TUI NA THERAPY IN MANAGING CHILDREN WITH RESPIRATORY DISORDER: A LITERATURE REVIEW

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Abstract

Respiratory disorders pose a significant global health concern, especially affecting children with high morbidity rates. Tui Na, a traditional therapeutic method, has been passed down through generations and is widely used for addressing respiratory issues in children. This article aims to conduct a literature review on Tui Na, exploring its effectiveness in managing respiratory health problems in children. The review follows the PRISMA model approach. Six articles meeting the inclusion criteria were analyzed out of 117 articles published from 2020 to 2022. All studies, conducted in China, focused on applying Tui Na to alleviate symptoms in children with respiratory disorders. The collective findings strongly suggest that Tui Na emerges as a safe and effective therapeutic modality. It significantly contributes to improving the health status, quality of care, and overall satisfaction for both pediatric patients and their families. This research not only adds to the growing body of knowledge on complementary and alternative medicine, but it also highlights Tui Na as a promising intervention for pediatric respiratory disorder.

Keywords: Children, Respiratory Disorders, Tui Na

Introduction

Respiratory disorders are experienced by humans at least once throughout the course of a lifetime. In general, there are three risk factors for Acute Respiratory Infections (ARI), specifically environmental factors, individual child factors and behavioural factors (1). Globally, Acute Respiratory Tract Infection (ARTI) has garnered attention as a leading cause of death in children under five years old (2). Specifically, there are 156 million new cases of ARTI worldwide each year, with 151 million cases (96.7%) occurring in developing countries (3). Based on World Health Organization (WHO) data in 2016, the estimated mortality rate of infants due to ARTI in the Americas, Africa, and Asia is 15-20% annually, with pneumonia being a major cause of infant mortality globally (4). In 2019, the death rate due to pneumonia in infants was 0.12%. According to data from the Directorate General of Public Health, Ministry of Health of the Republic of Indonesia in 2020, pneumonia was the leading cause of post-neonatal death (29 days-11 months) in 2019, accounting for 979 deaths (15.9%), and was the second-largest cause of death after diarrhea in toddlers (12-59 months), with 277 deaths (9.5%) (5).

In India, respiratory disorders such as tuberculosis are still believed to be a part of social culture and mythology in health, indirectly affecting overall health outcomes, making uniform management challenging (6). Similarly, in some regions of China, the disease is viewed as socially and culturally related, leading to a focus on traditional treatment assistance (7). Even among the Aboriginal tribes in Australia, respiratory disorders such as coughs in children are considered normal within the family and believed to heal on their own, minimizing the crucial need for health facilities (8). In some inland areas of Indonesia, the community perceives that fever, including respiratory disorders like coughs experienced by infants, is an indicator of their developmental progress. This means that when a child gets sick while learning to crawl, it is seen as a sign that the child will soon be able to crawl independently (9).

The definition of illness cannot be generalized because culture will influence perceptions of manifestations. Health anthropology is seen as a biocultural discipline that focuses on the biological and socio-cultural aspects of human behavior, particularly patterns of interaction throughout human life that affect health and illness conditions (9). To address this, transcultural nursing is needed as an approach in nursing management oriented towards cultural backgrounds, including values, beliefs, behavioral rules, and lifestyle practices that serve as references for thinking and acting. Strategies used may include protecting or maintaining cultures that are not contrary to health,

accommodating or negotiating cultures to help clients adapt to specific cultures that are more beneficial to health, and changing or replacing client cultures that are detrimental to health (10).

Common methods practiced by communities rooted in traditional cultural habits are often found in complementary or alternative medicine (CAM). In responding to this, CAM becomes the most preferred choice in reducing respiratory symptoms commonly experienced by children. Tui Na, as part of acupressure therapy, is one of the types of CAM commonly practiced in the management of sick children. In Chinese culture in particular, Tui Na has a long history and has been extensively practiced for common disorders such as cough, fever, and asthma in children. Traditional Tui Na treatments, which use massage techniques, are believed to regulate the flow of qi by manipulating specific parts of the body, triggering a systemic immune response, and increasing antibodies in body fluids, though the mechanism is still unclear (11).

