

Assessment of Knowledge, Attitude and Practice Patterns of Mothers Regarding Gripe Water Use in Infants

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Abstract

Background and objective: WHO recommends exclusive breastfeeding during the first six months of infant life. Various beliefs and customs regarding infant feeding practices are sometimes irrational and gripe water, juice or porridge feeding can result in an increased risk of bacterial infection, allergic reactions and intestinal wall irritation. Our study aimed to assess the knowledge, attitude and practice patterns of mothers regarding the use of gripe water for their babies.

Methods: A cross-sectional study was conducted from March to May 2017 after obtaining approval from Institutional Ethics Committee and written informed consent from the participants. Mothers visiting our hospital with a child aged 1-6 months were administered a questionnaire.

Results: 266 mothers responded to the questionnaire with a mean age of 26.19 ± 3.76 years. The mean age of the child was 3.56 ± 1.60 months. 36.9% of mothers practiced exclusive breastfeeding. 63% of mothers administered gripe water to aid digestion (69%) and prevent colic (30%). Only 1.5% of mothers knew the constituents of gripe water. 84% of infants who were administered gripe water had infections compared to those who did not receive it (77%). 53.5% of mothers did not use gripe water since they were not aware of the uses of gripe water.

Interpretation and Conclusion: Young educated mothers used gripe water even though they were unaware of the constituents, and infants who were administered suffered from cough, cold, fever, diarrhea and vomiting. Creating awareness by educating women regarding the disadvantages of gripe water can help in promoting healthy and safe feeding practices.

Keywords: Aid in digestion, Exclusive Breast Feeding, Gripe Water, Infantile Colic,

Introduction

The feeding practices in infants and young children comprise breast milk and supplementary feeds which play a significant role in determining the nutritional status of children.^[1] WHO recommends that infants during the first six months of life should be exclusively breast fed^[2] as any other feeding practice may increase the risk of bacterial infection, allergic reactions and intestinal wall irritation.^[3]

During the first year of life, healthy infants may often suffer from functional gastrointestinal problems such as colic, regurgitation and constipation. These may be interpreted as digestive discomfort or pain, which may result in interruption of breastfeeding, multiple changes of formula feed, numerous queries and unnecessary medications.^[4] The various beliefs and customs regarding infant feeding practices, which are sometimes irrational but still followed by people for generations,

can influence the WHO recommendation to a great extent. One such irrational practice is the use of gripe water for infants on a routine basis.^[3]

Contents of gripe water are alcohol (0-9% based on brand), with most brands of gripe water marketed in India is alcohol free, Sodium bicarbonate (Sarjikakshara), Dill seed oil (Anethum graveolens), Sugar, Herbs such as pudinaka tail, fennel extract, ginger extract, chamomile, preservatives like bronopol, sodium methyl/propylparaben, sodium benzoate, citric acid and potassium sorbate.^[3,5]

The label on the gripe water recommends it for flatulence, teething and minor tummy upsets,^[6] but it is commonly used for colic. The other uses are in fretful babies, flatulence, tummy problems, teething and hiccups. The alternatives to gripe water use are infant massage, changing formula milk, making the child burp, swaddling the baby, feeding breast milk, crib vibration, focused counselling, and reducing stimulation like not jiggling and lifting the baby.^[6,7,8]

The alcohol content in gripe water provides a soothing effect. Bicarbonate provides little relief from discomfort since hyperacidity is not considered to be the cause. Dill (Norwegian word for lull), a plant derivative, has carminative property. If the presence of excess gas causes pain then the carminative effect of dill may be soothing. The soothing effect of gripe water is due to sugar content as observed in recent studies where infants with colic have shown relief from the sugar solution. When sugar is tasted, the analgesic effect is observed, as supported by various historical events, such as using sweeteners before circumcision.^[6]

Gripe water is most commonly used globally since 1851.^[6] It is freely available as an over-the-counter product and is self-administered by mothers or is given following a prescription by the doctor for treatment of colic.^[9,10] Gripe water, if given soon after birth may cause delay in establishment of breastfeeding and reduce breast milk supply.^[3] There is no scientific evidence to prove that gripe water is safe or unsafe for the baby and is not approved by the drug regulatory authorities for use in infants.

