A COMPARISON OF THE EFFICACY OF TRADITIONAL METHODS OF INFANTILE COLIC RELIEF ALONGSIDE MANUAL TREATMENT: A LITERATURE REVIEW

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Introduction to Review

The following assessment is based on a detailed literature review which synthesises findings from different published researches. The essay is divided into three different sections; introduction, main review and conclusion along with the summary table of the published articles used for explaining the review. The essay mainly related to the infantile colic and prevalence of manual therapies which can be used for improvising the quality of life for both parents and infants. According to Skjeie *et al.*, (2013), the infantile colic is regarded as the distressing condition which is characterised by the excessive crying in the first few months of birth. It is also known as the self-limiting condition which occurs in infants and is a common disturbance; however, the exact aetiology is still undiscovered. Moreover, it is associated with the malicious cycle of infant crying.

To prevent this, the mothers use different methods for relieving the infants from this condition, however, there has been limited evidence regarding the support of complementary and alternative treatments usage or behavioural intentions. There are several approaches to deal with this disorder, including probiotics as the conventional one and manual therapy as the most recommended option, which may include chiropractic, massage, and osteopathy (Sheidaei, 2016). As per the research conducted by Steel (2011), osteopathy is a medical care system that is being practised over people in several countries across the globe. The fundamental objective of this technique is to conduct osteopathic manual practices into the medical interventions suggested by the consultants.

Statement of Research Question

The research question which is designed for this assessment is as,

Q. How the efficacy of traditional methods of infantile colic relief can be compared with the manual treatment?

Brief Summary of Scholarly Context

The infantile colic is regarded as the common condition which is defined as the colicky crying of the infants. The crying mainly starts from the first few weeks of born and then it spontaneously resolves within two to five months. In addition, the excessive crying is explained as the crying which lasts for more than 3 hours on a daily basis or more than 3 days on a weekly

basis. It has been attributed in the study conducted by Gutiérrez-Castrellón *et al.*, (2017), infantile colic can be diagnosed with the intestinal contractions, presence of gas in the gut, lactose intolerance and misinterpretation of normal crying of the paternal. However, in the recent times, it has been hypothesised as the medical or the behavioural cause. In addition, the medical hypothesis has also included the food hypersensitivity or the allergies which can cause severe problems for the infants. In this regard, mostly parents seek advice from the doctors or look for counter remedies. The study of Posadzki, Lee and Ernst (2013), has reflected that manual therapies are likely to be more effective from the traditional methods such as massage, osteopathy and chiropractic.

Justification of Chosen Topic

The following topic has been selected because there are certain gaps in already conducted studies because those studies do not provide a definite conclusion as to how manual therapies can be more effective than the traditional methods. This can also be evidenced from the study of Bronfort *et al.*, (2010), which clearly highlights that despite the diverse strategies and therapies used globally for curing infantile colic, the efficacy for each intervention is still questionable and subject to dispute. In European countries, there has been various treatment including spinal manipulation, and simethicone which are found to be effective for reduction in infantile crying. However, a conflicting opinion regarding the efficacy of such treatments exists. Considering the lack of proven facts and evidence, the effective treatment for infantile colic, traditional methods and manual therapies have come into the spotlight. A study suggests that herbal supplements are effective for the reduction of stomach aches of infants, whereas, the study also suggests that acupuncture helps in the effective treatment of infantile colic and reduces their pain. In light of this discussion, this study has been carried out which has reviewed different articles on infantile colic therapies along with the cases so that it can be assessed whether traditional or manual therapies are effective.

Main Review

Evaluation of the Articles

The study of Hayden (2009) entitled as ": A preliminary assessment of the impact of cranial osteopathy for the relief of infantile colic" was based on the findings comprises of 28 infants that were suffering from colic and thus, few of them were provided with osteopathic manipulation. In order to determine the significance of the treatment, parents were engaged to observe their children on the basis of their time spent in crying, sleeping. Upon examining the results, it was found that children time of crying was significantly reduced in the fourth week in comparison of that was recorded in the first week. Further, significant improvement in the time spent in sleeping was also observed. Additionally, it was also found that the infants that were provided osteopathic treatment also required less parental attention in comparison with the other group. Conclusively, it has been summarised by the researcher that osteopathic treatment provides benefits in the treatment of colic.

