A Systematic Review of the Parenting, Feeding, Behavior, Family, and Nutrition for Children with Avoidant Restrictive Food Intake Disorder (ARFID)

Yoyok Bekti Prasetyo[1], Salahudin[2], Nurlailatul Masruroh[3], Anggraini Dwi Kurnia[4], Nur Melliza[5]

[1]Senior Lecturer In Community Nursing, Faculty of Health Science, University of Muhammadiyah Malang, [2]Lecturer In The Government Study, Faculty Social Science, University of Muhammadiyah Malang, [3]Lecturer in Community Nursing, Faculty of Health Science, University of Muhammadiyah Malang, [4]Lecturer in The nursing Department of University Muhammadiyah Malang Indonesia, [5]Lecturer In the Department of Community Nursing, Faculty of Health Science, University of Muhammadiyah Malang

Abstract

Objective: Parenting is an essential factor in causing ARFID. A good understanding of parenting, feeding, behavior, family, and nutrition can provide better care. The present study aimed to investigate parenting, feeding, action, family, and food in children with ARFID.

Review: Relevant database for systematic search of ARFID studies.

Result: The review results found that there were five important themes in the case of children with ARFID. The five themes include parenting, feeding, behavior, family, and nutrition. There is a relatively strong relationship, namely the relationship between parenting-feeding, parenting-behavior, parenting-family, parenting-nutritional sequentially (r = 0.72; r = 0.66; r = 0.59; r = 0.59).

Conclusion: Important factors that must be understood by families and the health care team in providing care for ARFID children include: parenting, feeding, behavior, family, and nutrition. A good understanding of these factors can be used as guidelines for providing nursing care in children with ARFID.

Keyword: *parenting, feeding, behavior, family, and nutritional, child, ARFID*

Introduction

The problem of difficulty eating in children is determined mainly by family factors, especially the mother or caregiver[1]. The issue of difficulty swallowing in children begins with dysfunctional mother-child interactions[2,3], environmental and socio-cultural influences, and psychological tension [4]. The family environment can affect stress or stressful conditions on the mother. It will disrupt the interaction between mother and child [5]. The home environment, such as parenting style and the closeness between family members, are positively related to good eating skills in children [6]. Parenting problems and caregivers' ability are important factors in preventing nutritional disorders in children who have difficulty eating.

ARFID problems will have a severe impact on children's growth and development. Serious issues are such as stunting and losing. Low-income countries will be at risk for 65% of children under five years of experiencing growth and development problems due to lack of nutrition[7]. Indonesia has a fluctuating tendency in the incidence of stunting in the period 2007 - 2010.

Coresponding Author:
Yoyok Bekti Prasetyo :
Lecturer in Community Nursing, Faculty of Health Science, University of Muhammadiyah Malang
Address: Jl Bendungan Sutami No. 188A Malang
Email: yoyok@umm.ac.id

This is shown by the stunting data in Indonesia, namely: 36.8% in 2007, 35.6% in 2010, 37.2% in 2013, and 30, 8% in 2018[8–10].

Several articles have been published discussing the diagnosis and assessment, prevalence, clinical characteristics, treatment intervention, and clinical outcome of ARFID [11]; ARFID is associated with a family variable [12]. Another article said that ARFID is very different from other eating disorders such as Anorexia Nervosa, Bulimia Nervosa. The typical behavior and symptoms of ARFID are avoiding food, decreased appetite, abdominal pain, and emetophobia/ fear of vomiting [13]. Signs and symptoms of ARFID are also published by several articles covering lack of interest in eating, avoidance based on sensory food including the appearance of food, smell, and taste of food, fear that occurs when eating such as dysphagia and fear of swallowing food[14,15].

Research with 330 children (50.9% women; 49.1% men) and their parents found that the most dominant ARFID symptoms were selective eating (16.4%), lack of interest in food / poor appetite (5,5 %). Two other studies observed differences in children's eating behavior with ARFID and without ARFID about food intake, visual and physical engagement with feeding, and movement during meal times [16], lowest food-responsiveness [17].