Pediatric Tui Na is a potential therapy for children's coughs that could reduce the overuse of drugs and shorten the treatment time. Tui Na can be applied to acupuncture points on the human body to open meridians and improve the circulation of qi and blood, thus preventing the onset or development of diseases. The use of Tui Na is widely used to enhance immunity. The three leading Tui Na schools in Shanghai, namely the Academic School of Yi Zhi Chan Tui Na, the Academic School of Rolling Tui Na, and the Academic School of Internal Power Tui Na, have unique approaches. In clinical practice, the Academic School of Yi Zhi Chan Tui Na follows operational principles that emphasize gentleness as a tonic, strength as a purgative, a combination of gentleness and strength, gentleness as an imperative, penetrating bone gaps (*sutura*), and harmonizing Ying and Wei. The focus is on assisting vital qi, adjusting the functions of internal organs, harmonizing Ying and Wei, following meridians and collaterals, and pressing acupuncture points to enhance the body's immune function (12).

Based on the study of culturally based management in children with respiratory disorders, the authors are interested in conducting a literature review regarding the effectiveness of Tui Na in addressing respiratory complaints in children. Therefore, if Tui Na therapy has the potential to address respiratory disorders in children, it could contribute to reducing excessive medication and establishing evidence-based practices for clinical health and nursing.

Materials and Methods

Search strategy

To identify the main concepts in the specified main question, the article search process for this literature review used the PICO search strategy, which included Population (P), Intervention (I), Comparison (C), and Outcome (O) to identify the main concepts in the main question specified. PICO informs the search strategy that can be used, details the question, and adjusts to the inclusion and exclusion criteria that could potentially be missed. In addition, Boolean connectors, specifically AND and OR, were also used to connect and limit the article search.

The search used six databases: 1) Ebsco, 2) ProQuest, 3) Pubmed, 4) Science Direct, 5) SpringerLink, 6) Google scholar. While international journals were the main focus of the search, national journals that met the predefined inclusion and exclusion criteria for articles were also found. The keywords used for the search were Population in the form of (P) Children, Intervention in the form of (I) Tui Na Therapy, Comparison (C) in this case not using a comparator, and Outcome in the form of (O) respiratory system disorder. The selection process in this study used the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) method (13).

Inclusion criteria

The inclusion criteria in this literature review are 1) article publication time in the last 2 years starting from 2020 to 2022; 2) articles can be accessed in their entirety or full text; 3) articles using English or Indonesian; 4) articles that discuss Tui Na therapy to treat respiratory disorders in children; 5) articles in the form of original articles with quantitative research types; 6) the study's population consists of children who have respiratory system disorders.

Exclusion criteria

Application of Tui Na in children with terminal illness or hospitalization.

Quality appraisal

Before entering the quality appraisal, the authors first read the five full texts that had been selected. The authors read in full and conducted a critical appraisal using the Joanna Briggs Institute (JBI) checklist for experimental studies with quantitative types. This method uses several criteria to assess the quality of the article to decide whether it can be processed at the synthesis stage or not. These criteria include the sample and subject of the study, the validity of the intervention provided, the validity and reliability of the measurement tools, and statistical analysis. From the results, no studies were excluded after this quality assessment.

Data extraction and analysis

Data analysis and extraction were carried out on the five articles that had been obtained. Furthermore, data grouping was formulated based on several criteria, in particular, a) Author, b) Year of publication, c) Source of origin/Country of origin, d) purpose/purpose, e) Population and sample size of the study, f) How outcomes were measured, and g) Key findings related to clinical questions (14).

