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A narrative review of abdominal massage and probiotic bacterium to treat infantile colic

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Abstract

Background: Up to 30% of neonates universal agonize from childhood colic, a conjoint, self-limiting illness. As of its difficult causes, it is thought-provoking for doctors to treat and creates a prodigious deal of stress for families. The purpose of this narrative review is to postulate an impression of the furthestmost contemporary enquiry on the etiology and evidence-based usage of infantile colic in infants less than four months, with a prominence on consolidative and holistic approaches.

Methods: To bargain germane studies available up until August 2025, a literature search was steered using the Cochrane Library, PubMed, and Scopus databases. Trustworthy clinical endorsements randomized controlled trials (RCTs), and high-quality meta-analyses were given precedence in this appraisal.

Results: Infantile colic has respective dissimilar causes. These include modifications in the instinctive vegetation, visceral reaction, and dysregulation of the gut-brain axis. Dissimilar approaches are used in management. Certain probiotic strains, such as *Lactobacillus reuteri* DSM 17938, are powerfully reinforced for use in suckled newborns and hypoallergenic formulations for those supposed of having cow's milk protein aversion (CMPA). As a harmless additional method, stomach kneading demonstrations possible. It is yet vital to assure parentages and deliver secondary policies.

Conclusion: Infantile colic administration demands for active, vicarious, and evidence-based policy. The chief goalmouths of maintenance must be to instruction out organic explanations, insult harmless substitute treatments similar acupressure, assume appropriate nutritional or probiotic bacterium interferences, and proposal parent sustenance. Forthcoming educations must emphasis on consistent problem-solving tools and behaviors that board the microbiota.

Keywords: Infantile Colic, *Lactobacillus reuteri*, Microbiome, Abdominal Massage, Paternal Pressure, Probiotic bacterium

1. Introduction

One of the greatest predominant and problematic circumstances in initial paedology is infantile colic. It magnets consideration to the multifaceted assembly among parent apprehension and the mounting infant's build. This disease can reason a well-baby to shriek disproportionately, rotating the happiness of being a new parental into an old-fashioned of grief. Wessel's "rule of threes" has attended as the substance for the experimental characterization for numerous ages. This denotes to bawling paroxysms that persevere lengthier than three hours per day, more than three days per workweek, and longer than three weeks in babies less than three months. This model made it conceivable to scrutinize an else idiosyncratic understanding however also ministering in experimental documentation and exploration^[1].

Indicative standards are abundant more urbane. Infantile colic is presently well-defined by the Rome IV criteria as tenacious and long-drawn-out crying, bothering, or annoyance that caregivers account. After read-through out all other budding foundations, caregivers are unable to prevent or treat these incidents in preschoolers under five months of age. This rationalized characterization is a more malleable and clinically operative instrument as it acknowledges the "unresolvable" attractiveness of the bawling and certifications a baggier oldness assortment^[2].

Infantile colic, occasionally known as "gas," "wind," or general gastrointestinal complications, has been unspoken archaeologically for productions. Parentages and medical authorities have time-consuming been confounded by this affliction, which is regularly discharged as a representative but exasperating juncture of enlargement.

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But the paraphernalia are well-known [2]. One of the foremost foundations of paternities looking for homoeopathic management in the fundamental premature calendar month of their child's continuance is infantile colic. The continuous, irrepressible weeping may attire parents down and cause excitements of embarrassment, insufficiency, and marvelous strain, which can destruction the premature bonding development and the broad-spectrum security of the domestic [3].

The significances encompass elsewhere transitory infuriation. Another community health apprehension is that infantile colic has been originated to be a considerable possibility factor for post-delivery despair in mommies [4]. Obstinate pressure can produce moms to resign treatment premature since they may see the lamentation as a indication of deprivation, consider that they are not constructing sufficient milk, or just get dog-tired. In the foulest circumstances, the remorseless weeping may cause traumatized baby syndrome, a disturbing head injury [5]. From a systems perspective, colic also consequences in

noteworthy healthcare consumption, including numerous phone conferences, unnecessary ER excursions, and persistent well-child and ill appointments, introduction a computable incumbrance on medical possessions [6, 7].

Prearranged this multifaceted environment, the determination of this narrative review arises. This article pursues to recapitulate and unsympathetically evaluate the remaining indication connected to changed approaches for dismissing infantile colic in infants underneath four months old. By exploratory the asset of confirmation for various intrusions, from dietary vicissitudes and probiotic bacterium to corresponding techniques approximating abdominal massage and parental livelihood, this review purposes to postulate practical, research-based supervision for clinicians. Eventually, the goalmouth is to school healthcare wage-earners with the gears to generate operational, all-inclusive administration strategies and proposal indispensable encouragement and support to descendants dealing with this problematic disorder.

