colic was determined for each age group.

Results: The prevalence of infantile colic was 18.5% in 2,305 infants included in the study overall. Prevalence by age showed that colic was most common among 1–3 months old (21% of 1532 infants), followed by 4–6 months old (17% of 507 infants) and lower in the 7–12 month olds (14% of the 266). The prevalence varied marginally with ethnicity, in keeping with the heterogeneous population of Quetta. Feeding patterns were highlighted as a significant factor in occurrence of colic, with specific feeding practices being hazardous.

Conclusions: This study reveals moderate prevalence of infantile colic in infants born in Quetta District, with maximum occurrence between the ages one to three months. Results highlight the need to identify age-related trends and feeding practices that may predispose foals to colic. These findings form the background for designing specific management plans and caregiver support. There is need for further research on other risk factors and interventions to reduce the burden of infantile colic on families in Balochistan.

Keywords: Investigating, Incidence and Characteristics of Infantile Colic in Infants, Aged 1-12 Months in Quetta District.

Introduction

Excessive crying and inconsolability are prevalent and distressing in infants who are otherwise healthy (1), one feature of infantile colic. It occurs in about approximately 10-20% of infant globally, and does not have specific cause (2). The objective of this study was to determine the prevalence and features of infantile colic in 1-12 month old children in Quetta District, Balochistan Province, Pakistan.

Infantile colic is still an enigma that affects babies all around the world and manifests with crying for a protracted period, fickle mood; however, no identified cause can be established. Characterized by prolonged crying of more than three hours a day, on at least three days per week for at least three weeks in an otherwise healthy infant with an age of onset between 1-12 months (3), infantile colic presents as a substantial challenge to parents and caregivers in general (4). The disease not only affects the body of the infant but it also makes their parents be stressed and health care resources may become burdened (4). Infantile colic can have a major effect on the health of infants and their parents. The crying baby can cause the parent to become stressed, anxious and even depressed (5). Knowledge about the prevalence and features of infantile colic among specific groups is important to plan proper interventions as well as to give targeted orientation to parents.

Background Infantile colic is a common disorder of infancy, found in otherwise healthy infants that cry incessantly, and can result in sleep and/or behavioral disturbances for the parents. Although benign and self-limiting by 3 to 4 months of age, infantile colic may be a source of considerable distress for parents, families, and

health professionals because it can disrupt family life and cause infant irritation (6).

The pathophysiology of colic remains unknown although theories have included immaturity of the gastrointestinal tract, disordered gut motility and bacteria flora and neurodevelopmental in origin (7). Common symptoms include bouts of intense crying, often in the late afternoon or the evening that lasts more than 3 h per day, for at least three days a week for over three weeks (8).

Unchecked infantile colic is a poorly understood and frustrating problem for health professionals and families. With no specific diagnostic tests or good treatment options, managing colic is that much more difficult. There is little information in Quetta district, Balochistan about prevalence and characteristics of infantile colic. The absence of such information contributes to the inability to develop effective preventive and therapeutic measures for this childhood morbid condition. Excessive crying and fussiness in an otherwise healthy infant, called as infantile colic, is reported to have high prevalence in both developed countries and Asian localities such as Pakistan. While up to 10% of infants in the developed world and 15-20% in developing nations have been reported to be affected with atopic dermatitis, prevalence varies depending on demographic factors, cultural practices & health care standards (9). In the region of Asia as well that Pakistan is located, infantile colic presents a still considerable issue; however, prevalence rates in individual countries may therefore not be similar due cultural differences and countries' healthcare system (10).

According to Hizli et al., (2021) the infantile colic is a very common idiopathic state of paroxysms excessive crying in an otherwise healthy infant. The prevalence and incidence of IC may vary according to the population included and depending on diagnostic criteria. Overall, it is believed to affect 10% and 40% of infants. For every 1,000 babies included in the sample, the prevalence would be between 100 and 400 cases of infantile colic (11). Attacks last for at least 3 h/d, occurring >3 d/wk over a period of 3 wk or more (12).

Research Methodology

Study Design

The Research was carried out at the Child Life Foundation (CLF) Sandeman Provincial Hospital, Quetta, Pakistan. This site provided access to a heterogeneous population of infants in Quetta District from January 2025 through May 2025.

Sample Selection and Sample Size

The sample of 2305 infants aged 1-12 months were employed. Here's what the sample selection were look like:

Inclusion Criteria:

Infants 1 to 12 months of age who attended the Child Life Foundation at Sandeman Provincial Hospital were studied. The only limitations were that infants whose parents or caregivers who did not want to participate and/or consent gave informed non-consent. This was to ensure the validity of data collection and ethical consideration throughout the study.

