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Optimizing Care for Infants with Colic through Probiotic Intervention

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INTRODUCTION & AIM

Infantile colic is a common functional gastrointestinal disorder characterized by excessive crying and irritability in otherwise healthy infants during the first months of life. Although the exact cause remains unclear, recent studies suggest that an imbalance in the intestinal microbiota may be a possible cause. Probiotics are therefore being explored as a promising and natural way to support gut health and relieve colic symptoms.

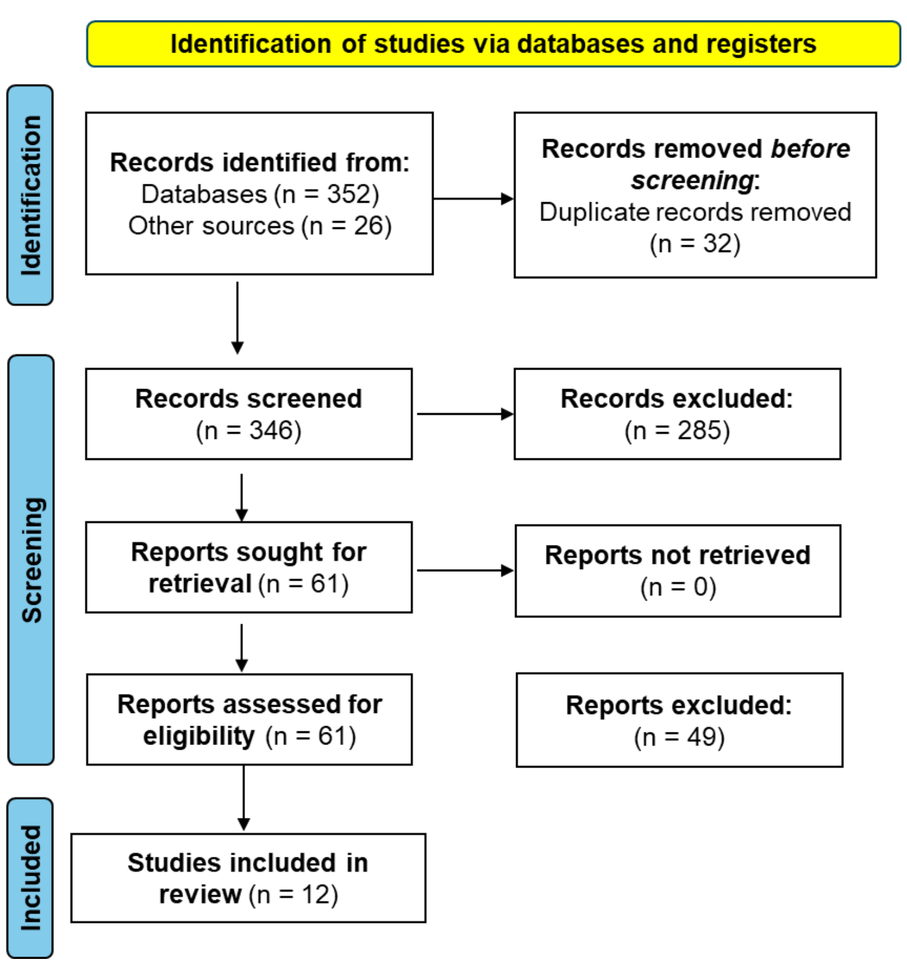
METHOD

We carried out a systematic literature review using the CINAHL, PubMed, ScienceDirect, and Google Scholar databases. Boolean operators and inclusion and exclusion criteria were applied to identify relevant studies (Table 1). The selection process was shown in a PRISMA diagram (Figure 1). The results of the identified studies were analysed, summarized, and presented descriptively and in table form (Table 2).

Table 1: Inclusion and Exclusion Criteria and Limits

Databases	CINAHL, PubMed, ScienceDirect	
PIO	Inclusion Criteria	Exclusion Criteria
Population	Infants	Children, adults, and older people
Intervention	Probiotics	All articles not related to probiotics
Outcome	Articles describing colic	Articles not related to colic
Type of studies	Systematic reviews of randomized clinical trials, meta-analyses, and randomized clinical trials	Studies that do not fit the selected methodology and studies that do not include topics related to the population, intervention, and outcome of our final thesis.

Figure 1: Flow diagram of the source search process according to PRISMA guidelines (Page, et al., 2021)



RESULTS & DISCUSSION

Out of 352 identified records, 12 studies met the inclusion criteria. Most studies had shown that probiotics reduced daily crying time and infant irritability, improved sleep, decreased faecal calprotectin, and increased the number of lactobacilli in the intestinal microbiota.