Parents have expressed that their baby had developed a regressed toilet schedule after consuming gripe water, but no evidence directly links gripe water with constipation. There could be specific side effects of the ingredients present in gripe water, such as artificial sweeteners, sodium bicarbonate or alcohol.^[7] Gripe water can cause septic shock due to *Pseudomonas aeruginosa* and diarrhea due to *Cryptosporidium*.^[3] Due to lack of knowledge regarding the requirement and complications associated with the use of gripe water among mothers, this study was carried out to assess the knowledge, attitude and practice patterns of use of gripe water by the mothers for their children.

Material and Methods

A cross-sectional study was conducted from March 2017 to May 2017. The protocol was approved by Institutional Ethics Committee, and written informed consent was obtained from the mothers who visited our hospital during the study period with their children aged between 1-6 months. They were interviewed by the investigator using a questionnaire for 15 minutes. The questionnaire consisted of 14 items. It included details regarding the mother, child and their family, questions concerning breastfeeding practices, infant health problems and gripe water use. The following definitions were used and were explained to the mother. **Colic:** Paroxysms of irritability, fussing or crying lasting for three or more hours in any one day and occurring on three or more days in any one week.^[11] **Constipation:** Interval between stools extending beyond 48 hours and/or passing hard stools associated with crying.^[12] Education level was categorized as follows: **Illiterate:** cannot read or write; **High school:** have completed secondary education; **Graduate:** completed bachelor's degree from a university; **Postgraduate:** completed academic degree for which bachelor's degree is required. The data collected were analyzed using descriptive statistics (mean, standard deviation and percentage).

Results

Two hundred and sixty-six mothers were administered the questionnaire; among them, 167 mothers used gripe water for their child as shown in figure 1. The demographic parameters are represented in table 1. Majority of women were aged between 20-25 years (135/266; 51%), educated (240/266; 90%), housewife (218/266; 82%) and from a rural background (222/266; 84%).

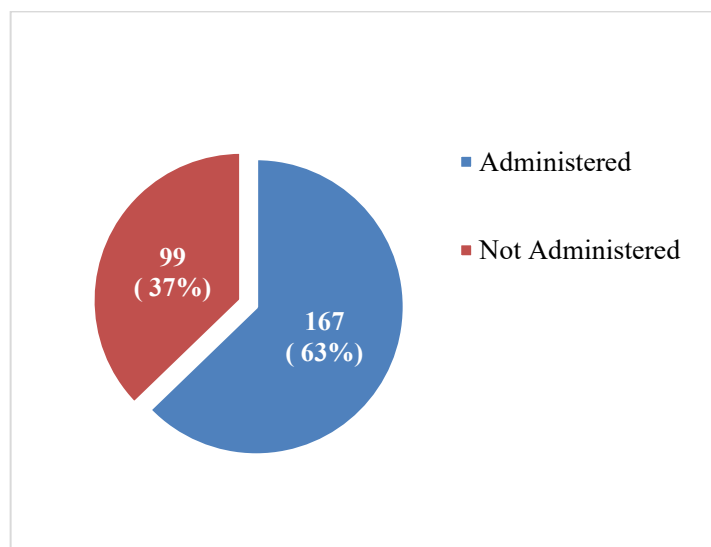


Figure 1. Gripe Water Used by Mothers

Table 1. Demographic Characteristics of Mother and Child

Parameters	Gripe water used (n = 167)		Gripe water not used (n = 99)	
	Number	Percentage %	Number	Percentage %
1. Age of the mother (Years) Mean $\pm$ SD	25.56 $\pm$ 3.65		24.57 $\pm$ 3.88	
<20	05	03.0	08	08.1
20-25	82	49.1	53	53.5
26-30	64	38.3	32	32.3
>30	16	09.6	06	06.1
2. Education of mother				
Illiterate	15	09.0	11	11.1
High school	101	60.5	52	52.5
Graduate	39	23.4	30	30.3
Postgraduate	12	07.1	06	06.1
3. Occupation of mother				
Housewife	140	83.8	78	78.8
Working	27	16.2	21	21.2
4. Age of the child (months) Mean $\pm$ SD	3.98 $\pm$ 1.45		2.87 $\pm$ 1.60	
$\leq$ 3 months	64	38.3	68	68.7
4-6 months	103	61.7	31	31.3
5. Weight of the child (Kg) Mean $\pm$ SD	2.90 $\pm$ 0.50		2.94 $\pm$ 0.54	
$\leq$ 2.5 Kg	35	21.0	23	23.2
>2.5 Kg	132	79.0	76	76.8
6. First child	88	52.7	60	60.6
7. Location of family				
Rural	145	86.8	77	77.8
Urban	22	13.2	22	22.2