The study of Sheidaei (2016) was concerned with determining the effectiveness of massage therapy in infantile colic symptoms. The study discusses that infantile colic raises issues like cry-fuss, sleep problems that eventually affects to mental health problem besides its adverse effects on the child physical and mental growth. In this regard, the researcher intended to determine the efficacy of the massage therapy in comparison with rocking to reduce infantile colic symptoms such as cries, sleep and severity of infant colic. The findings of this study was based on 100 infants who were younger than 12 years. The infants were randomly assigned to the groups that were massage group and rocking group. The infants were provided massage day and night for 15-20 mint. On the other hand, mothers were also asked to rock infants gently for 5-25 minutes. The study found that the efficiency of massage therapy was considerably higher than that of rocking. The study suggested that massaging significantly improve colic symptoms provided with the one-week intervention. Additionally, the researcher also found a significant difference between intervention and control groups however, the favour was provided to massaging. In this aspect, the researcher has suggested that massaging therapy is more effective in comparison with rocking in the context of treating colic symptoms among infants.

The study of Castejón-Castejón (2019) was inclined towards determining the effectiveness of craniosacral therapy (CST) to facilitate the treatment of infantile colic. The study's findings were based on the observations collected for 58 infants who were diagnosed

with infantile colic. The observations from infants were collected four times a day. Additionally, the findings were supported with the colic severity measure that is infant colic severity questionnaire. The study found a statistical difference between the two groups from the perspectives of crying hours, sleep hours, colic severity. The study encases the findings by suggesting craniosacral therapy is found as a more effective and safe option for infantile colic because of its significance in reducing the number of crying hours, colic severity and in increasing total hours of sleep.

The study of Miller, Newell and Bolton (2012) was concerned with determining the efficacy of chiropractic manual therapy provided to infants possessing unexplained crying behaviour. The study was also concerned with determining whether this manual therapy is linked to parental reporting bias. The infants were randomised into 3 groups such as infant treated, parent aware and neither infant treated nor parent aware. Based on one hundred and four patients suggests that chiropractic manual therapy improves crying behaviour among infants with colic. The findings of the study suggest that knowledge of treatment possess by parents do not influence the effectiveness of the treatment.

The study of Salvatore (2016) is devoted to exploring pharmacological interventions on early functional gastrointestinal disorders. The study discusses that functional gastrointestinal disorders are chronic gastrointestinal symptoms that are without structural or biochemical abnormalities. On further highlighting the need for curing functional gastrointestinal disorders, the researcher suggests that FGID are multifactorial conditions that also exists with different pathophysiologic mechanism namely motility, brain-gut disturbance along with environmental and psychological factors. The findings of the study were based on the secondary research where it has been found that pharmacological intervention is essential for rectal disimpaction in childhood constipation. However, the study did not found any used of pharmacological therapy for the treatment of this particular disease.

Another article presented by Holm (2018) has focused on the effects of chiropractic treatment for the infantile colic. The study has used protocol for the single-blind RCT to reflect the findings related to the selected treatment method. The present study discusses the infantile colic which is known as the common condition find in the early childhood that can influence the newborns. The cause of colic can sometimes be unknown, however, the hypothesis has evidenced on different treatment that is effective for infantile colic. The study also suggests that

the chiropractic is mainly utilized for the treatment of infantile colic; however, the evidence for its effectiveness is sparse. This study undertook a single-blind randomized control trial and invited families having children of the age 2-14 weeks with the extreme crying. The intervention has also been proposed in this study which assess the influence of treatment on the clinician finds indicated it as a standard treatment. In addition to the above statement, the study also does not undertake manual treatment as all the children attended chiropractor clinic two times and after their fourth visit, the children's burps, colic and bowel movements were examined. A positive result was identified from the chiropractic treatment as the children were not frequently crying because of infantile colic.

Discussion on Significance of Findings

From the findings retrieved on the critical review and evaluation of the articles, it was identified that, the principle of osteopathic manual practices encodes that the practitioner should keep a thin mind while treating a patient, whether a paediatric or pregnant or any other category that their whole body is a single unit, and whatever the treatment is suggested, it should not become the reason for stagnation. Similarly, chiropractic manual therapy is used in the research conducted by Miller (2012), in order to cure the conditions of repetitive crying and other discomforts of babies like the infantile colic. However, the research conducted by Hayden (2009) presents a controlled and open study over a selected sample group, patients which include 28 infants who are diagnosed with colic (Steel, 2017).