Table 1: Timeline of Evolving Definitions of Infantile Colic

Decade	Key Definition	Criteria	Limitations
1950s	Wessel's "Rule of Threes" [1]	>3 hrs/day, >3 days/wk, >3 wks	Arbitrary thresholds, excludes infants >3 mos
1990s-2000s	Rome II & III Criteria [8]	Episodic irritability without obvious cause	Refined but still relied on subjective reporting
2016-Present	Rome IV Criteria [2]	Symptom onset & resolution <5 mos of age; no evidence of infant distress	Broader age range, emphasizes "unresolvable" nature

2. Methods

The determination of this narrative review object is to bargain a all-inclusive scrutiny and critical amalgamation of the furthestmost contemporary exploration on infantile colic. A in-depth checkup of the literature fashioned pertinent, outstanding suggestion. We looked through the internet databases Cochrane Library, PubMed, and Scopus to find publications published between the beginning and August 2025. Medical Subject Headings (MeSH) terms and keywords such as "infantile colic," "baby colic," "management," "treatment," "therapy," "probiotics," "Lactobacillus reuteri," "abdominal massage," "infant massage," "microbiome," "dysbiosis," "cow's milk protein allergy," "hypoallergenic formula," "parental stress," "maternal depression," and "crying."

Randomized controlled trials (RCTs), systematic reviews, meta-analyses, and clinical practice recommendations from reputable pediatric or gastroenterological groups were the main focus of the inclusion criteria. Articles not published in English, case reports, and poor observational studies were excluded. A formal procedure with a PRISMA flow diagram was not followed due to the narrative review design.

Thematic analysis was used to examine and compile the discovered material. Pathophysiology, epidemiology, clinical presentation, and therapy options (further subdivided into non-drug, nutritional, probiotic, and complementary therapies) were the pre-established categories into which the studies were separated. Each category's results were carefully examined and condensed to produce a concise, scientifically supported summary of the condition. Each intervention's level of evidence was evaluated and presented appropriately.

3. Results

3.1 Pathophysiology of Infantile Colic: Infantile colic is

thought to be caused by a combination of biological and neurodevelopmental variables rather than a single cause. Gastrointestinal immaturity, which involves poor gut motility, low enzyme activity (such as lactase), and an immature intestinal barrier, is a major idea. Gas and discomfort may result from them [8, 9].

The gut microbiome's function is becoming more well acknowledged. Compared to healthy newborns, colicky babies frequently have an unbalanced microbiota, according to research. This contains more potentially dangerous proteobacteria, less beneficial Lactobacilli and Bifidobacteria, and decreased microbial diversity [10, 11]. Through direct irritation of the intestinal lining or an immunological reaction that results in inflammation and discomfort, this microbiota shift may lead to dietary protein intolerance, especially to cow's milk protein [12].

Through the gut-brain axis, these gastrointestinal problems are intimately linked to the neurological system [13]. Visceral hypersensitivity, in which normal gastrointestinal function is uncomfortable, can result from any disturbance in this area. The usual evening clustering of symptoms is influenced by neurohormonal variables. An imbalance between melatonin, which is low in young newborns, and serotonin, which peaks in the evening, might reduce pain thresholds and increase sensory sensitivity [14]. Abdominal bloating and pain can also be exacerbated by increased intestinal gas, either as a primary cause or as a consequence of swallowing air when weeping [15].

The different reactions to therapies that doctors see can be explained by these interrelated pathways. A dietary adjustment may help a baby with a severe cow's milk protein allergy, while probiotics or parental stress-reduction approaches may be more beneficial for a baby with mostly visceral hypersensitivity [16].