A systematic evaluation is needed to determine the necessary interventions to understand better the factors that play an essential role in children with ARFID. Complete review articles related to parenting, feeding, behavior, family and nutrition for children with Avoidant Restrictive Food Intake Disorder (ARFID) are still lacking. Several review articles that have been conducted include: exploring two things, namely: (1) to synthesize current knowledge of ARFID and (2) to identify critical gaps in the evidence base[11], to explores how ARFID as a diagnostic entity is conceptualized in the research literature and evaluates the diagnostic [18], exploration related to the treatment of ARFID adjusted to the causes of children having difficulty eating [19]. The three review articles above are part of a research on the ARFID area, so a systematic and updated review related to parenting, feeding, behavior, family, and nutrition for children with Avoidant Restrictive Food Intake Disorder (ARFID) is needed.

Aim of the Study

The present study aims to systematically review the Avoidant/Restrictive Food Intake Disorders (ARFID) to evaluate contributing factors including parenting, feeding, behavior, family, and nutrition for children with Avoidant Restrictive Food Intake Disorder (ARFID).

Review

Elsevier, Taylor & Francis, NCBI, Springer databases were searched using the following search strategy: ((("Eating Disorder") OR (nutrition) OR (children) OR (parental) OR (mother) OR (feeding) OR (behavior)) AND (ARFID))). Publication span 2015 - 2020. Articles published in the following languages were included: English and Bahasa. Also, the reference list of relevant articles was searched for any articles that may have been missed by the initial search. Unsuitable articles were excluded. Corresponding articles were analyzed using NVIVO software package version 12 plus (QSR International Inc., Burlington, MA, USA) using hierarchical charts, cluster analysis, and framework matrix. A hierarchy chart is used to explore the most dominant nodes. Cluster analysis is used to evaluate the relationships between nodes, and the matrix framework is used to describe nodes based on the articles reviewed.

Result

The initial search found 50 articles. One item was removed from the database because it did not match the title. Forty-nine full-text articles were tested according to inclusion criteria. Twenty-eight articles were excluded from the database because they focused too much on intervention and clinic, irrelevant to the theme. The final selection results obtained 21 papers as the sample being reviewed.

Figure 1. Hierarchy chart using Nvivo 12 Plus

Figure 1 describes six themes related to children experiencing ARFID, including parenting, feeding, behavior, family, and nutrition. The articles that explain ARFID in children are feeding, nutritional, behavior, parenting, and family (28.01%, 23.27%, 20.71, 15.58%, and 12.43%. Eighteen articles discuss feeding[18,20–36]. The feeding theme can be explained by abnormal feeding attitudes, childhood feeding disorders, or feeding problems. Strange feeding attitudes are physiological feelings of hunger or fullness. The prevalence of peculiar feeding attitudes among young children in the general population is between 10% to 25% (3). It encompasses a broad spectrum of severity that ranges from eating limited types or textures of food to having a potentially life-threatening that requires nasogastric tube feeding or other medical procedures[28]. Childhood feeding disorder in ARFID is problem behavior during meal times (i.e., verbal refusals, food avoidance, food selectivity, etc.)[30].

Fifteen articles describe the nutritional themes [18,20,21,23,25,26,28–31,33–37]. Nutritional themes are explained by nutritional status and nutritional need. Three articles do not discuss behavior[20,33,37] because it is dominant in discussing nutrition. Most of the articles reviewed parenting, and only five pieces did not check it[20,23,29,34,38]. This parenting theme explains that children who experience ARFID can be associated with stressful parental conditions. Furthermore, parental stress can be measured by the Parental Stress Index (PSI). Family themes were reviewed by 15 articles[21,23–26,28–31,33–35,37–39]. The family's role is significant in facilitating a right environment for children and how families introduce the background to children early.

Correlated Feeding, Behavior, and Family

There are ten articles that review feeding, behavior, and family [21,23–26,28–31,35]. The family, in this case, the mother, provides meals for children such as involving children in planning healthy food, allowing children to choose food, inviting children to cook, making interesting food forms, cooking vegetables, taking children to healthy food shop, and make healthy snacks at home. Figure 2 shows that there is a strong relationship between feeding and having (r = 0.79) (Figure 2).

