Original Article

CALGARY FAMILY ASESSMENT MODEL (CFAM) IN PREVENTION OF ANEMIA IN PRESCHOOLED CHILDREN

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ABSTRACT

Iron deficiency anemia is a common iron deficiency in children. Iron is a constituent of hemoglobin. The impact of iron deficiency anemia in children will slowly preventing intelligence development of children and make them susceptible to less endurance so become easily sick. The highest prevalence of anemia is at the end of infancy and early childhood preschool age. The role of the mother in the family is very important in the diet of the child and the fulfillment of nutritional needs. This can be known through the CFAM family assessment approach (Calgary Family Assessment Model). The research design is descriptive explorative with 22 respondents from preschool age children at TK Muslimat Curungrejo Kepanjen through purposive sampling technique. CFAM data collection consists of structural, developmental and functional family assessment components. CFAM structural components consist of: number of nuclear families, order of children, gender, family boundaries, extended family, environment, religion, purchasing power. Developmental components include family relationships, relationships with the environment and available means. Functional component is an influential component because it is related to daily life activities, consisting of routine activities, responsible for caring for children, problem solving, beliefs of disease and follow-up during illness. Mothers role in the prevention of anemia are mostly not routine (54.5%). Responsible of caring for children is 50% by one parent only (mother) .How to solve the problem is done by the head of the family (68.1%). Follow-up during illness by making curative effort is 72.7%. Disease believed is 81.8% assumes that anemia is not a dangerous disease. Efforts that need to be done is screening the incidence of anemia in children so it can lead to the right prevention and handling, and also optimization of Toddlers Posyandu to provide health education about the importance of iron for children.

KEYWORDS: Assessment of Calgary, prevention of anemia, preschool.

INTRODUCTION

Nutrition on children is one of public health problem in Indonesia. Nutrition consists of optimal nutrient and quantity composition. One of the most important micronutrients is iron (Fe), where if the body lacks of iron it can lead to become anemia (Setyaningsih, 2008; IDAI, 2013; Kemmer, 2008). Consumption of foods that are less variety also can cause anemia. The amount of iron in foods in developing countries generally low, around 12-19 mg/day, lower than the recommended amount (Melisa et al., 2012). Fe is a very important element to forming hemoglobin (Hb) (Adriani & Wirjatmadi, 2012). Endemic deficiency of iron, iodine and vitamin A has become a major problem in development of children, such as in preschool age, thereby prevention is needed (Gibney 2009, Latief, 2000).

Anemia gradually will slowing down the growth and development of children's intelligence, children more easily become sick because of decreased immunity. In addition, it can lead to motor impairment, learning ability, language and psychological development and decreasing physical activity (Wahyuni, 2004; Setyaningsih, 2008).

The most widely distributed nutritional deficiencies worldwide are iron deficiency anemia (ADB) or iron nutritional anemia (Lestari, 2011). Based on Thakur Research (2014) Anemia most common happen in malnourished children. On Severe acute malnutrition, 70% had anemia (26% had mild anemia, 40% had

moderate anemia and 4% severe anemia). (Riskesdas, 2013). Moreover, ADB in children under five is 28.1% while in children 5-14 years 26.4%. The study of micro nutritional problem in 10 provinces year 2006 still founded 26.3% of Childrean underfives years old suffering from ADB with hemoglobin (Hb) level less than 11,0 gr/dl (Directorate General of Nutrition and MCH, 2013). Based in IDAI data (2013) The highest prevalence of anemia was found at the end of infancy and early childhood due to iron deficiency during pregnancy and accelerated growth period accompanied by less iron intake from food.

Iron intake of children is influenced by the mother's behavior in fulfilling the nutritional needs in the provision of food. The results of interviews on 10 mothers with preschool children in TK Muslimat Kepanjen Malang are known 50% of mothers do not know about iron and food containing iron and 50% of the rest already understand about iron but rarely prepare foods containing iron from animal sources such as meat, chicken livers and chicken meat. Some of the reasons are because the food is expensive, the child does not like the food and the mother assumes that the important for children is want to eat and fully. This data shows mother's behavior still not good in the fulfillment of the nutritional needs of children, especially the fulfillment of iron needs.

Iron for children is very important so primary prevention efforts is needed for need of iron deficiency through healthy feeding practice, that is giving healthy food for children. Primary prevention can be done by increase knowledge through public education activities about child nutrition (Lestari, 2011). Preschool age has not been able to independently fulfill their's nutritional needs so they need help from adults in the closest environment they have that is the family (Gregory, 2010). In most families, the role of the mother is very important in family meal arrangements (Mishbahatul, 2012; Masithah, Soekirman & Martianto, 2005). Maternal behavior that includes knowledge, attitudes and decisive actions in the assessment of nutritious food ingredients and preparing a balanced menu according to the needs of children, meaning the fulfillment of the nutritional needs of children, including the fulfillment of iron are depends on the mother's behavior (Popularita, 2010).