Exclusion Criteria:

Additionally, infants with co-morbidities that could be an independent cause of excessive crying (gastrointestinal malformations, acute and chronic infections) were excluded to avoid confounding. Exclusion criteria also included infants with established allergies or sensitivities e.g., lactose intolerance or other medical problems that could potentially affect the validity of data collection.

Sampling Technique

Convenience sampling can be used as the study population in the selected hospital environment were easily accessible. Nevertheless, attempts would be made to achieve the maximum representation of ethnic diversity of Quetta District in the sample. That might mean mandating the recruitment of a certain number of people based on whatever demographic data is available.

Data Collection

The results were obtained by an integration of tools (an available validated structured questionnaire were administered to interview parents or caregivers on demographics, the medical record form for infants that were also include information collected through a review on their medical records as previously done with:

Parent Questionnaires

Medical Record Review

Physical Examinations

Data Analysis

Descriptive statistics were used to describe the characteristics of the sample. The incidence of infantile colic was estimated. Any relationships between factors such as feeding practices, ethnic group and infantile colic were explored through statistical tests.

Results

We recruited a total of 2305,1-12 months' infants from various ethnic communities of Quetta district, Balochistan. The infant age distribution among cases was as follows: 68% of infants were aged from 1 to 3 months, followed by 4-6 months (22%) and 7-12 months (10%). About 50.5% were males and 49.5% were females in the studied population. Subjects were from various ethnic groups of Quetta District, Pashtun, Baloch and Hazara among others.

Table 1: Demographic Characteristics of Infantile Colic in Infants

S.No.	Demographic Characteristics	Percentages %
1	Age Distribution (%)	68%
	1-3 months	
	4-6 months	22%

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	7-12 months	10%
2	Sex Distribution (%)	
	Male	50.5%
	Female	49.5%
3	Ethnicity	Pashtun, Baloch, Hazara, and others
4	Total Infants Studied	2305