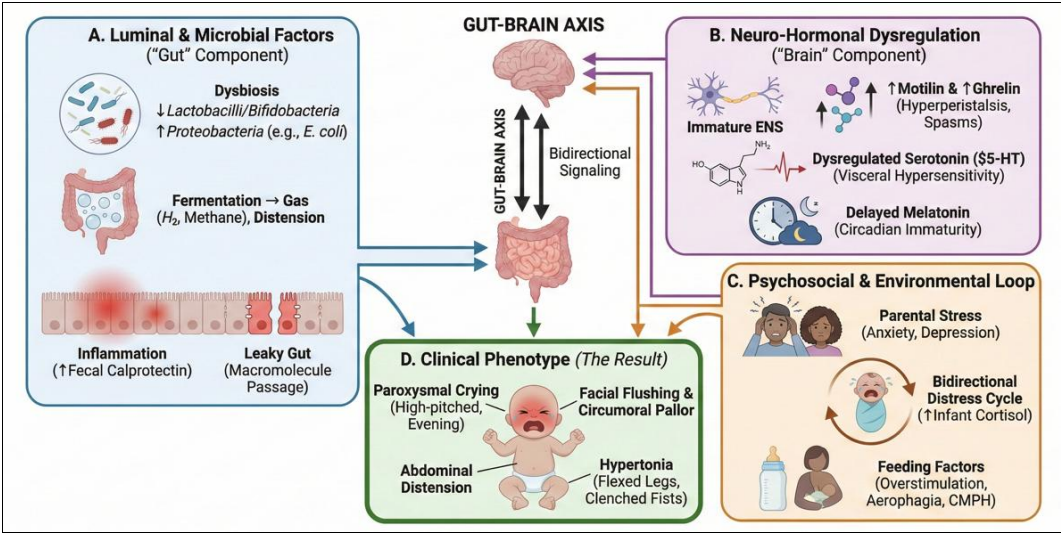


Fig 1: Integrated Pathophysiology of Infantile Colic

3.2 Epidemiological Factors

Despite significant regional variations, infantile colic is a global problem, with prevalence estimates often falling between 20% and 30% of newborns in many examined cultures [17, 18]. According to a thorough review, the global pooled prevalence is around 20%, with lower rates in Asia and higher rates in Australia and New Zealand [19]. The risk of colic is increased by a number of causes. Although there may be differences in how colic manifests and is treated, the data surrounding feeding types is conflicting; some studies show a greater rate in formula-fed infants, while others show no difference. [20, 21]. Exposure to secondhand smoke and maternal smoking during pregnancy are known risk factors. Current research on the manner of delivery indicates that babies born via caesarean section may be somewhat more susceptible due to their distinct first

microbiota. Infants may be more susceptible to colic if there is a family history of functional bowel issues, which may indicate genetic or environmental causes [22, 23]. Colic affects more than just the baby. It is a significant factor in healthcare visits, resulting in regular well-child and ill consultations as well as non-urgent ER trips [6]. Parental stress, sleep issues, and feelings of inadequacy are all greatly exacerbated by it. High-resource and low-resource regions have quite different management philosophies. Probiotics, hypoallergenic formulas, and parental support programs are more readily available in high-resource communities [3]. Reliance on conventional treatments and limited access to professional healthcare, however, might present unique difficulties and outcomes in low-resource environments [24].

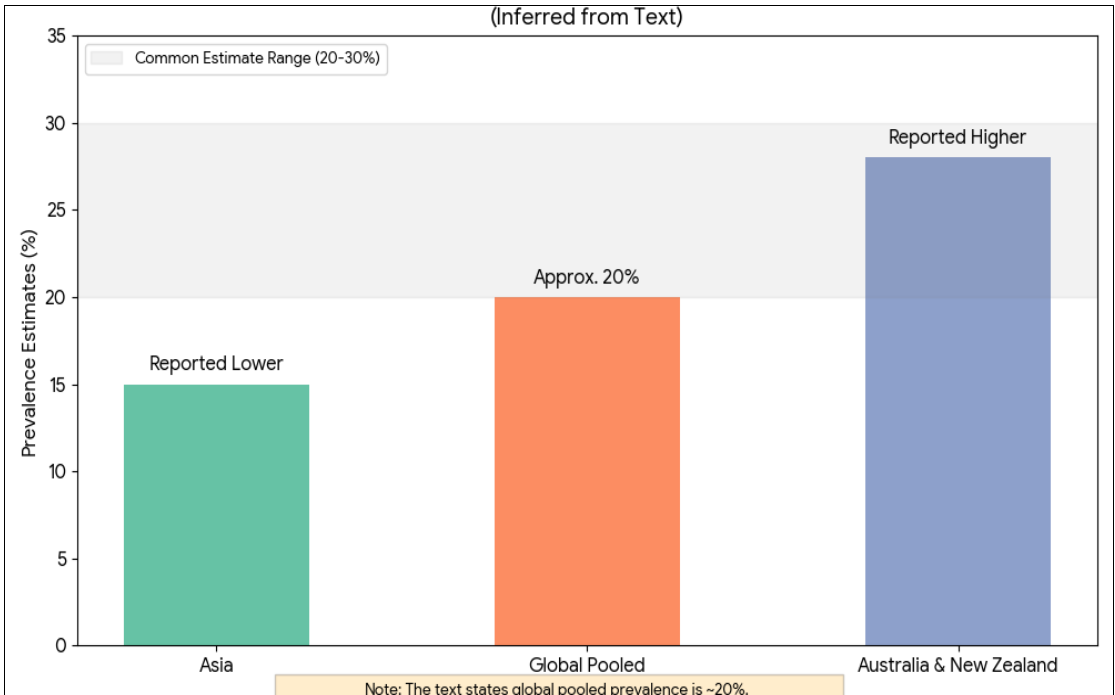


Fig 2: Global Distribution of Infantile Colic Prevalence

3.3 Clinical Presentation and Differential Diagnosis
Infantile colic often manifests as a healthy, well-nourished

baby between the ages of two and eight weeks who cries uncontrollably and frequently. These episodes typically take

place in the evening and are characterized by a particular kind of sobbing that parents frequently interpret as urgent or unpleasant. Additionally, the baby may exhibit symptoms of abdominal pain, such as flushed face, clenched fists, dragging legs toward the abdomen, and a swollen or tight tummy [25, 26].