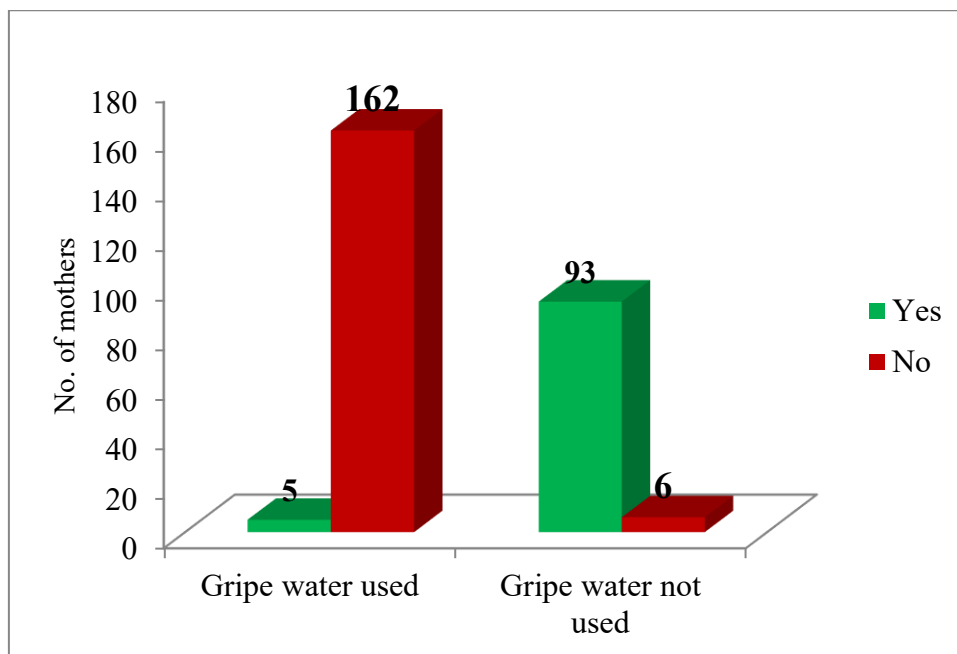


Figure 2. Breastfeeding Practiced by the Mothers

Two hundred and sixty-five mothers had knowledge regarding exclusive breastfeeding but were practiced by 36.9% (98/265) of them as represented in figure 2. Sixty-three percent of mothers fed their children supplementary foods like cow's milk, milk powder, mashed potatoes, ragi paste and vegetable juice.

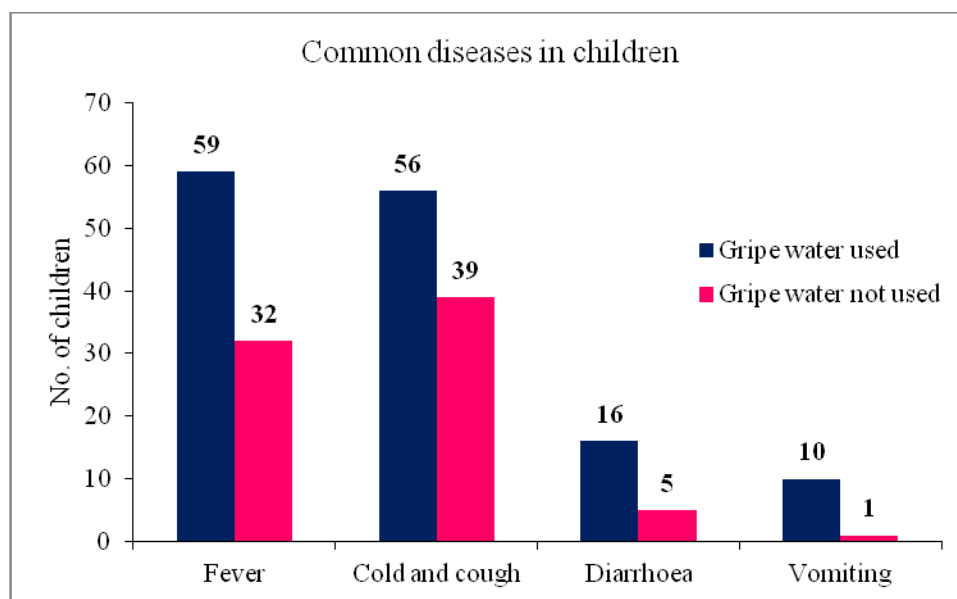


Figure 3. Children Suffering from Common Diseases

Figure 3 represents the diseases in children during their first 6 months of life, and we observed that fever, cold and cough followed by diarrhea and vomiting were the common complaints. Eighty-four percent of infants (141/167) who were administered gripe water had infections, whereas 77% (77/99) of non-consumers also suffered. Among the 48 infants who did not suffer from any illness, 26 of them received gripe water. The information that gripe water can be used in infants for infantile colic was provided by elders in the family like grandmothers (99), mothers (50) and others

(17). Gripe water was used once daily by 104, twice daily by 47 and more than two times by 16 mothers. The knowledge regarding the constituents of gripe water was found in 1.5% of mothers only.

