COMPLEMENTARY AND ALTERNATIVE THERAPY FOR PICKY EATER: SYSTEMATIC REVIEW

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ABSTRACT

The picky eater problem is one of the beginnings of toddler stunting. This problem needs to be solved with scientifically proven interventions. This systematic review is focused on looking at complementary and alternative interventions that are scientifically proven to be effective in treating picky eaters. This study aims to identify, evaluate, and summarize the findings of all relevant literature on complementary & alternative therapies for picky eaters in children (1-6 years). Search for articles on PubMed, ProQuest, Google Scholar, and Crossref search engines related to literature from 2012-2022. Inclusion criteria were original research articles that examined an intervention on picky eating in children with complementary & alternative therapeutic approaches. Quantitative, experimental research published in English and Indonesian with child participants with picky eater problems. The data were studied and analyzed with qualitative and narrative methods. There are a few articles (10 items) that review the effectiveness of an intervention to treat nutritional problems and the symptoms of picky eaters. Interventions with complementary approaches and alternative therapies were found to be very few. Most of them are in the form of conventional interventions such as health education, oral supplementation, counselling, and interventions with similar approaches. Several interventions are given in combination. There is an intervention for handling picky eaters given to respondents who have nutritional problems accompanied by other diseases. There is an insufficient number of scientific articles found related to interventions for picky eaters with complementary approaches and alternative therapies, therefore scientific evidence with research and publications is still a big opportunity and is very much needed in the future.

Keywords:
Children, Food, Fussy eating, Intervention, Traditional therapy
BACKGROUND

The picky eater problem is an eating disorder in children which is characterized by children only wanting to consume or being picky about certain foods and even keeping their mouths shut which often occurs at the age of 1-3 years (Astuti & Ayuningtyas, 2018). The incidence of picky eaters in Indonesia occurs in pre-school children about 20.0%-58.8% (Nugroho, 2020; Rahayu et al., 2023). Children who have picky eater eating problems have difficulty eating, refuse to eat, only like one type of food, only want to drink milk, and take > 1 hour to eat (eat food) (Taylor et al., 2019; Wolstenholme et al., 2020).

This problem is sometimes considered part of the normal growth of toddlers because there is a physiological adaptation of the body to receive more nutrients. However, if it is followed by a reluctance to try new foods and occurs continuously, this can lead to worse nutritional status problems and even lead to stunting problems. The problem of picky eaters needs to be addressed so as not to interfere with the optimization of children's growth and development. Various ways can be done to overcome the problem of picky eaters. Various ways can be done to overcome the problem of picky eaters. The interventions given aim to increase appetite or increase the amount of food intake in toddlers. Various studies have been published regarding the effectiveness of conventional intervention methods as well as complementary and alternative therapeutic approaches, but there are no publications that specifically review the effectiveness of interventions against picky eaters.

This intervention approach needs to be scientifically proven. Scientific evidence is important to do as part of the evidence base for the management of picky eaters. The author conducted a systematic review to address the existing gap in the literature concerning the effectiveness of interventions targeted at picky eaters. Despite numerous studies on conventional and alternative therapeutic methods, there is a notable absence of publications specifically reviewing interventions for picky eaters. Despite numerous studies on conventional and alternative therapeutic methods, there is a notable absence of publications specifically reviewing interventions for picky eaters. The systematic review aims to methodically synthesize available evidence, providing a comprehensive and rigorous evaluation of the efficacy of interventions against picky eating. By undertaking this systematic approach, the author seeks to establish a scientifically substantiated foundation, contributing essential evidence to inform and enhance the management strategies for picky eaters.

METHODS

This research method is a systematic review that aims to collect, identify and evaluate therapies or interventions used to treat picky eater problems in children. Search articles using the search engine PubMed, ProQuest, Google Scholar, and Crossref facilities with a publication deadline of 2012-2022. Data accessed in October 2022.

Research questions using the PICO method (Population, Intervention, Comparison, and Outcome) were used as the basis for searching the literature. The target population is children with an age limit of 1-6 years and normal mental health status. The interventions used can be in the form of complementary and or alternative therapeutic actions such as the use of herbs, hypnotherapy, acupressure, and massage. The comparison used was conventional health measures such as education, counselling or research that did not use a control group. The outcome used is an indicator of picky eater symptoms such as frequency of eating, mouth shutting, refusing to eat, and picky eating.