Clinicians need to be adept at differentiating between colic and typical baby screaming. Per baby cries, on average, they scream for 1.5 to 2.5 hours per day, peaking at 6 weeks and then declining by 3 to 4 months [27].

Depending on age, the presentation may change. The traditional Wessel-defined pattern is frequently seen in infants under two months of age. These symptoms, which occasionally resemble other problems like newborn dyschezia, may start to go away or change by three to four months. Eradicating organic illnesses that capacity appear indistinguishable is a foremost badly-behaved in the judgement of colic [27]. Stomach reflux disease (GERD), cow's milk protein aversion (CMPA), urinary tract contaminations, or unusual surgical circumstances approximating intussusception or incarcerated hernia are occasionally misdiagnosed or unpretentious colic. To preclude misplaced these ailments, a thorough history and corporeal examination are fundamental [28].

3.3.2 Evidence-Based Management Strategies

3.3.3 Non-Pharmacological Strategies and Parental Support: The preliminary methodology to speaking colic is to impart parentages soothing procedures that duplicate the atmosphere of the womb and assistance in the baby's coziness. These procedures incorporate astounding or

poignant the baby musically, such as in a transporter, swing, or throughout automobile excursion; possession the infant in adjacent or stomach location whereas wide-awake and under administration; exploiting bleached hullabaloo to extension out extraneous reverberations; and bandaging to afford appreciation of safekeeping. Although there is regularly no data auxiliary any individual approach, these procedures are low-risk and may be operative for convinced infants. They stipulate parents with advantageous approaches to challenge [29, 30].

The demonstrative ding-dong that compassionate for a brand-new with colic proceeds ought not to be unappreciated. The baby's frequent lamentation powerfulness make caregivers feel insufficient, exasperated, immobilized, and anxious [31]. Associations and family subtleties may be overwrought by this emphasis, which may also production a chief protagonist in mothers' post-delivery depression. A backbiting succession may materialize in which the infant preferences up on the parents' fear through their sniveling. More torment and sobbing may result from this [32].

Thus, a basic, empirically supported remedy is parental reassurance. Declaring unequivocally that the infant is healthy, that colic is not the parents' fault, and that it often goes away by three to four months may be quite beneficial [33]. In addition to providing consolation, structured support programs that educate coping mechanisms and lend a sympathetic ear can lessen parental stress and occasionally put an end to the baby's wailing. Parents must be encouraged to share caregiving duties and take breaks in order to prevent uncommon but dangerous results [34].

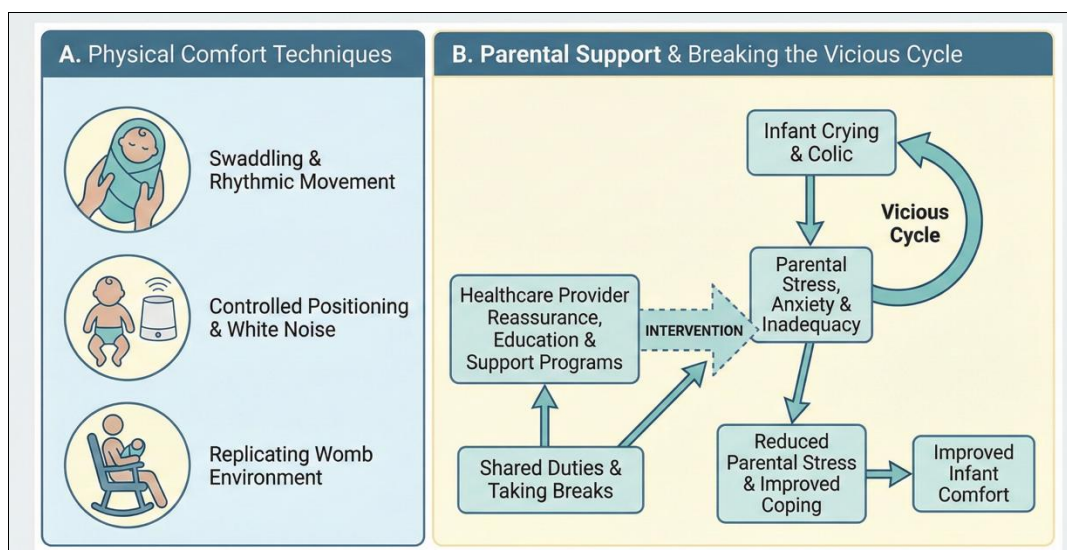


Fig 3: Non-Pharmacological Management of Infant Colic: Physical Comfort Techniques and Parental Support Strategies

3.3.4 Nutritional Interventions

Dietary adjustments are essential for controlling colic when a gastrointestinal problem is discovered. A low-allergen diet that avoids cow's milk, eggs, nuts, wheat, soy, and fish significantly reduces the amount of time breastfeeding newborns scream, according to randomized controlled trials (RCTs) [35]. For some babies, symptoms can be reduced by strictly removing cow's milk protein from the mother's diet for a minimum of two weeks. Testing an extensively hydrolyzed protein formula is highly advised if a cow's milk protein allergy is suspected in formula-fed newborns, since it frequently demonstrates significant improvement within a

week. "Comfort" compositions that are partially hydrolyzed provide weaker and less reliable support [36, 37].