Along these lines, the study introduced by Sheidaei (2016) lead a model of training in which newborn children with colic are exposed to treatment with their foreboding through back rub treatment or massages in different areas. It is seen that children who get massaged all the time had improved in their wellbeing more quickly. Additionally, according to the comprehension of the study directed by Castejón (2019), minors who were treated with Chiropractic manual treatment had improved their wellbeing. Moreover, the infantile colic or the disorder of infant colic is a condition wherein a child cries with scenes for the duration of the day, however, more normally during the nights. Although the outcomes are not serious, yet the guardians and parents are accounted for encounter uneasiness, stress and sorrow because of steady crying of their babies (Castejón, 2019). Doctors have recommended various conventional methodologies by mean of which the child can get loose in their long wheezing pain, however, a

few elective clinical intercessions, along with the manual procedures are seen to be increasingly productive in managing the circumstance. According to the study of Miller, Newell and Bolton (2012), it has been identified that the RCT design helped in the evaluation of the effectiveness of chiropractic treatment for the infantile colic. Moreover, the study contributed towards the determination of the influence of this treatment on the colic within the area, where limited evidence exists. Furthermore, the study explored whether the subgroups of the children are suspected of the problems which can benefit from the intervention and help in achieving better results.

Discussion Of Quality Criteria Of Chosen Articles

The quality of the selected articles was thoroughly assessed through with the use of Risk of Bias (ROB) tool with the Cochrane collaboration where each domain was graded with High Risk (H), Unclear (U) or Low Risk (L). In addition, there were certain domains such as sequence generation, blinding of participants, research personnel, outcomes, incomplete data and other biases were assessed for the articles which has been selected for this research. Moreover, for the selective reporting procedures, the study protocols were locates and were graded as L if there were no difference identified in the results between the results and protocol. Since different outcomes were expected, there an assessment was conducted which estimates the Risk Ratio (RR) for the outcomes that are dichotomous in order to achieve continuous outcomes. Moreover, if there has been clinical and statistical heterogeneity observed, then a different studies were also reviewed to recheck the findings and method of data collection.

Conclusion

Upon conclusion, it can be summarised that the manual practises of osteopathy is generally a non-aggressive therapy that includes treating through hands. The above study selected infantile colic as the subject and discovered the impact of osteopathy over the therapeutic approach of the disorder. Although there are certain medications that can cure colic to some extent but manual techniques like massage and any other osteopathy approach show up with the great result in general. While considering the aforementioned findings, it can be suggested that manual therapy can be essential and effective while treating infants with colic. Number of studies have suggested that while treating colic among infants, the osteopathic approaches and treatment techniques can be beneficial. The studies have been executed in the context of infants where the significance of osteopathic approaches. More specifically, various massaging techniques and other treatments for infantile colic have been found as significance for the purpose of treatment.

Summary of Findings

While considering the findings of Hayden (2009), it can be deduced that infants that were provided osteopathic treatment against infantile colic required less parental attention. This helped the researcher in concluding that osteopathic treatment benefits to the treatment of colic among infants. Further, upon encases the findings, Sheidaei (2016) found that massage therapy is clinical in eradicating the symptoms of colic. The researcher executed secondary research where it has been found that massage therapy is more beneficial in comparison rocking while discussing the treatment of colic symptoms. The findings of Castejón-Castejón (2019), has suggested that craniosacral therapy is found to have a more effective and beneficial way of treating infantile colic. The study revealed that craniosacral therapy helps in reducing the number of crying hours, colic severity and consequently help in increasing total hours of sleep. Miller, Newell and Bolton (2012) in their research involving 104 infants found that chiropractic manual therapy helps in improving the crying behaviour of infants having an issue of colic. The study of Salvatore (2016), was concerned with exploring the pharmacological interventions. The study found that that pharmacological intervention is essential for rectal disimpaction in childhood constipation. Nonetheless, the study did not found that pharmacological treatment can be effective for the treatment of any other disease. Holm (2018) has focused on the effects of chiropractic treatment for the infantile colic. The study suggested that the chiropractic is mainly utilized for the treatment of infantile colic; however, the evidence for its effectiveness is sparse.

The relevance of the Research

The current study has made reference to different six studies where the prime focus of the researcher was to explore effective treatment that can aid in the treatment of infantile colic. The current study is significant for number of stakeholders.

-Patients and Public

The researcher has strived to inform the patients and public regarding the usefulness of osteopathy, massage and related treatments while curing the infantile colic. The study provides information regarding the novel solutions for curing infantile colic.

-Osteopathy

The study sheds light on the significance of osteopathy and has intended to provide empirical evidences that justify the importance of osteopathy while treating infantile colic. The study mainly promotes and showcases the contribution osteopaths that they can made in this field of

-Manual Therapist

The study in a true sense highlights what a therapy and massage treatment can bring about towards the treatment of infantile colic.