Results

Search results

The search was conducted in October 2022 using six search databases: Ebsco, ProQuest, Pubmed, Science Direct, SpringerLink, and Google Scholar. The total number of articles obtained was 117 articles. Screening was performed on the 117 articles by determining the range of articles for two years, open access articles, articles in Indonesian or English, and topics in accordance with the themes explored in this literature review. A total of 36 relevant articles were obtained from the six databases. Subsequently, a duplication check was carried out and no similar articles were found. Then, the abstract selection process and the context of the article were entered according to the inclusion and exclusion criteria, resulting in seven articles being netted. The seven articles were read in their entirety and two articles were found to be irrelevant. The next step was to assess the quality of the article through critical review using JBI Tools for experimental research, until five articles were identified as suitable for inclusion in this literature study. The flow of article selection is depicted in the PRISMA flow diagram (Figure 1).

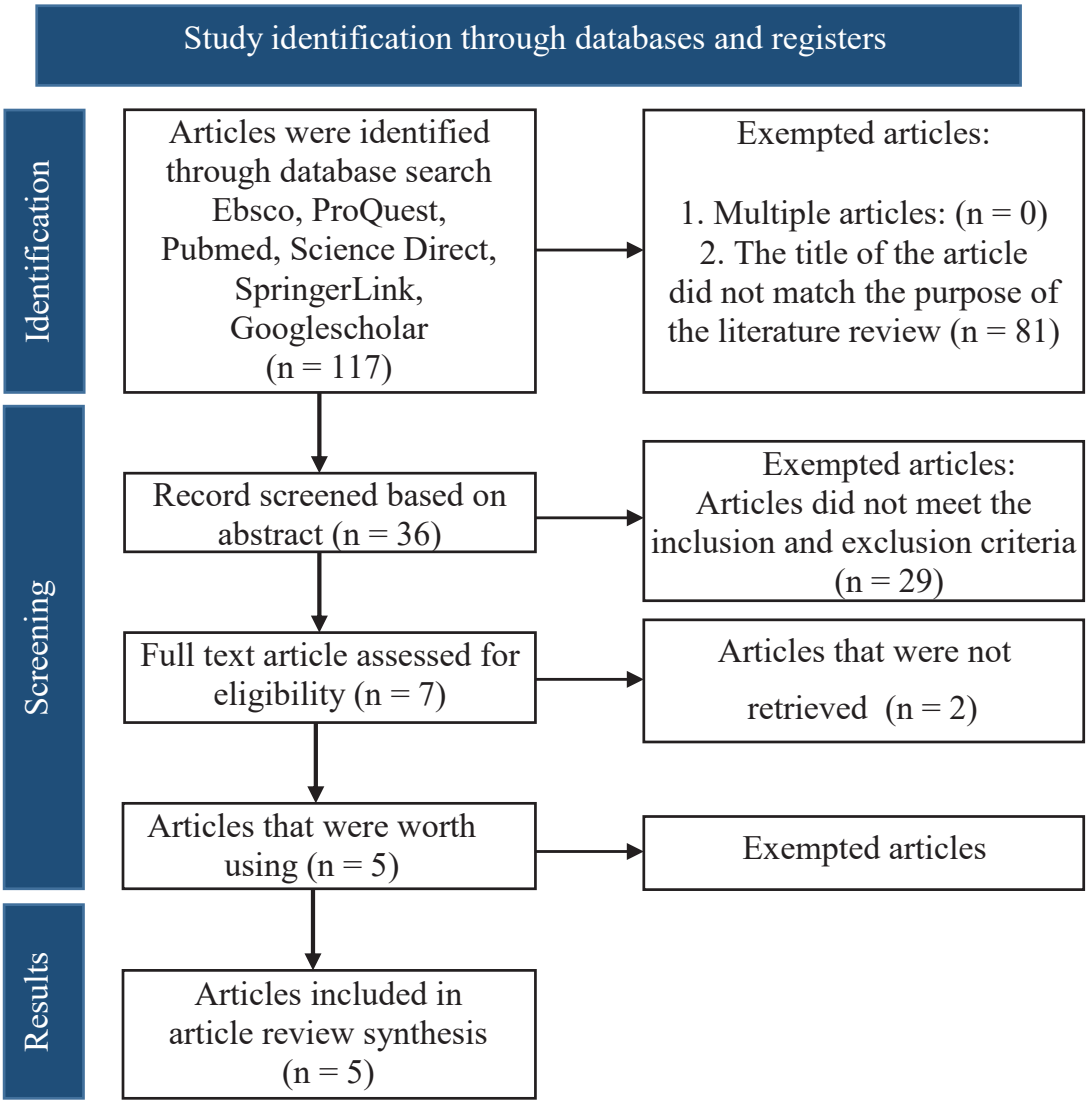

Figure 1: PRISMA flow diagram of studies included in the review

Descriptive characteristics of studies

The search results yielded five articles that met the inclusion criteria, with the research study taking place in China. Tabel 1 below shows the study's general information characteristics:

Table 1: Summary of characteristics study result

No	Researcher and Year of Publication	District	Country
1.	Zhu & Li (2022) (15)	Xianyang	China
2.	Yang-yang *et al* (2021) (16)	Shanghai	China
3.	Yun *et al,* (2021) (17)	Changsha	China
4.	Ye & Dai (2022) (18)	Nanjing	China
5.	Chen & Wu (2020) (19)	Jiangsu	China

Summary of article extraction and synthesis results

The summary of the results of several literature studies obtained was then grouped based on several information, including author and year of publication, research objectives, research design, population, and sample size, how results were measured, and themes related to clinical questions, as shown in Table 2 and Table 3 below:

Table 2: Findings of extraction data results on research title, objective, design, samples, location, and characteristic of child population