Table 2: Synthesis of included studies

First Author (Year), Country	Study Design	Sample Size	Probiotic Strain	Main Outcomes
Anabrees et al. (2013), Saudi Arabia	Systematic review of RCTs	n = 3 RCTs (220 infants)	*Limosilactobacillus reute*ri DSM 17938	↓ crying time (especially in breastfed infants)
Chau et al. (2015), Canada	Double-blind RCT	n = 52 infants	*L. reute*ri DSM 17938	↓ daily crying and fussing time
Chen et al. (2021), China	Double-blind RCT	n = 192 infants	*Bifidobacterium animalis* subsp. *lactis* BB-12®	↓ crying episodes, ↑ sleep duration, ↓ calprotectin
Dryl & Szajewska (2018), Poland	Systematic review of RCTs	n = 7 RCTs (471 infants)	*L. reuteri* DSM 17938	↓ crying duration (mainly in breastfed infants)
FitzGibbon & Ju (2019), USA	Systematic review/meta-analysis	n = 4 RCTs (345 infants)	*L. reuteri* DSM 17938	↓ crying, ↓ fussiness (greater effect in breastfed infants)
Gutiérrez-Castrellón et al. (2017), Mexico	Systematic review with network meta-analysis	n = 32 RCTs (2242 infants)	*L. reute*ri DSM 17938	Superior to placebo and alternative interventions
Nocerino et al. (2020), Italy	Double-blind RCT	n = 80 infants	*B. animalis* subsp. *lactis* BB-12®	↓ crying episodes, ↓ calprotectin, improved stool frequency
Pärtty et al. (2015), Finland	Double-blind RCT	n = 30 infants	*Lacticaseibacillus rhamnosus* GG	↓ crying time (68% reduction in probiotic group)
Savino et al. (2018), Italy	Double-blind RCT	n = 60 infants	*L. reuteri* DSM 17938	↓ crying time, ↓ faecal calprotectin
Skonieczna-Żydecka et al. (2020), Poland	Systematic review with meta-analysis	n = 16 RCTs	Various probiotics (mainly *L. reuteri*)	↓ excessive crying; mechanism unclear
Szajewska et al. (2013), Poland	Double-blind RCT	n = 80 infants	*L. reuteri* DSM 17938	Significant ↓ in median crying time
Xu et al. (2015), China	Meta-analysis of RCTs	n = 6 RCTs (423 infants)	*L. reuteri* DSM 17938	↓ crying after 2 weeks; safe, no adverse effects

CONCLUSION

Our review has shown that probiotics can help reduce crying and restlessness in infants with colic and improve their sleep. The effectiveness of probiotics depends on the strain used, and better results were observed in breastfed infants compared to those who were formula-fed. Further studies are needed to confirm which probiotic strains are most effective and to better understand their role in relieving infantile colic.

REFERENCES

Anabrees, J., et al. (2013). Probiotics for infantile colic: a systematic review. BMC Pediatrics, 13, 186.

Chau, K., et al. (2015). Probiotics for infantile colic: a randomized, double-blind, placebo-controlled trial investigating Lactobacillus reuteri DSM 17938. The Journal of Pediatrics, 166(1), 74–78.

Chen, K., et al. (2021). Efficacy of Bifidobacterium animalis subsp. lactis BB-12® on infant colic: a randomized, double-blinded, placebo-controlled study. Beneficial Microbes, 12(6), 531–540.

Dryl, R., & Szajewska, H. (2018). Probiotics for management of infantile colic: a systematic review of randomized controlled trials. Archives of Medical Science, 14(5), 1137–1143.

FitzGibbon, K., & Ju, N. R. (2019). Can the probiotic Lactobacillus reuteri be used to treat infant colic? Annals of Emergency Medicine, 73(3), 272–273.

Gutiérrez-Castrellón, P., et al. (2017). Efficacy of Lactobacillus reuteri DSM 17938 for infantile colic: systematic review with network meta-analysis. Medicine, 96(51), e9375.

Nocerino, R., et al. (2020). Bifidobacterium animalis subsp. lactis BB-12® in infantile colic: a randomized controlled trial.

Page, M. J. et al., 2021. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ, 372, p. n71.

Pärtty, A., et al. (2015). Lacticaseibacillus rhamnosus GG in infantile colic: a randomized controlled trial.

Savino, F., et al. (2018). Lactobacillus reuteri DSM 17938 in infantile colic: effects on crying time and fecal calprotectin.

Skonieczna-Żydecka, K., et al. (2020). Probiotics in infantile colic: systematic review and meta-analysis.

Szajewska, H., et al. (2013). Lactobacillus reuteri DSM 17938 for infantile colic: a randomized controlled trial.

Xu, M., et al. (2015). Efficacy and safety of Lactobacillus reuteri DSM 17938 for infantile colic: a meta-analysis of randomized controlled trials.