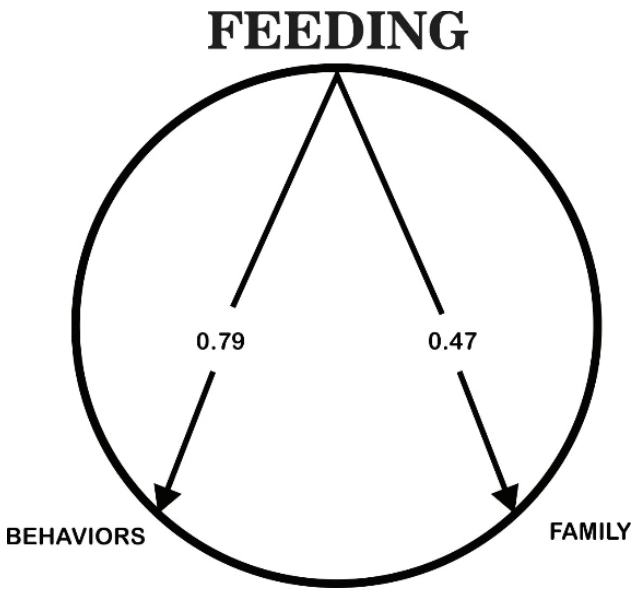

Figure 2. Cluster Pearson Analysis – feeding-behavior-family correlation

The study by Westfall, Nils C .; Mavrides, Nicole A .; Coffey, Barbara J. said that feeding ARFID children is related to refusal to eat, whereas according to Maestro et al. said that the abnormal feeding attitudes used by the parent (s) might include force-feeding, under-or over-attentiveness to cues, inappropriate menu selection, and portion size. A study by Silverman says that feeding is related to caregivers. Caregivers of children with feeding problems reported significantly higher levels of overall stress (Table 1).

Correlated Parenting, Feeding, Behavior, Family, and Nutritional

The relationship between parentig and Feeding, behavior, family, and nutritional was reviewed by seven articles [21,25,26,28,30,31,35]. Figure 3 shows the relationship between parenting-feeding, parenting-behavior, parenting-family, parenting-nutritional sequentially (r = 0.72; r = 0.66; r = 0.59; r = 0.59) (Figure 3).

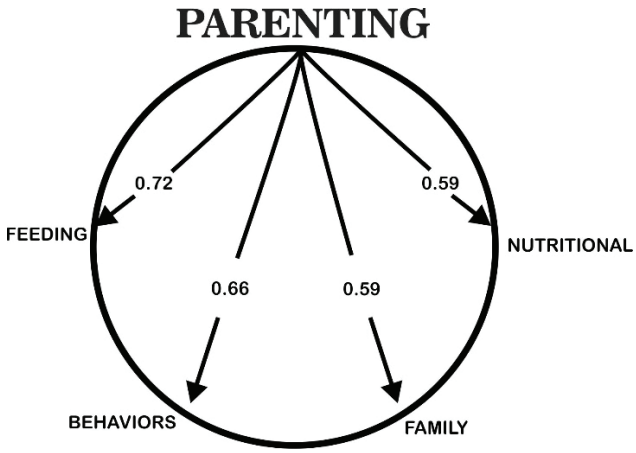

Figure 3: Cluster Analysis Pearson correlation parenting-feeding-behavior-family-nutrition

Silverman et al. found that the patterns of feeding develop describe parenting early in childhood and promote feeding and nutrition successfully. A study by Spettigue added that parenting includes activities related to providing psychoeducation and providing empathy and compassion. Meanwhile, Maestro et al., Is described as a state of food refusal in children was positively associated with parental use of coercion. This is the same as the study by Westfall et al., which states that ARFID children's behavior refuses to take food (Table 1).

Table 1. Description and results of studies included in the

Study	Behavior	Family	Feeding	Nutritional	Parenting
Westfall, Nils C.; Mavrides, Nicole A.; Coffey, Barbara J. (2018)	Refusing to take food	Family must be more understand about psychosocial perspective problems	Refusing to eat	Nutritional status and medication adherence improved	Consult-liaison psychiatry and psychology, nutrition, palliative care, child life services, physical therapy, and social work
Maestro, Sandra; Cordella, Maria Rosaria; Curzio, Olivia; Intorcia, Claudia; Roversi, Claudia; Rossi, Giuseppe; Scardigli, Silvia; Silvestri, Virginia; Calderoni, Sara (2016)	Food refusal by children was positively associated with parental use of coercion	Family treatment program	Abnormal feeding attitudes used by the parent(s) may include force-feeding, under- or over-attentiveness to cues, inappropriate menu selection and portion size	Revealing an improvement in the nutritional status	The link between parental feeding practice and styles and children's food intake and dietary habit