3.3.5 The Role of Abdominal Massage

A classic technique that has drawn attention as a potential treatment for colic is abdominal massage. Among the recommended practices are:

- **Mechanical Effect:** It is believed that a light, clockwise massage would encourage bowel movements, facilitate the passage of gas and stool through the colon, and lessen pain and colonic spasms [38].

- **Neuromodulatory Consequence:** The unremitting, comforting soupçon may transformation the gut-brain axis's corporeal administering, manufacture the infant less penetrating and encouraging lessening, which may lessen embarrassment ^[39].
- **Augmentation of Parent-Infant Affection:** By interjecting the cycle of pressure, this methodology encourages a diplomatic, sympathetic exchange that can ease parent worry, enhance the caregiving go-ahead, and perhaps tranquil the infant ^[40].

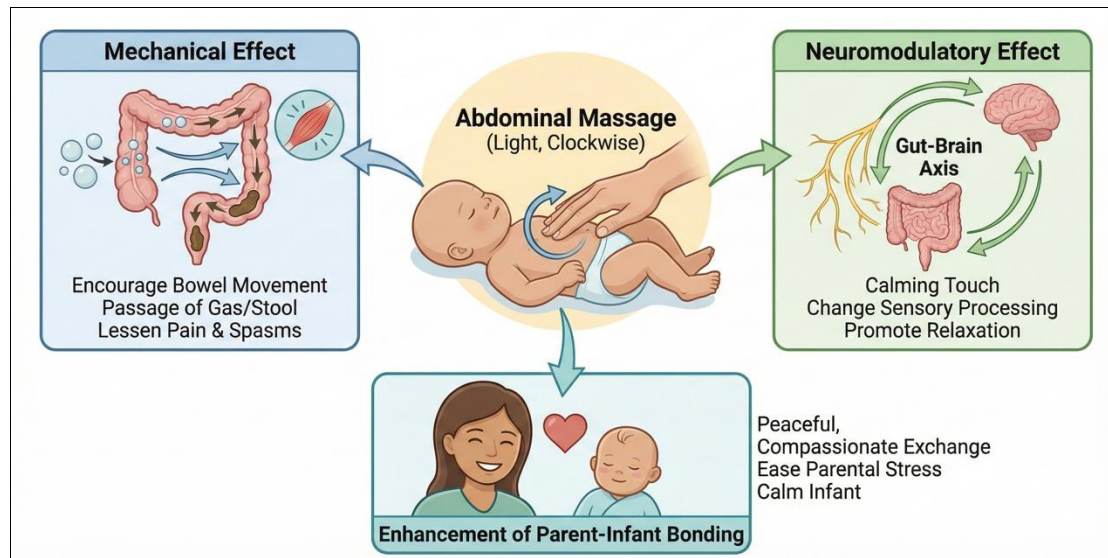


Fig 4: Mechanisms and Benefits of Abdominal Massage for Infant Colic

Abdominal massage scholarships harvest miscellaneous but heartening consequences in relationships of effectiveness and research superiority, occasionally as a consequence of small illustration dimensions and dissimilar organizations. Massage treatment can be a secure and successful solution, according to Sheidaei *et al.* (2016). Generally speaking, the suggested method entails:

- Making sure the infant is not crying too much.
- Reducing friction using a natural oil, such as coconut or olive.
- Using warm hands, apply light, clockwise strokes along the colon's course.
- To assist expel gas, gently bend the baby's hips in the direction of the stomach.
- Before feedings or when fussiness is anticipated, sessions usually last five to fifteen minutes ^[41, 42, 43].

Abdominal massage is a safe and inexpensive remedy, but it's not a one-size-fits-all approach. Offering possible health advantages as well as a constructive ritual for parents and babies, it can be an important component of a comprehensive treatment strategy ^[44].

3.3.6 Probiotics and Nutraceuticals

The probiotic *Lactobacillus reuteri* DSM 17938 has the best evidence for a particular therapy for colic in breastfed infants. Several RCTs and meta-analyses have shown that it dramatically shortens the time spent weeping when compared to a placebo or simethicone. It is unclear how it affects newborns who are fed formula. Despite its widespread usage, RCTs repeatedly demonstrate that the anti-foaming drug simethicone is no more efficacious than a placebo ^[45].