The search strategy in the database with keywords include "picky" OR "fussy" OR "picky eater" OR "picky eating" OR "food fussiness" OR "fussy eating" OR "fussy eater") AND ("therapy" OR "intervention" OR "strategy" OR "picky", "fussy", "picky eater", "picky eating", "food fussiness", "fussy eating", and "fussy eater"). These keywords are combined with other keywords namely "therapy", "intervention", and "strategy" in search engines with Boolean Operators.

The results of the literature search were selected using inclusion criteria, namely experimental studies and action research; research using English or Indonesian. Exclusion criteria in the form of case study research, case reports, and reviews. Measures from PRISMA (Preferred Reporting Items for Systematic Review) were used for data analysis consisting of identification, screening, and eligibility of articles (Figure 1). Articles that meet the criteria will be reviewed by including picky eater indicators in children. Findings are documented and displayed in the form of tables followed by explanations, discussions, and conclusions.

RESULTS

The results of the literature search found 10
articles that met the analysis process (Table 1). There are 5 literatures that 5 kinds of literature examine interventions related to complementary feeding, whether given directly by modifying its components or beginning with counselling or training activities for parents (Cerdasari et al., 2019; Ghosh et al., 2018; Khanna et al., 2021; Taylor et al., 2017; Windiyani & Mukminin, 2021). There are 5 literatures that 5 kinds of literature examine interventions related to complementary feeding, whether given directly by modifying its components or beginning with counselling or training activities for parents (Cerdasari et al., 2019; Ghosh et al., 2018; Khanna et al., 2021; Taylor et al., 2017; Windiyani & Mukminin, 2021). There are 3 literatures that 3 kinds of literature examine behaviour modification, lifestyle and the use of playing media (Farrow et al., 2019; Sandvik et al., 2019; Skouteris et al., 2016). There are 2 literatures that 2 kinds of literature use complementary or alternative therapies in the form of hypnoperente and Tuina therapy to treat picky eater disorders (Anugraheni, 2017; Meinawati, 2021).

A total of 6 countries were identified from the articles obtained, namely India (Khanna et al., 2021), Sri Lanka (Ghosh et al., 2018), Sweden (Sandvik et al., 2019), New Zealand (Taylor et al., 2017), Australia (Skouteris et al., 2016), UK (Farrow et al., 2019), and Indonesia (Anugrahini, 2017; Cerdasari et al., 2019; Meinawati, 2021; Windiyani & Mukminin, 2021).

**DISCUSSION**

Complementary and alternative nursing interventions can be applied to children's health problems such as the symptoms of a picky eater. Several interventions that are part of complementary or alternative therapies are categorized based on biological (natural product), mind-body, body manipulative, and energy therapy approaches (Lindquist et al., 2014). Interventions for picky eaters can be done with complementary and alternative therapies.

The intervention given by modifying the components of additional food is a direct activity given to children. This activity can be in the form of adding nutritional supplements. This category of intervention is conventional interventions. This intervention can be categorized as part of complementary and alternative measures, if the form of nutritional supplements is not part of the usual daily diet. This action is called natural material intervention. Examples of nu-
tritional supplements from natural superfoods, herbs or other minerals. The success of the supplementary intervention is quite effective when its administration is accompanied by nutritional counselling (Ghosh et al., 2018; Khanna et al., 2021). Giving natural ingredients-based interventions in children's food can increase appetite. Some reports that natural ingredients that can increase appetite are made from ginger (Azalia, 2015; Kurniarum & Novitasari, 2016; Puspitasari, 2020). The use of natural product products can also be used to control the appetite for of obese people (Freitas et al., 2019; Suh et al., 2018; Yimam et al., 2019). Giving natural products can be part of the Food Creation or modification intervention technique.