Researchers & Publication year	Research Title	Objective	Research Design	n	Location	Population
Zhu & Li (2022) (15)	Therapeutic efficacy and safety rating of Tui-Pushing chest-back manipulation for children with cough varian astma	This study aimed to observe and evaluate the clinical efficacy and safety of using Tui Na, a massage therapy aimed at treating children with cough variant asthma.	This was an experimental study, where groups were selected through random sampling. The intervention group received conventional Tui Na treatment while the control group received Tui Na placebo.	72 people	Pediatrics Outpatient Hospital Affiliated to Shanxi University of Chinese Medicine	Pediatric patients aged 2-6 years with respiratory system disorders such as cough or asthma
Yang-yang *et al* (2021) (16)	Clinical efficacy observation on pediatric massage for chronic cough inchildren	This study aimed to observe the clinical efficacy of pediatric massage (Tui Na) for chronic cough in children.	This study was an experimental study. The intervention group received Tui Na treatment plus Mo massage for abdomen, while the control group was only given routine care.	96 people	Yangpu District Hospital of Traditional Chinese Medicine, Shanghai	Pediatric patients under 14 years of age with chronic coughing respiratory system disorders
Yun *et al,* (2021) (17)	Clinical observation onmoxibustion therapy plus tuina in treating children with recurrent respiratory tract infections due to qi deficiency of spleen andlung	This study observed the clinical efficacy of Tui Na and moxibustion therapy for children with recurrent respiratory tract infections due to spleen and lung qi deficiency.	This research was an experimental study. Samples were selected by accidental sampling method. The intervention group was treated with Tui Na and Moxibustion therapy while the control group was only given Tui Na therapy.	60 people	Department of Pediatric Outpatient and Home Massage Center for the First Sick Child of Hunan University of Chinese Medicine, Changsha.	Pediatric patients aged 1 to 6 years old with respiratory tract infection

Table 2: Findings of extraction data results on research title, objective, design, samples, location, and characteristic of child population (continued)