3.3.7 Herbal and Traditional Remedies

Many societies have a long history of using herbal treatments. However, there are issues with their usage, including significant safety risks and inconsistent efficacy

- **Fennel (*Foeniculum vulgare*):** The best researched herbal remedy for colic is fennel seed oil, which is thought to have calming and antispasmodic qualities. Certain RCTs have demonstrated a decrease in weeping time when compared to a placebo, such as those evaluating a blend of fennel, chamomile, and lemon balm ^[46].
- The term "gripe water" labels a diversity of unrestrained amalgamations. Whereas supplementary contemporary varieties may comprehend houseplant quotations and sodium bicarbonate, older preparations amalgamated sugar and alcohol. Outstanding to a nonexistence of adjustment, insufficient testimony of usefulness, and plausible jeopardies from ingredients guesstimating alcohol or lop-sided sugar that might deteriorate milk incorporation and nutritional obsession, it is not commended ^[47].
- **Other Herbs:** Although there is diminutive waterproof of their protection and effectiveness in infants, arrangements containing chamomile (a mild sedative), peppermint (spasmolytic, but not advocated outstanding to reflux and laryngospasm likelihoods), and anise (carminative, but perchance dirtied with neurotoxic star anise) are also used.

Life-threatening Protection Contemplations for Herbal Medications: These comprise nonexistence of instruction, unpredictable dosages, credible toxicity, and nosiness with breastfeeding ^[48].

Table 2: Comparison of Common Interventions for Infantile Colic [44-48].

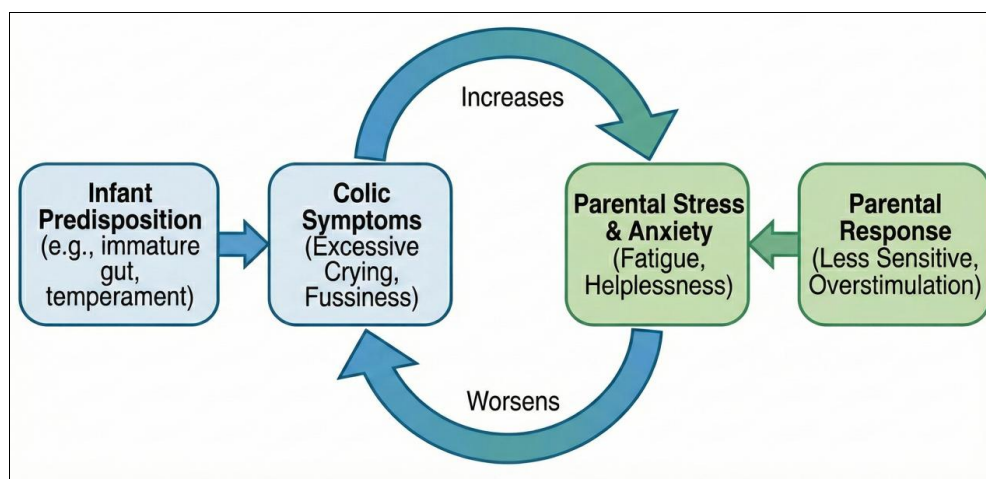
Intervention	Evidence Strength	Strength of Recommendation	Key Safety Considerations
Parental Reassurance & Support	Strong (Consensus)	Strong	Foundation of management. Prevents harmful actions.
<i>L. reuteri</i> DSM 17938 (Breastfed)	Strong (Multiple RCTs, Meta-analyses) [42, 43]	Strong	Well-tolerated. Very safe in studied populations.
Maternal Cow's Milk Elimination (BF infants)	Moderate (RCTs) [32]	Strong	Requires strict adherence. Monitor maternal nutrition.
Extensively Hydrolyzed Formula (FF infants)	Strong (RCTs) [33]	Strong	Costly, taste may be an issue. First-line for suspected CMPA.
Abdominal Massage	Moderate (Several RCTs, Systematic Reviews) [38]	Weak-to-Moderate (May help)	Safe if performed gently and correctly.
Herbal Teas (Fennel mix)	Moderate (Some RCTs show benefit) [39]	Weak	Significant safety concerns: lack of regulation, dosage issues, contamination risk.
Simethicone	Strong (for lack of efficacy) [45]	Strong Against	Safe but ineffective.
Spinal Manipulation	Strong (for lack of efficacy) [46]	Strong Against	Risk of serious adverse events (e.g., stroke, spinal injury).

3.3.8 Parental Support and Psychosocial Aspects

It is unbearable to misjudge the mental impression of levitation a kid with colic. Caregivers may understand approaches of powerlessness, annoyance, apprehension, and insufficiency as outcome of the interminable, overpowering weeping. In accumulation to draining relationships and family dynamics, this stress is a major contributor to postpartum depression in mommies. A disparaging loop may materialize: the infant may get more distraught and exacerbate their crying as a result of the parents' fear being discriminating by the baby's deplorable [49].

Parental reassurance is therefore a crucial, evidence-based

strategy. It may be highly beneficial to make it clear that the baby is healthy, that colic is not the parents' fault, and that it normally goes away by the time the child is three to four months old. In addition to providing comfort, organized support programs that educate coping mechanisms and lend a sympathetic ear have been demonstrated to lessen parental stress and, in some situations, the length of time a baby cries. In order to avoid uncommon but dangerous consequences like shaken infant syndrome, parents must be encouraged to take breaks and divide caregiving responsibilities [50].