The problem of preschool children in preventing anemia make it needs to do a thorough assessment that affects children including family units. Assessment not only on individuals but also on interactions within the family. Calgary Family Assessment Model (CFAM) is an approach that can be done in family assessment. CFAM consists of structural components about the description of the family's internal condition, the developmental component (development) of family relationships such as large family involvement and the wider system (neighbors, local health officials, the environment) and the functional components of family daily habits. CFAM also examines interactions within the family so that it can be used as a consideration in determining appropriate interventions for the family (Wright and Leahay, 2009).

MATERIALS AND METHODS

This study was used 22 samples of mothers with preschool children in Kindergarten Moslem Curungrejo Kepanjen Malang. The sampling technique in this research is Purposive Sampling based on inclusion criteria: mother can read and writing, mother stay in nuclear family, mother as main food handler and willing to become research respondent. Exclusion Criteria: There are limitations (physical / mental) that may interfere with the research process (eg hearing loss, blindness, mental disorder) he questionnaires used in this study are:

1). General data
The general data consists of maternal data including: age, education, occupation and sources of information already obtained previously. Child data includes age and gender.

2). CFAM Questionnaire
The structural component consists of the number of members of the nuclear family, the order of positions and the sex of the child, the family boundaries, the role of the extended family, the role of the wider system (environment), religion, income / purchasing power of the family.

Developmental components include the stage of family development, family relationships, family relationships with the environment.

Functional components include Activity Daily Living (ADL) family in the prevention of anemia, ways of solving problems, caring for children, confidence against the disease and follow-up action if the child is sick.

RESULTS

The age of respondents is almost entirely (81.8%) are aged 30-39 years. Mother's last education is almost entirely high school (77.2%). Most jobs (68.1%) are in private work. Almost all (77.2%) of respondents had previous information about anemia from electronic media (television) advertisement about anemia and a small part of the information source was health officer at posyandu toddler. Health workers or cadres who are the source of information no one makes a home visit. While the general data of children are aged 5-6 with most of them are women at 54.5%.

Structural components of CFAM (Calgary Family Assessment Model)
The results of the assessment on the structural component consist of: the number of nuclear families, the order and sex of the child, the presence of family constraints, the role of the extended family and the role of the environment (the wider system), religion, the purchasing power of the family/income. The number of

core family members is almost entirely (77.2%) ≤4 people (children, mothers, fathers). Almost all (90.9%) are 2nd child with no difference in family expectations of anemia prevention habits based on the sex of the child, mostly child are female (54.5%).

The presence or absence of rules as a family restriction in preventing anemia is almost entirely (81.8%) there is no rule. This means there is no reward and punishment for children obedient or not to their mother, when mother doing anemia prevention. Examples of punishment given is that if children do not want to eat with balanced nutrition and high iron then the child will not be given any money. While rewards (award) given to children such as praise or give a gift. The role of extra families in providing support exampling by direct example of the selection or processing of food sources of iron, and scolding the mother if the food consumed by children is not nutritious. Almost all (77.2%) extended families support from other grandmothers, aunts and close relatives. More widespread systems (100%) already have rules of prevention of anemia from public figures in general eg the appeal to follow activities of Posyandu Toddlers which one of its activities is the provision of additional foods such as green beans or box milk. Another component of the study is income data / purchasing power that is less than Rp 2.000.000 on 20 people (90%) and all respondents (100%) are Muslim.

The development component of CFAM (Calgary Family Assessment Model)
Respondents are almost entirely (81.8%) in the third stage of developmental family that is families that has pre-school / school children and are in a period of growth. This stage is in families that receive new members in the system. Relations between family members (mother and father, mother and child, fellow children) found that all (100%) very closely. While the father-son relationship of half (50%) is not close. The relationship of family members in the form of togetherness in the family that reflects the bonds of affection. Togetherness in the form of joint dining, recreation, and two-way communication. A very close relationship become a family force in providing support (support) among family members in taking anemia prevention action. Family relationships with the environment (school, work environment, neighbors, extended family), facilities in the neighborhood (posyandu balita). Relationships with the environment such as schools, extended families and workplaces are all (100%) good relations. Relationships with neighbors are almost entirely (86.3%) very good. While the availability of health facilities in anemia prevention efforts obtained entirely (100%) had followed posyandu toddlers in the local environment

Functional component of CFAM (Calgary Family Assessment Model)
Assessment of daily life activities is shown in the functional component consisting of routine activities,

responsible for caring for children, problem solving, beliefs of disease, follow-up during illness. Activity Daily Living in the last 1 month by mother in preventing anemia most of it (54.5%) is not done regulary.