Table 1. Description and results of studies included in the

Silverman, Alan H.; Erato, Gina; Goday, Praveen (2020)	Children's problem behaviors in the context of a history of caregiver depression	Caregivers may benefit from consultations with mental health professionals to provide the most appropriate care to affect families	Caregivers of children with feeding problems reported significantly higher levels of overall stress	Promoting growth and maintaining a healthy nutritional status	Patterns of feeding develops early in childhood. Ability to successfully promote feeding and nutrition
Spettigue, Wendy; Norris, Mark L.; Santos, Alexandre; Obeid, Nicole (2018)	Having always been a picky eater with very low appetite	Father providing meal support	Restrictive ED characterized by a persistent failure to meet appropriate nutritional and/or energy needs	Needs to take the nutrition and the family focusing on issues relating to food intake	Providing psychoeducation Providing empathy and compassion

Discuss

Feeding, Behavior, and Family

Feeding, behavior, and family are essential themes in review articles related to ARFID children. Eating behavior in children is primarily determined by the parents' style or diet [40]. The right feeding pattern from infancy will lead to good eating behavior at a later age[41]. Feeding patterns for children in the family include control of children on emotional regulation[42,43], encouraging balance and variety of food[22,44,45], the environment[46–48], providing food as gifts, giving an example, child involvement[49,50], monitoring, pressure, restrictions on health, restrictions on weight control, and nutrition education[51,52]. Feeding practice is a behavior to control the types and the amount of food for children[29,33,53]. Children with ARFID seem to have less self-control or appear irritable and difficult to console during meals[3]. The role of parents is significant in determining a good diet for children.

In most cases of difficulty eating in children is initiated by wrong feeding practices to babies. Parenting with strict punishment on children and giving inappropriate rewards. This pattern uses food as appreciation and food as pressure[54]. This pattern looks good at first but will eventually make the counterproductive of food needs. Children will eat less fruit and vegetables, so they are at risk of malnutrition, both less and more[55]. This pattern is not optimal in increasing healthy food habits in children; instead, parents' coercion on children to eat healthy foods is not directly proportional to the consumption of healthy foods. [56]. This pattern is characterized by a lack of reciprocal relationship between parent and child; the caregiver takes excessive control over the eating situation (forces, suppresses, or limits food intake)[57].

Conversely, a good feeding pattern is a responsive pattern. Parents can provide nutritional needs to children with full responsibility. Caregivers are very familiar with when, where, and how much food the child should eat[55], encouraging children to eat responsively, such as arranging meals to attract more attention and giving appropriate praise [58]. This feeding pattern has a positive influence on children in the form of children can control eating restrictions, speak positively of food, correct eating behavior, respond with signs of eating right. Caregivers provide rewards for the children's eating habits and do not give coercion in eating behavior. The child characterizes this feeding pattern as likes fruits and vegetables and does not like junk food[55].

Authoritative feeding style is eating behavior by prioritizing role models or the role of parents in providing examples of good eating patterns such as

providing healthy food and limiting unhealthy food to form early in children's healthy eating behavior [59]. This parenting pattern is characterized by a warm relationship/interaction between caregivers and children, encouragement and giving freedom to children, open communication, expressions of love and affection, very good rational regulations that will have a positive impact on behavior eating children in terms of independence, social responsibility, and good adaptability[56]. This authoritative feeding style also characterizes that caregivers are very sensitive to their children's needs and do not use punishment in raising children, but treat their children with warmth, kindness, and intimacy, respecting children's opinions but with limits.[60].

Parenting, Feeding, Behavior, Family, and Nutritional

Nutritional problems in children can be caused directly by food intake or infectious disease. But there are other causes related to a lack of knowledge about daily life, too early weaning, too early feeding, too many family members who cause less food intake by each individual, low birth weight, existing health services, wrong parenting, and bad environmental health are very sensitive, children usually have started playing in the dirt, dirty environment thus allowing to happen infection[22,23,27,34,35].