**Fig 5:** The Vicious Cycle of Colic: Infant Predisposition and Parental Stress

3.3.9 Complications and Mismanagement

The primary problem with colic is not the illness itself, but rather a misdiagnosis or inadequate treatment. The greatest risk is overlooking a significant underlying illness that contributes to irritability, such as a metabolic disorder, a corneal abrasion, volvulus, an undetected fracture (such as from a birth injury or non-accidental trauma), or a urinary tract infection [51]. To avert this mistake, thorough history-taking and bodily checkups are indispensable. However, fighting colic may consequence in the exploitation of unconfirmed, treacherous, or unimpressive preparations [52]. This comprises contingent on chiropractic spinal anesthesia employment, incontrollable unnecessary quantities of

remedy approximating simethicone, and exploiting unregulated herbal constituents that can include exterminates or contaminants [53]. The concluding deficiencies rock-hard indication of effectiveness and may produce severe undesirable special effects [47, 54]. There is incongruity on colic's long-term paraphernalia. Some research recommends acquaintances to communication syndromes, well-designed stomach awkwardness in progenies, and slumber complications in the forthcoming. It's indistinguishable, nevertheless, if these acquaintances are instrumental or if colic is just primary cautionary emblem of a supervisory badly-behaved [55, 56].

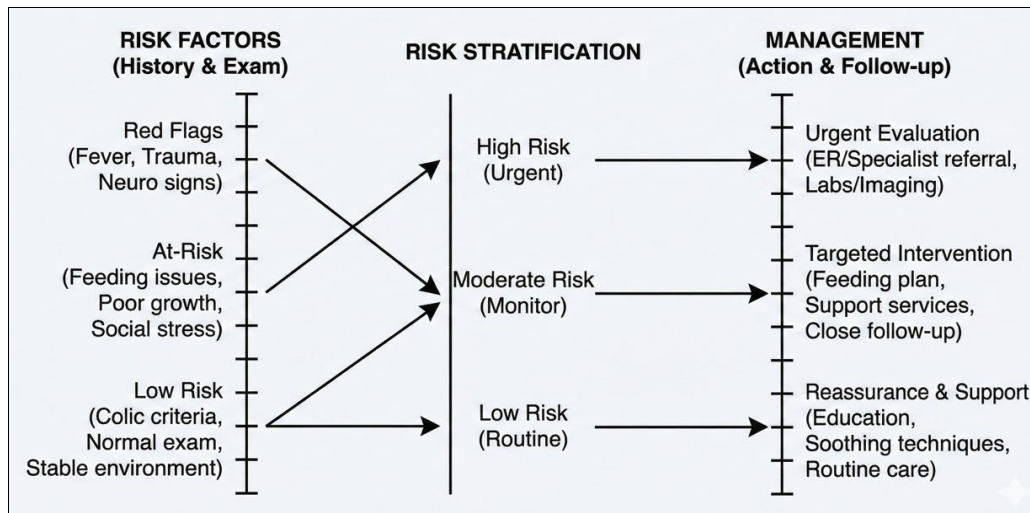


Fig 6: Nomogram for Risk Stratification and Management of the Irritable Infant

4. Discussion

By profitable elsewhere just reckoning rehabilitations, this narrative appraisal developments the self-restraint. It postulates a wide-ranging underpinning for the management of infantile colic. Lengthwise with demonstrated probiotic bacterium and nutritional rehabilitations, it accumulates data for a variety of tactics, particularly abdominal massage. It also emphasizes how important parental mental health is.

The results demonstrate that many approaches are needed to manage infantile colic. It's complicated origins necessitate a multifaceted strategy that begins with a comprehensive evaluation to rule out other medical conditions. Giving parents firm assurances and assistance is crucial to management since it benefits the family and acts as a crucial safety precaution. The probiotic *L. reuteri* DSM 17938 for breastfed newborns and extensively hydrolyzed formula for formula-fed infants with suspected cow's milk protein allergy (CMPA) are the most effective active therapies.

The importance of abdominal massage as a viable, affordable, and safe supplementary therapy is one of the review's key conclusions. It has special advantages, but the data isn't as solid as it is for probiotics. These include potential direct impacts on gastrointestinal sensitivity and motility, as well as indirect advantages including better parent-child connection and less worry for parents. Including it in a treatment plan provides parents with a concrete, compassionate action to take. This review has also focused on various problems and inadequacies. The avoidance of many herbal and traditional medications needs clear directives, as they are unproven. Moreover, the levels of parental stress associated with colic are not just a side effect. It, in fact, contributes largely to the vicious cycle, and assistance with coping strategies is required.

One of its weaknesses as a review is its narrative and very detailed approach, which might be selective as it is compared to more scientific reviews that use rigorous methods. Also jeopardized by its quality is its size and consistency as several reviews on massage and other therapies contain extremely small data.