Researchers & Publication year	Research Title	Objective	Research Design	n	Location	Population
Ye & Dai (2022) (18)	Clinical observation onmoxibustion at Baihui (GV20) plus Tuina for children with postnasaldrip syndrome	Objective: This study observed clinical Moxibustion in Baihui (GV20) plus Tui Na (Chinese therapeutic massage) for children with postnasal drip syndrome (PNDS).	This research was an experimental study. The control group was given mometasone furoate nasal spray and nasal irrigation with 0.9% normal saline while the experimental group was given Moxibustion in Buihui and Tui Na	60 people	Nanjing Integrated Traditional Chinese and Western Medicine Hospital	Pediatric patients aged between 2 years and 6 years old with cough for more than 4 weeks with diagnostic postnasal drip syndrome
Chen & Wu (2020) (19)	Therapeutic observation on lung- clearing and spleen-strengthening tuina inchildren with exogenous cough	Objective: This study observed the clinical efficacy of Tui Na on lung cleansing and spleen strengthening in exogenous cough experienced by children.	This research was an experimental study. The control group was given routine Tui Na lung cleansing therapy while the treatment group was given routine Tui Na lung cleansing and spleen strengthening therapy.	77 people	Chinese pediatric Outpatient Treatment Hospital Wuxi, Jiangsu	Pediatric patients under 7 years old with symptoms of cough, fever and active secretion production in the respiratory cavity.

Table 3: Summary of findings in articles about Tui Na

Researchers and publication year	Tui Na Therapy Technique applied to children with respiratory disorders	Effectiveness of Tuina on improving conditions in children with respiratory system disorders
Zhu & Li (2022) (15)	Tuina therapy uses the Tui meridian on the back and front with movements a) The index and middle fingers circularly clockwise press the CV17 acupoint 100 times, b) separately the two thumbs press towards the left and right medial of the CV17 point 200 times, c) the index and middle fingers press down the CV17 point straight 50 times, d) simultaneously forming the letter Y, the index and middle fingers press straight from the top of the sternal manubrium to the processusxipoideus 150 times/minute, f) the child is pronated and clockwise circular pressing is performed on acupoint BL13 200 times/minute, g) pressing on acupoint BL13 follows the child's scapula pattern and draws a straight line downward with a movement of 150 times/minute, and h) the thumb is dipped in salt water as an acupressure medium and is pressed according to the anatomy of the scapula until the area appears reddish.	After three treatments, compared to the control group, the observation group showed significant progress with a total effective rate, reducing the number and intensity of coughs and improving the nature of coughs ($P < 0.05$). There was also no discomfort or adverse reaction to the child during the procedure or afterward. Tui Na can thus be considered safe for use paediatric treatment.
Yang-yang *et al* (2021) (16)	Tui Na therapy is performed on children in a sitting or supine position with several steps; a) Kai Tianmen acupoint by using the thumb pressing the forehead upwards as an opening point for 2 minutes, b) LU7 acupoint by pressing the child's 5 fingers from the inside and outside for 2 minutes, c) LI4 acupoint by pressing the segment between the index finger and thumb for 2 minutes, d) the Fen Yinyang acupoint is pressed on the child's inner wrist using both thumbs for 2 minutes, e) the Yun acupoint is pressed on the plantar of the child's lower hand circularly,	At the end of the intervention, the total effective rate in the observation group was 92.5%, compared to 86.0% in the control group, showing a statistically significant difference ($P < 0.05$). However, both the control and intervention groups showed changes in the results. This was because Tui was applied to both groups while the difference was that the intervention group was given additional Mo therapy.

Table 3: Summary of findings in articles about Tui Na (continued)