-Health Care Communities

The study also brings under the notice of the usefulness of osteopathy and relate message therapies for the treatment of infantile colic. In this regard, the study suggests health care communities to promote the culture of osteopathic and massage treatment besides relying on pharmacological intervention while treating infantile colic.

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Appendices

Study	Objective	Methodology	Finding	Conclusion
Castejón- Castejón (2019)	To evaluate the efficiency of ACT in treating infantile colic	Episodic check-up for progress after implying CST sessions every week in 24 days. There is randomised trial in which 58 infants are involved that are between 0 to 84 days and are diagnosed with the infantile colic. There is 30 to 40 CST session for every baby in a week. The babies that are in CST group have received 1 to 3 sessions in 14 days. The data has been collected 4 times in a day.	The sleep hour and crying hours are improved in a controlled group. From the results of rANCOVA along with the baseline crying which is regarded as the covariate demonstrates the important group which affects the crying hours. The CST group shows the improvement in every endpoints.	The CST approach is safe and effective for infantile colic. It mainly reduces the number of hours which they spent in crying, the colic severity as well as increase in the total hours of sleep.
Hayden (2009)	To distinguish the impact of cranial osteopathy in treating infantile colic	Parents were asked for cares and rock their babies before sleep time during the sessional therapeutic routine of cranial osteopathy for four weeks. In this study, there were 28 infants that were involved which are randomised for cranial osteopathic manipulation or they are getting no treatment in the time of 4 weeks. The treatment is as per the findings individuals which is administrated by the similar practitioner.	Sleep time increased, crying time decreased. There is overall declination in the crying which is nearly 63% and 23% for treated and controlled group respectively. There is an improvement in sleeping about 11% and 2%.the infants that are treated needs less attention from their parents as compared to untreated patients.	It is observed as that cranial osteopathic is an effective approach to treating colic. By this the infants are able to relax and cries less and are able to sleep for the long time.

		The parents were asked to record the time babies are spending in crying, sleeping and being held on every day.		
Holm (2018)	To evaluate the outcome of chiropractic treatment in curing infantile colic	Selected children were exposed to chiropractic treatment for about two times a week, and the results were monitored accordingly. The study is mainly designed as it is a single blind which is randomised as well as controlled. The respondents are families which lives in Island of Funen as well as information regarding the project is mainly distributed from the health visitors and maternity wards. The children that are at age of 2 to 14 weeks which have unexplained excessive crying that are screened for the eligibility.	Parents reported better sleeping patterns and reduced crying episode after the sessions. The main thing which is evaluated in the single blind randomised controlled design is the effectiveness of the treatment depends over chiropractic on infant colic. The main contribution of this study is in the determination of the effect of this treatment over the infantile colic in such area where there is limited evidences.	The health was improved ad the stress was relieved. Infantile colic is considered as the condition which is usually faced while the childhood which affects almost one infant out of six infants. This is the condition which is characterised by the crying which is not consolable as well as fussing which otherwise results in health as well as thriving infants.

Miller (2012)	The study aims to distinguish the proficiency of the Chiropractic Manual Therapy in treating infant colic through RTC. The objective of the study is to cure the conditions of repetitive crying and other discomforts of babies like the infantile colic.	Children were divided into three subgroups and were given the Chiropractic Manual Therapy sessions. Followed by monitoring. For this study, the infants which are having unexplained persistent crying problem are included at the chiropractic teaching clinic of UK. Infants which are of 8 weeks are involved in the study.	The crying time was reduced. The number of children which are treated completed are three whereas there are some infants which are under the treatment.	It is an effective approach to cure the infant colic
Salvatore (2016)	To present a pharmacological approach in dealing with Functional gastrointestinal disorders (FGIDs) in infancy and early childhood.	The research is based over revaluation of secondary data from electronic data records and databases. The relevant literature was also reviewed.	No definite evidence was found in the explanation of therapeutic approaches to deal with the Functional gastrointestinal disorders (FGIDs)	Some medicines are suggested to cure Functional gastrointestinal disorders (FGIDs), but the results are o to be dependent on the cases, respectively.
Sheidaei (2016)	To evaluate the proficiency of massage therapy in curing the infant colic, an RCT approach.	The massage was given to the selected colic infants fro about twenty minutes, and the RCT group was rocked gently for the observed same interval, roughly, before sleep time.	The massage therapy resulted in ease in sleep and decrease in crying time.	Massage therapy shows the best results in treating colic infants in the domain of manual therapies.