Table 2. Mother's Purpose for the Use of Gripe Water

Sl No.	Reasons	Number (n=167)	Percentage %
1	Helps in digestion	115	68.9
2	Prevents stomach ache/Colic	50	30.0
3	Insistence by elders	02	01.1

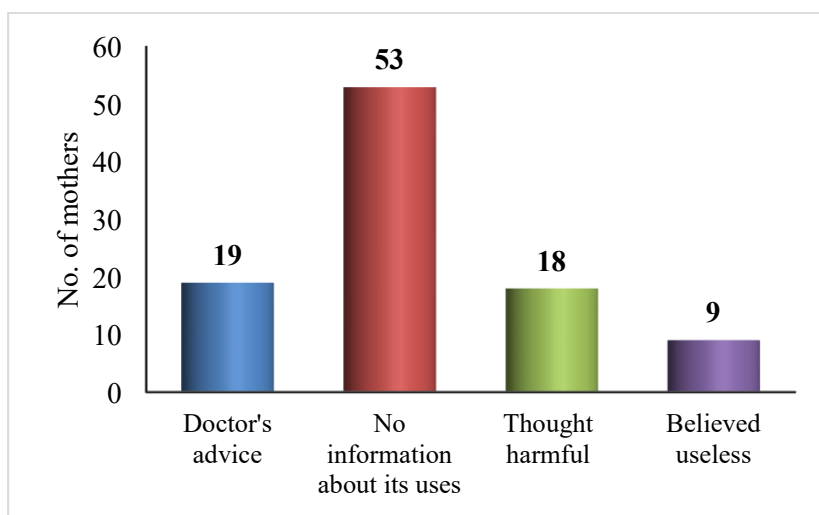


Figure 4. Mother's Reasons Against the Use of Gripe Water

Gripe water was used by 68.9% of mothers to aid digestion in infants and 30% for prevention of pain abdomen as shown in table 2. 53.5% of mothers did not use gripe water since they were not aware of the uses of gripe water and 18% perceived it to be harmful as represented in figure 4.

Discussion

“According to WHO, exclusive breastfeeding is defined as the practice of feeding only breast milk (including expressed breast milk) and no other liquids or solids except for drops or syrups consisting of vitamins, mineral supplements or medicine.” Giving a child any amount of water, gripe water, juice or porridge is not considered “exclusive breastfeeding.” The Global Strategy for Infant and Young Child Feeding, jointly developed by WHO and UNICEF, recommends initiating breastfeeding within an hour of birth and exclusive breastfeeding for six months for all infants, which was reaffirmed in 2011. This recommendation is applicable worldwide to infants in low- and high-income countries.^[13,14]

Exclusive breastfeeding can save the lives of more than one million children under-five and also improve the quality of life.^[15] Research has observed that breast milk has a role in protection against many childhood and adulthood diseases like hypertension, diabetes, obesity and improves learning and intelligence quotient.^[9] The chances of skin allergy, atopy, recurrent respiratory infection including pneumonia and episodes of diarrhea are less in exclusively breastfed infants.^[2]

Globally, various social and traditional factors influence breastfeeding and infant feeding practices, and studies have observed that the influence is negative in developing countries. In some societal cultures, plain water, butter and other foods are given to newborn infants, while colostrum is discarded as unclean.^[15] In a study, gripe water was the commonest (55%) non-nutritive preparation

that was administered to infants by their mothers.^[9] Factors such as low maternal education, higher socioeconomic status, non-vaginal birth and use of prelacteal feeds were significant predictors of lower exclusive breastfeeding practice.^[16] Due to these practices, infants and young children are more vulnerable to infection with different pathogens since their body nutrient store is not well developed, and they are at increased risk for diarrheal disease, acute respiratory infections and mortality.^[13,15]