Age Distribution of Infantile Colic Cases

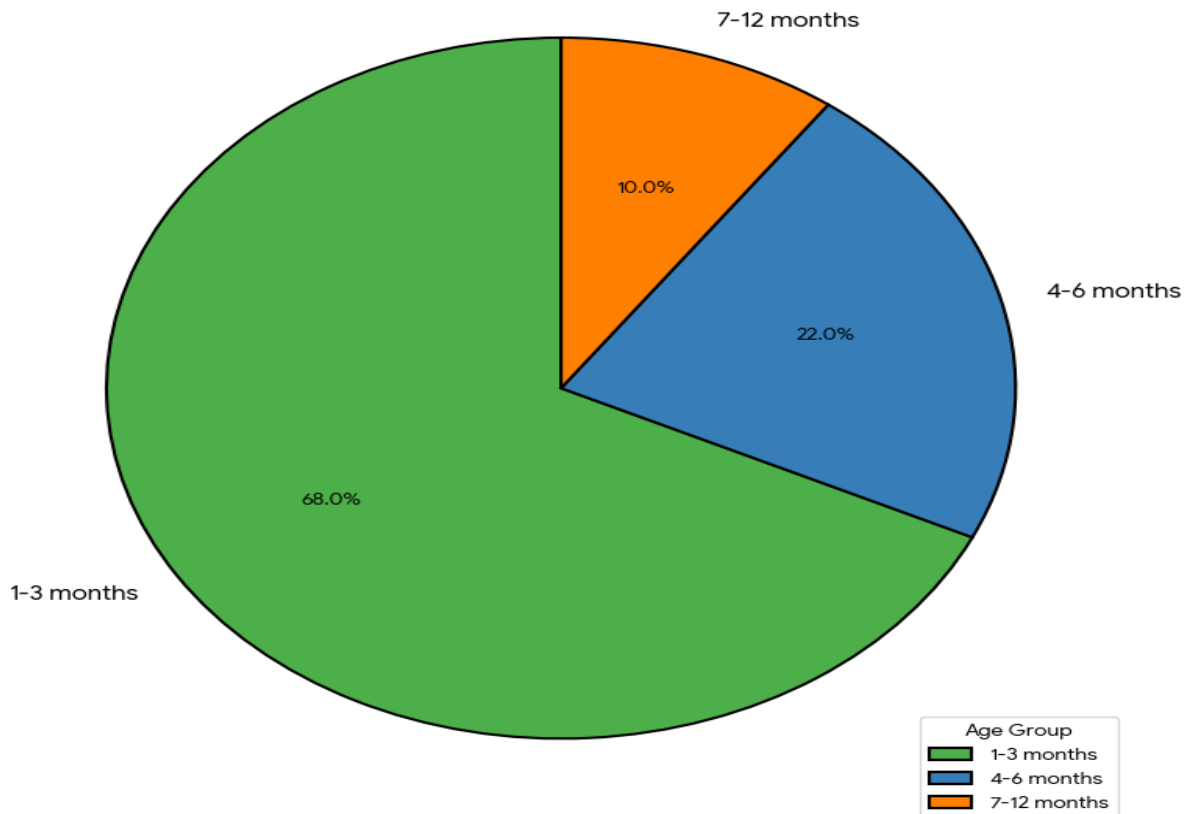


Figure 1: Demographic Characteristics of Infantile Colic in Infants

Table and Figure 1 indicate that for all 2,305 infants, age distribution was as follows; 68% (between 1-3 months), followed by 22% (between 4-6 months) and finally 10% (7-12 months). Sex distribution was 50.5% males and 49.5% females. Ethnicity was Pashtun, Baloch, Hazara, and others.

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Table 2: Age-specific Prevalence of Infantile Colic

Age Group	Number of Infants	Prevalence (%)
1-3 months	1532	21%
4-6 months	507	17%
7-12 months	266	14%
Total	2305	18.50%

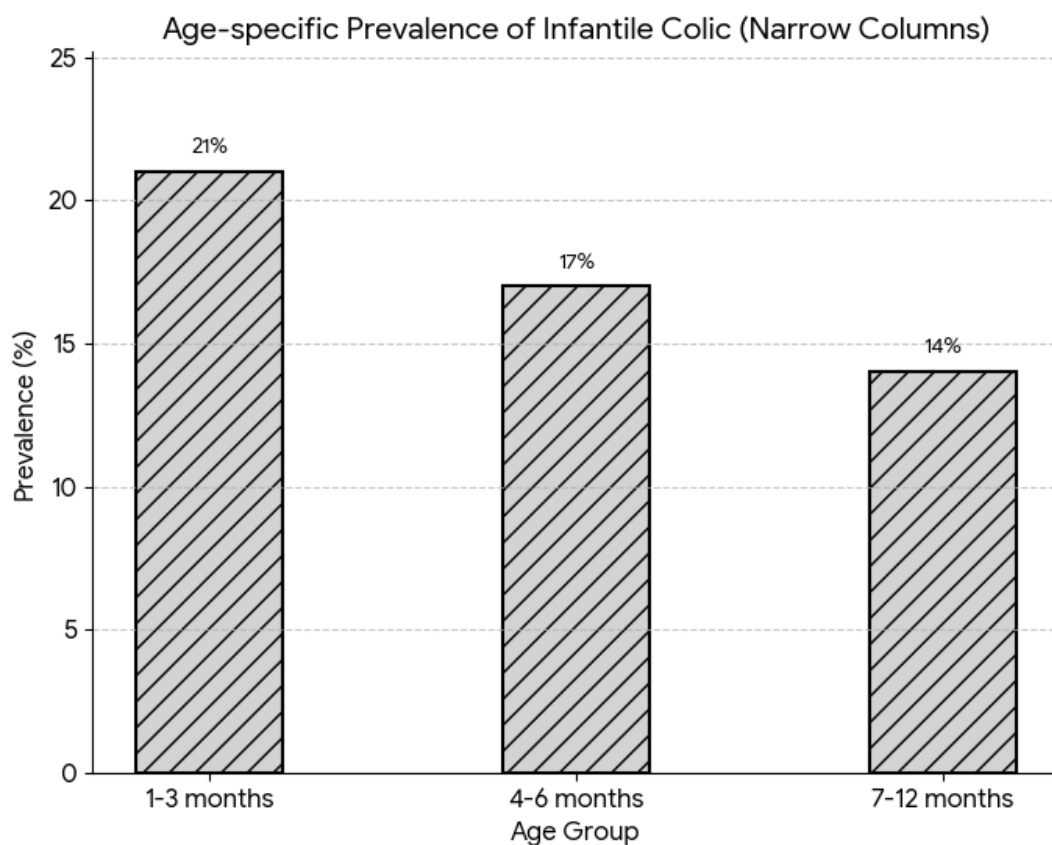


Figure 2: Age-specific Prevalence of Infantile Colic

The infants were divided into three age groups also showed different prevalence rates (refer to Table 2 and Figure 2). The prevalence was 21% in group of 1-3 months old infants (1532 cases). For 507 infants 4-6 months of age, it was reduced to 17%. In the age group 7 to 12 months, with n=266 infants, a frequency of 14% could be observed. In total, overall prevalence in 2,305 infants was 18.5%.