Steel (2017)	The research is	The structure of the	The research has	Through osteopathy,
	dedicated to	study includes the	declared that the	medical therapeutic
	analysing the role of	evaluation of the	conduct of mania	interventions have become
	osteopathy in	performance of	treatment, osteopathy	safer and easier to
	manual treatments of	healthcare players in	has been the foremost	conduct. It is analysed that
	medical	the field of	technique of curing	by massaging properly,
	complications	providing medical	complications in the	the people are able to
		assistance to the	majority of countries	improve the colic
		public.	across.	symptoms in the time span
				of one week intervention
				for every outcome. There
				are major differences
				which are observed
				among the intervention as
				well as control groups are
				favouring the massaging
				therefore this therapy is
				regarded to be effective as
				compared to rocking for
				the infants having colic
				symptoms.

Question	Y,	Comment
	N,	
	?,	
	na	
1. Is the study population clearly defined with	N	What is the study population?
clear inclusion and exclusion criteria?		
2. Is the sample representative of the population?	N	Note how the sample was taken
The best samples are taken at random from		
the whole population but sometimes		
modifications of random sampling are used		
(these include stratified sampling, cluster		
sampling or multistage sampling).		
Non random sampling techniques may be used but		
these are less representative of the population (e.g.		
volunteers, purposive sampling, snowball		

sampling, incidental/convenience sampling, quota sampling etc). small non random samples are particularly unrepresentative. Are alternatives to random sampling explained and justified?		
3. Is a power calculation performed to determine sample size?	N	
4. Are the sample participants randomly allocated to the intervention and control groups? Random allocation is where those in the selected sample are given an equal chance of being assigned to test groups (either the treatment group or the control). Makes sure that the mix of participants to treatment and control are similar (age, gender, ethnicity). This makes the comparison fair. Ensures that when results are compared at the end then differences are due to the intervention and not pre-existing differences in the population.	N	Outline method of allocation to groups.
5. Did the paper use non parametric or parametric statistics? Non —Parametric Statistics include median, mode, quartiles, inter-quartile range, Wilcoxen test, Mann Whitney U test, Spearman's Rank Correlation Coefficient etc	N	Note the descriptive statistics used. Note the inferential statistics used.

Parametric Statistics include Mean, Standard Deviation, Confidence Intervals t test (paired and unpaired), Pearson's Correlation Coefficient etc		
6. Is the choice of statistics appropriate? First decide if parametric or non parametric tests should be used. Then decide which test is appropriate.	N	Comment on the appropriateness
7. If appropriate , do the researchers justify their use of unusual statistics?	N	
8. Is the null hypothesis clear (either stated or implied)	N	
9. Are there any significant differences between the groups at the beginning of the trial?	N	If there are significant differences, what are they and how might they have affected the outcomes (i.e. acted as confounding factors)?
10. Are all participants who started the study accounted for? Participants withdraw after the start of a trial for a variety of reasons which may include adverse reactions, loss of motivation, clinical reasons, personal reasons etc. Withdrawal can bias the	N	Is there a consort diagram to show the flow of participants at each stage through the trial? If no flow diagram, note if the paper records withdrawals (drop outs) and non responders etc.

results. Reasons for withdrawal should be recorded. 11. Is it clear how withdrawals and non-responders were kept to a minimum?	N	Note how many drop outs/non responders
12. Are results analysed on an 'intention to treat basis' i.e. people who start the trial and withdraw	N	If appropriate, note the method used for intention to treat analysis.
are included in the analysis. There is no consensus on how to analyse on an 'intention to treat basis' and analyses have different drawbacks.		What do you see as the drawbacks of the method used.
13. Is it clear how outliers were analysed?	Y	
14. Are the data normally distributed?	N	Outline how data were tested for normal distribution by the researchers?
15. Are 'p' values stated?	N	
The lower the p value the less likely it is that the		
difference happened by chance, so the higher the		
significance of the finding. A p value of 0.05		
and smaller is used to decide if results are		
statistically significant and unlikely to have		
occurred by chance		

16. Are the statistics interpreted correctly?	N	
17. Are the limitations of the statistics discussed	N	
e.g. small sample size, drop outs etc?		
Remember, small non random samples may be		
unrepresentative of the population so		
differences found between intervention and		
control groups might not be found in the		
population.		
18. Is statistical significance discussed in relation	N	
to clinical significance?		