In our study, 51% (135/266) of mothers were aged between 20-25 years, 56% (148/266) were first time mothers, 58% (153/266) were educated up to high school level, and 82% (218/266) were housewife, which was similar to another study.^[9] Globally, less than 35% of mothers exclusively breastfeed their infants during the first few months of life and in the developing world, 39% of mothers exclusively breastfeed their infants up to 6 months. National Family Health Survey of India (2005-06) indicates that the exclusive breastfeeding rate among Indian children aged 0-5 months is only 46.3%, and there is not much difference between rural and urban populations.^[9] In our study, we observed that 36.9% of mothers exclusively breastfed their infants; this could be due to the age of the children at the time of interview, which was 1-6 months (3.56 ± 1.60 months) and included only those women visiting the hospital.

In our study, common diseases in children revealed by mothers were fever, cough and cold, followed by diarrhea and vomiting. The occurrence of the above infections was more in infants who were administered gripe water. This finding is in concurrence with another study.^[9] Common illnesses in the child during the neonatal period expressed by mothers and mothers-in-law are cold and stomach-ache.^[17] The reasons cited by them for stomachache are incomplete healing of the umbilical cord, believed to occur frequently after breastfeeding, unfamiliarity with breast milk, worms in the stomach, or the evil eye. Mothers use over-the-counter medicines like Gripe water, Bonnisan, and Dentinox, available at drugstores or small general stores in towns and villages. If they cannot afford, a mixture of boiled water, sugar, and salt is given.^[17]

In our study, the basis for mothers' use of gripe water is their assumption that it aids digestion (69%) and prevents colic (30%), but in another study, it was 82% and 28%, respectively.^[9] We observed that 63% of mothers used gripe water to prevent colic and help digestion, which is similar to other studies (64% and 61%) used for the same indications.^[9,18] In the other two studies, 43% of prescriptions for colic included gripe water, and 3.4% of mothers used it for abdominal colic.^[10,19] In western countries, gripe water, is used to relieve infantile colic; however, in other countries, it is used as a preventive measure for colic or stomach pain, to aid digestion or as a nutritional supplement.^[20] Gripe water used as a nutritional supplement was observed to be 2% and 8% in two studies.^[18,20] The risk associated with the use of gripe water is that it can mask the clinical features of a major underlying disease.^[20]

Gripe water was used by mothers upon insistence by elders in the family like their mother and grandmothers (18%)^[9] but in our study, it was 01%. The mothers did not use Gripe water because 53.5% did not know the use, 19% followed the doctor's advice not to use it, 18% felt it was harmful, and 9% thought it was useless. However, in another study, 60% of mothers complied with the doctor's advice and 12-15% each lacked knowledge regarding gripe water use and thought it was harmful or useless.^[9]

Gripe water use continues to be a major threat to exclusive breastfeeding in various geographical areas.^[9] As per literature, gripe water does not provide any advantage to the baby in preventing colic, nor does it help in digestion, and these are the two common reasons for using gripe water in various studies.^[9,17] The reasons for its continued use are due to certain misconceptions that are prevalent among mothers and family members who use them. The promotions to use gripe water in media and easy availability as over-the-counter medication or prescription by allopathic doctors has to be discouraged. This can reduce the use of gripe water to prevent and treat indigestion and colicky pain and follow exclusive breastfeeding. Apart from the above measures, mothers can be educated and motivated to follow exclusive breastfeeding practices for six months by explaining the benefits of breastfeeding obtained by the women and the child. In addition, they can be informed regarding the constituents of gripe water and its disadvantages or harmful effects, which, when initiated in the

prenatal visit itself, may result in mothers adopting healthy feeding practices. This can be emphasized after delivery and during postnatal visits. The primary health centre can permeate this awareness to women from rural backgrounds.

Conclusion

Young educated mothers from rural background practiced exclusive breastfeeding. Mothers used gripe water to prevent colic or to help digestion in their children even though they were unaware of the constituents. Most mothers did not use gripe water due to lack of knowledge regarding its uses. Infants who were administered gripe water suffered from common diseases like cough, cold, fever, diarrhea and vomiting. Creating awareness by educating women during the prenatal visit and after delivery regarding the constituents of gripe water and its disadvantages with emphasis on exclusive breastfeeding can help in promoting healthy and safe feeding practices during infant life.

Source of funding: NIL

Conflict of Interest: NIL

Acknowledgement

This study was approved by Indian Council of Medical Research-Short Term Student project. (ICMR-STs)

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