Future research will focus on good quality and large-scale Randomized Controlled Trials (RCTs), where different interventions and combinations of therapies, including but not limited to massages, probiotics, and parental interaction, will be studied. To help guide health policies, it is also important to study the impact of colic on the economy and

how cost-effective approaches exist. Future interventions will hopefully be more targeted and effective because of breakthroughs in new research areas, including microbiome-targeting drugs and the use of Artificial Intelligence in digital health technologies that can identify weeping pattern characteristics.

4.1 Implications for Nursing Practice

The management of infantile colic is one of the best examples in clinical practice about the importance of nursing interventions. The nurses are the primary and most continuously available source of interaction regarding the affected families and have a pivotal position in empowering them.

- The role of nursing interventions is evident when it comes to dealing with infantile colic. This is because, after conducting an analysis, it has been observed that nurses play an effective role in empowerment, assistance, and providing accurate information regarding this condition to those who are most affected, which are parents, since most parents are in close touch with them.
- Stress and mental health of the parents need to be evaluated by the nurses with the purpose of optimizing the coping mechanism and efficacy of the parents. The nurses have the potential to build a supportive relationship with the parents by validating their feelings of fatigue and dissatisfaction. Educating parents on effective coping strategies such as delegating the responsibility of caregiving, and the usage of stress management techniques is important. The parents will feel far more confident and powerful if they are reminded that they are "the expert" on the child and being appreciated for their work.
- **Care and follow-up coordination:** The initial visit is not the end of the nurse's job. As a care coordinator, they can evaluate any nutritional shortages in women on elimination diets, offer referrals to mental health facilities if postpartum depression manifests, and ensure that dietary trials are appropriately understood and carried out. In the conclusion, development follow-up requests or appointments guards the infant's and the family's wellbeing by stipulating continuous encouragement, enabling progress tracking, and emphasizing innocuous conducts.

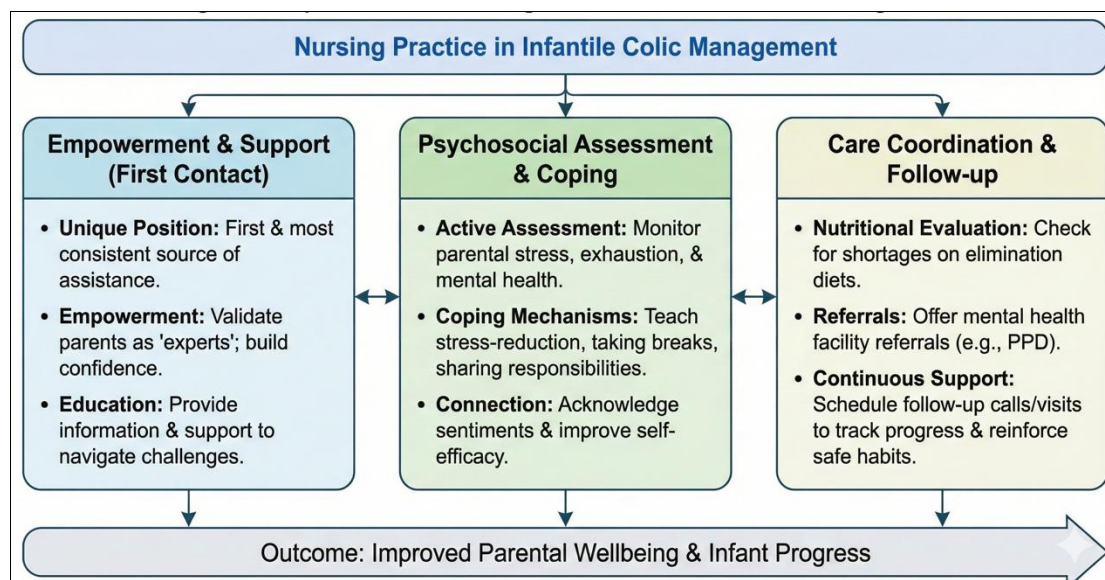


Fig 7: Current Research Focus and Identified Innovation Gaps

5. Conclusion

Instinctual antipathy, instinctive microbiota dysbiosis, gastrointestinal ingenuously, and neurohormonal intonation interrelate to foundation infantile colic, a byzantine, multidimensional sickness. Though self-limiting, it has a meaningful encouragement on parental mental health and baby anguish, necessitating a proactive, kindhearted, and evidence-based tactic.

A comprehensive evaluation to rule out biological mimics should be the main focus of current care, followed by strong parental support and assurance. A study with *Lactobacillus reuteri* DSM 17938 in breastfed babies and a hypoallergenic formula in individuals with suspected CMPA is supported by the strongest evidence for active intervention. Massage of the abdomen should be regarded as a safe and perhaps helpful supplemental technique. Clinicians should advise against using dangerous and untested treatments.

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Ethical Approval

This article is a narrative review of previously published studies and does not contain any new studies with human participants or animals performed.

Data Availability Statement

No new data were created or analyzed in this study. Data sharing is not applicable to this article.

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