Researchers and publication year	Tui Na Therapy Technique applied to children with respiratory disorders	Effectiveness of Tuina on improving conditions in children with respiratory system disorders
	f) the CV22 and CV17 acupoints are pressed in a straight downward motion, g) finally at ST 36 behind the foot is pressed for 5 minutes using the index finger. In addition, the therapist also added an abdominal rub massage called Mo. This technique is done by extending the palm of the hand then the wrist joint is slightly bent, placing the palm on the child's abdomen and performing circular rubbing clockwise through the active movement of the forearm using the elbow joint as the axis and the umbilicus as the center so that gradually the entire abdomen is rubbed. This treatment lasts for 5 minutes, 3 times a week for 12 treatments.	
Yun *et al,* (2021) (17)	The application of Tui Na therapy is applied through meridian opening points including Kai, Tui and EX-HN 5 on the left and right sides of the child's temple. Then the therapist presses the *Qia* acupoint in the middle of the child's wrist and the Fen *Yinyang* point. All of these series are pressed 24 times each. Next, the therapist presses the *Pijing* point located on the top segment of the child's thumb 250 times, then the top segment of the child's ring finger 300 times, the top segment of the child's index finger 150 times, the top segment of the child's middle finger 100 times, the top segment of the child's little finger 150 times. In the supination position, the therapy is continued on the index finger and middle finger circularly clockwise pressing the CV17 acupoint. Separately the two thumbs press towards the left and right medial of the CV17 point. The index and middle fingers press down the CV17 point in a straight line. Simultaneously forming the letter Y, the index and middle fingers press straight from the top of the sternal manubrium to the *processusxipoideus*. Then, pressing on CV12 using the middle and ring fingers and with emphasis on ST36 on the hindfoot. The final stage is continued by pressing the closing point, GB21, three to five times. The intervention and control groups were both given similar interventions as routine measures, but the intervention group in this study added moxibustion therapy at points GV12, BL13, BL20, LU1, CV6, and ST36.	The results showed that the total effective rate of the observation group was 93.3%, and the control group was 83.3%. The difference between the two groups was statistically significant ($P < 0.05$). This suggests that Moxibustion therapy with pediatric Tui Na has a better effect on improving clinical symptoms in children with children's recurrent respiratory infections.
Ye & Dai (2022) (18)	In this study, the intervention group carried out nasal sprays and nasal irrigation. After four weeks of treatment, the total effective rate of the observation group was 93.3%, whereas 15 normal saline fluid as well as the control group. So, the sequence of methods was Moxibustion therapy followed by Tui Na therapy. Tui Na therapy given to children in the supination position includes emphasis on acupoints GV20, *Tianmen, Kangong, Rou* forehead, EX-HN5, LI20, and *Rou* nose. Furthermore, in the pronation position, emphasis was placed on GB20, GV16, GB21, and BL13. This treatment lasts about 20 minutes 1 cycle a day. This therapy is repeated 5 times a meeting.	After four weeks of treatment, the effective rateof the observation group was 93.3%, while that of the control group was 70.0%. There was statistical significance in comparing the total effective rate between the two groups ($P < 0.05$), indicating that the clinical efficacy of the observation group was better than that of the control group where the child's respiratory symptoms decreased significantly.
Chen & Wu (2020) (19)	The Tui Na technique in this study uses vasein media as a topical agent that helps facilitate the process of pressing and massaging the intended point. In the intervention group, the Tui Na lung cleansing technique involving *Feijing, Tiantu, Danzhong*, *Tianmen, Kangong, Taiyang, Fengchi* and *Feishu* acupoints was performed. The child is placed in a supine position, *Feijing* acupoin clearing Qing.	After treatment, the treatment group had a significantly higher total effective rate (89.5%) compared to the control group (75.0%) ($P < 0.05$). The therapeutic effect of lung clearance plus spleen strengthening manipulation was better than Tui Na lung clearance alone. In addition, this study also showed that the effect of tuina manipulation of lung clearance and spleen strengthening was more favorable.

Discussion

Tui Na, derived from the Chinese words "Tui" meaning push and "Na" meaning pull or drag, is a traditional treatment that combines elements of acupressure, chiropractic, and massage therapy. It is commonly used in humans to address specific muscle and bone disorders and chronic stress-related issues affecting the digestive, reproductive, and respiratory systems (20). Specifically, Tui Na has evolved techniques tailored for pediatric therapy, known as pediatric Tui Na or *xiao er tui na* (21).

According to the "Handbook of Traditional Medicine" by Xutian et al (22)., the therapeutic mechanisms of Tui Na involve several aspects to restore balance in the body. Firstly, Tui Na effectively balances Yin and Yang energies by stimulating specific acupuncture points or meridians, selecting appropriate points to restore Yin and Yang equilibrium. For example, Tui Na can be used to treat Yang deficiency in GV 4 *Mingmen* and Yin deficiency in K 13 *Taixi*. Secondly, Tui Na regulates Zang and Fu organs by applying *tonification* techniques on the relevant meridians or acupuncture points to address organ deficiencies or excesses. For instance, tonifying Tui Na on the Spleen Meridian can provide nourishment to address spleen deficiency. Thirdly, Tui Na clears meridians by eliminating Qi stagnation or blood stasis in affected meridians. Examples include using Tui Na to address Qi stagnation at acupuncture points CV 17 *Tanzhong* or LR 3 *Taichong* and blood stasis at SP 10 *Xuehai* or BL 17 *Geshu*. Lastly, Tui Na aids in repairing tissues and organs that have experienced dislocation or damage (22).