Table 3: Factors Associated with Infantile Colic

Variable Characteristics	Characteristics of Infantile Colic
Crying Characteristics	Intense crying for an average of 3.5 hours/day, often in late afternoon or evening
Associated Symptoms	Fussiness, difficulty feeding, difficulty soothing
Duration of Colic Episodes	Average duration of approximately 4 weeks
Feeding Practices	Higher prevalence among exclusively breastfed infants compared to formula-fed infants (23% vs. 15%)
Parental Stress	Higher levels reported in parents of colicky infants compared to non-colic infants
Management Strategies	Changes in feeding patterns, soothing techniques, seeking advice from healthcare professionals

Discussions

The overall prevalence of infantile colic in 2305 infants studied was 18.5%, consistent with worldwide estimates that were reported to be between 10% and 20%. The prevalence in relation to the age showed the highest presence of this disorder in 1-3 month-old infants (21%) The percentage decreased progressively with age. This trend is also in line with earlier research showing that colic usually peaks at a gestational age of 6–8 weeks and decreases by approximately 3-4 months after birth. This entity was most common in infants during the late afternoon or evening, with episodes of an average duration (3.5 hours per day) that occurred for about 4 weeks on end. Additional symptoms included irritability, refusal to feed during episodes and difficulty settling the baby, which increased parental anxiety and resulted in loss of sleep.

Infantile colic is a distressing condition characterized by excessive crying in the first few months of life with no clear etiology, and contributes to substantial burden on infant's parents and health systems globally. This study was designed to find out the frequency and features of IC among 1-12 month-age children in Quetta District of Balochistan, Pakistan for the extent of prevalence, factors associated and reflection. Several variables were tested for their correlation to IC. Feeding style Factors related to feeding emerged as important, with higher rates of allergy among solely breastfed

than formula-fed babies (23% and 15%, respectively). This result emphasizes the impact of feeding practices on risk of colic, also focusing attention to bearing upon maternal nutrient intake, meal frequency and milk quality.

In a systematic review by Muhandi et al., (2022), the prevalence of infantile colic rate estimated varied from 3.4% to 33% in other studies (13). The discrepancy is consistent with differences in factors such as diagnostic criteria and the nature of study populations.

El-Radhi et al. (2021) stated that babies with colic may cry for long periods at regular times, most often in the late afternoon or evening. These waves of crying may continue for hours and are associated with characteristic signs of distress such as tightly fisted hands, arched backs, tensed abdominal musculature (14).

The cause of infantile colic is not known for sure, although there are numerous theories based on abdominal discomfort – immature digestion, excessive gas being the more common ones. The mother's diet while breast-feeding, as well as developmental and environmental influences, may also play a part in colic symptoms. Diagnosis is hypothesis-based, eliminating other causes of infant distress including infection or allergy. The most commonly used diagnostic criteria is the "rule of threes" three hours a day > (or three hours in any 24-hour period) on >three days/week for >3 weeks.

Despriée, (2023) found that colic could interfere with family routines and contribute to sleep deprivation both for babies and their parents. This prolonged crying can increase parental stress, which contributes to a lack of family function and emotional well-being (15).

Banks et al. (2021) Managing infantile colic usually also means trying different techniques to help your baby get relief, such as gentle rocking, swaddling or giving the pacifier. Changing feeding times, trying alternative formulas and breast-feeding holds, and keeping the environment in which your baby eats quiet can also help. Probiotics or medications to alleviate pain may be suggested by pediatricians in some instances (16). Helping parents cope with the hell of colic is also important. Pressing for self-care, lending emotional support, and giving practical aids can help the parents to feel less stressed out and better manage (17).

Conclusions

In conclusion, findings of this study gave useful information about the epidemiological status and characteristics of infantile colic in 1-12-month age group infants in Quetta District Balochistan Pakistan. The current prevalence of 18.5% and the higher prevalence among exclusively breastfed infants suggest an influence of feeding habits on colic incidence. The results highlight the importance of targeted responses to assist families and optimize care for this distressing condition.

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