The counselling activities or educational training for parents are also included in the category of conventional interventions. This activity can be modified into a complementary mind-body intervention, if it supports behaviour change based on a change in previous thinking. One example of intervention modification that comes from the literature is coun-

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**Table 1. Complementary Therapy for Picky Eaters**

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<thead>
<tr>
<th>Author(s), year</th>
<th>Sample Size</th>
<th>Intervention, Duration</th>
<th>Findings</th>
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<tbody>
<tr>
<td>Khanna et al., (2021)</td>
<td>321 children, &gt;24 to ≤48 months old</td>
<td>ONS1 = Oral Nutritional Supplements with milk-based (N = 107), ONS2 = Oral Nutritional Supplements with lactose-free (N = 107), DC = Dietary Counseling only (N = 107) for 90 days</td>
<td>The results demonstrated that a 90-day nutritional intervention using either ONS1 or ONS2, in addition to dietary counselling, was more successful in promoting catch-up growth than dietary counselling alone for young Indian children at nutritional risk with selective eating habits.</td>
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<td>Ghosh et al., (2018)</td>
<td>203 Children aged between 2 and 6 years</td>
<td>The research conducted a 90-day randomized controlled trial involving two groups: one receiving oral nutritional supplementation (ONS) along with dietary counselling (SDC, n = 98) and another receiving dietary counselling alone (n = 105).</td>
<td>The results revealed that parents who continued to administer ONS to their children helped mitigate the decline in growth percentiles, which in turn supported sustained weight gain in children with selective eating habits and nutritional risk.</td>
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<td>Sandvik et al., (2019)</td>
<td>130 children whose mean age is 5.2 years with SD 0.7</td>
<td>Utilizing parenting practices grounded in evidence, as opposed to the conventional approach centered on lifestyle modifications, can be more beneficial.</td>
<td>The presence of selective eating habits at the initial stage could potentially diminish the impact of obesity treatment, necessitating pre-treatment assessments for appropriate treatment adjustments. Various methods of evaluating picky eating can yield varying outcomes. The Child Eating Behavior Questionnaire (CEBQ) appears to offer a more reliable assessment of selective eating compared to the Lifestyle Behavior Checklist (LBC).</td>
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<tr>
<td>Reference</td>
<td>Description</td>
<td>Methods</td>
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<td>Taylor et al., (2017)</td>
<td>The adoption of a baby-led approach to introducing complementary foods did not yield a more favorable BMI outcome when compared to the traditional method of spoon-feeding. However, it was noted that children following the baby-led approach exhibited less pickiness with their food. Further research is needed to assess whether these findings apply to individuals practising unaltered baby-led weaning.</td>
<td>Lactation consultant assistance involving five or more interactions is aimed at prolonging exclusive breastfeeding and postponing the introduction of complementary foods until the baby reaches six months of age. Additionally, there are three personalized in-person sessions scheduled at 5.5, 7.0, and 9.0 months.</td>
<td>The 2-year Baby Lactation consultant assistance involving five or more interactions is aimed at prolonging exclusive breastfeeding and postponing the introduction of complementary foods until the baby reaches six months of age. Additionally, there are three personalized in-person sessions scheduled at 5.5, 7.0, and 9.0 months.</td>
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<tr>
<td>Skouteris et al., (2016)</td>
<td>In the future, research should explore supplementary methods to encourage parents to sustain their adoption of positive behavioral changes.</td>
<td>During the study, parent-child pairs participated in ten consecutive weekly sessions, each lasting 90 minutes. These workshops covered a range of topics related to nutrition, physical activity, and behavior, incorporating activities like supervised active play and promoting healthy snack choices.</td>
<td>MEND (Mind, Exercise, Nutrition … Do It!) During the study, parent-child pairs participated in ten consecutive weekly sessions, each lasting 90 minutes. These workshops covered a range of topics related to nutrition, physical activity, and behavior, incorporating activities like supervised active play and promoting healthy snack choices.</td>
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<td>Farrow et al., (2019)</td>
<td>These results indicate that evidence-backed mobile applications have the potential to be a valuable resource for enhancing children's preferences for and consumption of vegetables in the short run. However, further research is needed to determine if these effects persist over an extended period.</td>
<td>The study involved the use of a scientifically supported mobile application called 'Vegetable Maths Masters,' with children engaging in their assigned game for 10 minutes.</td>
<td>A total of seventy-four youngsters, consisting of an equal number of boys and girls (37 males and 37 females), ranging in age from 3 to 6 years old</td>
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Selling techniques, evidence-based parenting practices and the use of mobile application-based playing media, if accompanied by narrative positive suggestions or even hypnoparenting techniques. Several scientific publications conclude that giving positive suggestions or hypnoparenting can change children's responsible behaviour (Mufarrohah et al., 2021; Primi Astuti et al., 2019; Veri et al., 2022).