Consistent with research by Scanlan (20), Tui Na is generally performed using massage techniques on the body's soft tissues (muscles and tendons), pressure techniques, and manipulative techniques to restore muscle function. Pediatric Tui Na, on the other hand, has systematically developed from a mother's innate instinct to caress, touch, and stroke her baby or young child, making it practical, intuitive, and easily conveyed. Pediatric Tui Na involves various movements, ranging from stroking to tapping, on different parts of the child's body. It can be taught to parents for at-home care (21).

Pediatric Tui Na has a long history and has been extensively practiced for common disorders such as fever, cough, and asthma. Functioning as a non-pharmacological intervention for children, Tui Na necessitates no instrumentation and is characterized by operational simplicity (23). Pediatric Tui Na has been applied by many Chinese parents to stop the development of flu symptoms in their children (24).

Specifically, Tui Na on the chest and back pushes the projection of lung operation. Acupoint CV17 is used to alleviate chest depression, suitable for treating respiratory disorders (25, 26). CV17 also functions to suppress reverse flow to stop coughing. Pressure applied to the intercostal space through this technique can enhance nerve impulses to the brain, stimulate the cardiovascular nervous system's regulatory center, promote blood distribution in the body, and increase local blood flow (27, 28).

In pediatric cases, the organs are not fully mature, and according to traditional Chinese medicine, spleen deficiency can lead to turbid phlegm. Pediatric Tui Na is performed by massaging specific points on the main abdominal area, believed to regulate spleen and stomach functions. Acupoint CV8 is a reference point for strengthening the spleen, aligning the digestive system, and warming to strengthen the spleen organ and address dampness in phlegm (16). Furthermore, CV22, CV17, and *Fenglong* ST40 are aimed at addressing phlegm, promoting Qi flow, and stopping coughing. Additionally, ST36 functions to fortify the spleen, strengthen the body, and enhance the immune system (29, 30).

Modern studies state that pediatric Tui Na massage can stimulate immune development by increasing levels of immunoglobulins IgA and IgG, ultimately affecting the child's immune response positively (31, 32). *Acupoint Zhongfu* (LU1) combined with *Feishu* (BL13) is a combination of Back-Shu and Front-Mu points, especially for lung diseases such as coughs, phlegm, and shortness of breath (17).

Cold temperatures and pathogens attacking the lungs manifest as exacerbated respiratory symptoms, especially in the nose. Therefore, Tui Na therapy utilizes points around the nose, head, and face. Stimulating these points improves local blood circulation, inflammation exudate absorption, and effectively alleviates symptoms such as coughing, sneezing, stuffy, and runny nose. Subjectively, Tui Na is well-received by families, and young clients enjoy this therapy compared to others (18).

Conclusion

The literature study, which included five articles, found that Tui Na is an appropriate complementary therapy technique to treat children with respiratory system disorders. The application of this technique does not use invasive techniques to avoid infectious contamination and is safe to be carried out either by the therapist directly or from mother to child through therapist monitoring. The acupoints that are the basic guidelines in the practice of Tui Na have different roles according to the organs that are targeted in the treatment. Tui Na could be applied to pediatric clients to overcome respiratory system disorders in order to improve the quality of nursing care and satisfaction for patients and families. Further literature review can be carried out in order to identify the knowledge of health workers in Indonesia regarding the application of Tui Na therapy to children and its application in the scope of clinical and community services.

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Competing interests

We do not have any conflict of interest in the writing of this article.

Ethical Clearance

We declare that ethical approval was not required for our study and there are no ethical issues.

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