The most vital relationship is in parenting and feeding. Right parenting styles from the parents determine an excellent diet in children. Good eating behavior will be formed based on acceptable feeding practices and parents' examples to their children. One of them is the interaction or good communication between children with parents. Eating behavior in children consists of 8 indicators: the child's response to food increased appetite while emotional, the pleasure at mealtime, the desire to drink a sweet drink, the child's response to satiety, eating slowly, decreasing appetite while emotional, and rejection of new foods. On the other hand, children who experience ARFID are caused by insufficient nutritional needs, closely related to psychosocial disorders.

Families must understand more about psychosocial problems from the perspective. Family treatment programs, such as family mealtimes, are significant to do. Parents who were supportive of regular family mealtimes described positive interactions with their children daily during meals. These positive interactions, such as being warm, responsive, and sensitive to their children's needs, have been shown to reduce problematic behaviors outside the family for children in the general population [61]. Nutritional problems in children are determined by the child's social experience, the interaction between children and parents in shaping the child's diet. Responsive parent-child business in Feeding (Feeding) will provide adequate control over overeating for children[62]. Parents' responsive behavior in toddlers is shown by how parents manage their children to learn new foods and learn to eat on their own. Children's nutritional status is determined by the child's diet, which is strongly influenced by family factors[63].

Eating problems in children will have an impact on children's nutritional disorders, starting with the application of the wrong diet since the age of infants. The behavior of a newborn, in this case, is eating behavior that is primarily determined by the mother. The diet in children is very much determined by the parents' diet, which is applied to the child, including restricting unhealthy food consumed by children, forcing large amounts of food [64]. Eating behavior in children is primarily determined by the parents' style or diet [40]. The right feeding pattern from infancy will lead to good eating behavior at a later age [41]. The low diet since infancy predisposes to nutritional disorders in children later [65].

The better the caregivers' ability to care for children with ARFID will improve the child's nutritional status. The ability of caregivers to care for children with ARFID in this case is to maintain regular meal times which will be related to the child's nutritional status[66]. Supporting nutritional programs in families and schools can increase children's food intake and nutritional status[67]. Parental concern about the child's weight status (more or less) was predicted to be associated with negative / non-nutritious feeding practices[53]. The ability of caregivers to care for children properly will also increase the child's adaptation to new foods. This is because kThe adaptability of children to the surrounding environment is an important character in the interaction of mother and

child. Adaptation occurs when children are able to read the behavior shown by their parents. Good children's social adaptability is related to the child's ability not to be easily stressed in facing their environment [68].

Community nurses may contribute to primary, secondary and tertiary prevention in the face of health problems for individuals, families, and communities, including appropriate feeding practices. At the primary prevention level, nurses can implement health education related to the nutritional needs of children and appropriate feeding practices in children. At the secondary prevention level, nurses can play a role in screening children with poor eating behaviors. At the tertiary level, nurses can play a role by overcoming the negative effects of poor child feeding behavior through planning, intervention, and evaluation of the effectiveness of intervention-related programs[29]

Study limitations and concluding remarks

Due to the small number of studies that specifically discuss parenting, feeding, behavior, family, and nutritional for children with Avoidant Restrictive Food Intake Disorder (ARFID) and it is difficult to know the results reported from this review are representative to generalize. Most of the studies reviewed were linked to eating disorders in children and stunting. Information regarding ARFID was limited to five studies[18,21,24,26,36]. This makes it difficult to explain the determinants of the clear factors that cause ARFID problems in children. Of the five studies that discussed ARFID, three of them were less specific in discussing the main themes in this study. The study from Westfall et. al discuss multidisciplinary management in ARFID adolescents, a study from Krom et.al discussing the quality of life of ARFID children, and a study from Strand et al. focus on issues of ARFID diagnostic enforcement. Only two studies relevant to the theme explored were the studies of Lock et al. And Cerniglia et al[24,34]. In addition, there is rarely complete information about parenting, feeding, behavior, family, and nutritional for children with Avoidant Restrictive Food Intake Disorder (ARFID).

These findings reflect the complex situation associated with ARFID in children. Parenting, feeding, behavior, family, and nutritional factors are a central theme that must be understood by families and health workers, especially community nurses in managing this ARFID case. A good understanding of the factors that influence the incidence of ARFID can be used as guidelines for both families and health workers in providing nursing care to children with ARFID.

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Conflict of Interest Statement: The authors declare that they have no conflict of interest

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