The search results obtained that there are 2 very clear pieces of literatures using complementary or alternative therapies in the form of hypnoparenting and Tuina therapy to treat picky eater disorders (Anugraheni, 2017; Meinawati, 2021). Hypnoparenting is reported to improve nutritional status in toddlers (Wijayanti et al., 2019). The application of hypnoparenting techniques needs to be trained for parents in caring for their children (Sirjon et al., 2021).

The main obstacle in obtaining relevant articles lies in the limited availability of scientific litera-
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<tr>
<th>Author</th>
<th>Participants</th>
<th>Intervention Description</th>
<th>Findings</th>
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<tr>
<td>Windiyan &amp; Mukmini, (2021)</td>
<td>Thirty Children Aged 5-6 Years.</td>
<td>The Food Creation Activity employs demonstrative techniques for shaping food creations, along with several other strategies to address picky eating behavior. These additional methods encompass interactive questioning, storytelling, and role-playing.</td>
<td>We observed a notable improvement in the mean score for reducing picky eater behavior among 5-6-year-old children before and after participating in the food creation treatment. The score increased from 143.67 in the pretest to 168.37 in the posttest, representing a gain of 24.70 points.</td>
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<td>Anugraheni, (2017)</td>
<td>twenty-eight preschoolers</td>
<td>The impact of hypnoparenting on the occurrence of selective eating behaviors in preschool children.</td>
<td>Results indicate that hypnoparenting has a discernible effect on the prevalence of selective eating habits in preschool children. Some participants who received treatment before hypnoparenting exhibited moderate levels of picky eating, while a small portion of those who didn't receive treatment also showed moderate picky eating tendencies. Nearly half of the individuals who underwent hypnoparenting treatment subsequently experienced mild selective eating behavior, whereas the majority of untreated respondents mostly reported mild picky eating tendencies.</td>
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<td>Cerdasari et al (2019)</td>
<td>Twenty mothers with preschool children aged between 3 to 6.5 years</td>
<td>Training sessions focused on bento making can enhance mothers' understanding and expertise, serving as a potential solution for addressing selective eating issues.</td>
<td>Although there was no statistical difference, there was a tendency to decrease the sensitivity to satiety and slow eating before and after training.</td>
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<td>Meinawi, (2021)</td>
<td>The Tuina massage group consisted of 25 participants, while the multivitamin group comprised 25 respondents aged between 1 to 5 years</td>
<td>Tui Na massage is done for 3 days with 8 steps set therapy</td>
<td>Providing Tui Na massage to toddlers between the ages of 1 and 5 has demonstrated higher effectiveness in addressing feeding challenges compared to administering multivitamins, as evidenced by a statistically significant p-value of 0.000.</td>
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ONS1 = Oral Nutritional Supplements with milk-based

ONS2 = Oral Nutritional Supplements with lactose-free; DC = Dietary Counseling with
ture addressing interventions for picky eaters, particularly those employing complementary and alternative therapies. The systematic review reveals a scarcity of articles reviewing the effectiveness of such interventions, with the majority focusing on conventional approaches like health education, oral supplementation, and counselling. Additionally, the identified articles often pertain to interventions combining various methods or addressing picky eating alongside other health issues. The insufficient number of scientific articles underscores the pressing need for more research and publications to establish a robust evidence base for managing picky eaters with complementary and alternative therapies.

CONCLUSIONS

Complementary and alternative therapies have the opportunity to be an intervention in dealing with picky eaters in addition to conventional interventions. Complementary and alternative therapies can be given in conjunction with modified conventional interventions. However, there is an insufficient number of scientific articles found related to interventions on the problem of picky eaters with complementary approaches and alternative therapies, therefore scientific evidence with research and publications is still a big opportunity and is very much needed in the future.

REFERENCE