The formation of the role of family members can be known from the person in charge of caring for the child. Ideally the responsibility is on both parents (father and mother) in caring for children, but in the community, care for children is identical with the obligation of one parent only that is the mother. The results of the study obtained in this study were half (50%) by one parent alone (mother). The ability of families to solve their own problems effectively is a sub-component of problem-solving. Problem solving through discussion by family members, the result of discussion between parents and children, not only by father as the head of the family. In this study founded that most (68.1%) problem solving is determined by the head of the family, without going through the family members' discussion.

Activities carried out by the family in prevention (preventif) anemia disease still not routinely done by family. Follow-up if the child is sick are by treatment (curative activities) in the nearest health service such as Puskesmas, medical center, midwife or doctor. Assessment results obtained data almost entirely (72.7%) made curative efforts (treatment). Sub component of belief that is the basis of the family considers harmful or not a disease. If you think certain diseases are dangerous so there is a preventive effort. Almost all (81.8%) of respondents consider that anemia in children is not a big problem because the symptoms are not as severe as other diseases such as cancer or the disability.

DISCUSSION

Structural Components CFAM (Calgary Family Assessment Model) in the prevention of anemia
CFAM is a family assessment through home visits conducted within 50 minutes in 1 session. According to the target dimension such as individuals, groups, and the wider community. Assessment of CFAM with home visits is a direct method to individuals, usually with direct confrontation so that each family can focus on the instrument/questionnaire provided by the researcher. This allows the respondents to more freely ask if something is not understood and will be more focus on filling the given instrument (Mubarak, 2007).

General family data obtained from CFAM assessment that is almost all previous respondents had been informed about anemia from electronic media (television) and a small part of the source of information is health workers at posyandu toddlers. Media is a method of mass education aims to arouse public awareness by giving a message to the public and general. Mass communication aims for the results achieved is just know (awareness), and interest or can achieve interest if done repeatedly. Can achieve adoption as the highest expected result (Sudiharto, 2012; Maulana, 2013).

The result of 'age family structural' assessment is sub component of assessment. Age is defined as the result of the calculation of the length of life from birth to a certain time and counted in the year (Ministry of Health RI, 2010). Based on the results, age of respondent mostly are 30-39 years old. This is in line with the world health demographic survey that the average age of women's first marriage is 19 years so that at that age the average mother already has children that is 1-5 years old (IDHS, 2003). Mothers in the adult age range are able to perceive the fulfillment of iron in the diet can provide benefits for children's health. The order of children is mostly as the second child, the mother has more experience in giving benefit to child health, because at that age generally mother have maturity and maturity in thinking (Frost & Haas, 2005).

Wright & Leahay (2009) states that the Calgary family assessment can be used to provide interventions with the aim of providing information and advice to families. This is included in the form of family nursing care. Knowledge in preventing anemia in children is preceded by family belief that CFAM assessment has a benefit for families in improving health behavior. In the early stages CFAM is preceded by the phase of engagement through the efforts of Bina Saling Percaya (BHSP) so that the instruments given to the family are able to be filled with real data. Family knowledge about prevention of anemia makes the family motivated to make efforts to prevent it. Changes in the cognitive domain in the family are expected to affect other domains of skill in the prevention of anemia.

Assessment on CFAM (Calgary Family assessment Model) the next structural component is family, large family and wider environment / system boundaries. Boundaries manifest in the presence or not of rules as a limitation in the family in preventing anemia. Almost all families do not have rules in the prevention of anemia in children. This means there is no reward and punishment for children who obedient or not to the mother in doing anemia prevention. Examples of punishment given is that if children do not want to eat with balanced nutrition and high iron then the child will not be given money. While rewards (award) given to children such as praise or give a gift. This loose rule making unfavorable CFAM results, in the prevention of anemia (Azwar, 2010).

The sub-components of purchasing power are determined by income and income are affected by the type of work. This research is known that most of the respondents work private with family income less than Rp. 2.000.000 per month and the rest as housewife. This is possible if the respondents of this group have lower purchasing power. Socio-economic factors can influence the attitude and behavior of child nutrition provision. In addition to socio-economic factors that affect the cultural and psychosocial interalain. Individual cultures consciously or unconsciously influencing the habits of purchasing and serving food. Individual purchasing power is related to the selection of foodstuffs (Kotler, 2006, James, 2004).

In the filling of CFAM instruments there are some things that may interfere with other children who are fussy so disturbing mom when filling anemia prevention instrument. Structural component instruments on CFAM assessment can also be influenced by individual conditions (internal and external). Family environment is an external factor including (socioeconomic conditions or family relationships are less harmonious), instrumental (condition of place and time) and the environment around such as the influence of friends. Internal factors include psychological and physiological conditions such as attention level, concentration, interest, emotion and fatigue (Maulana, 2013).

Calgary Family Assessment component model Developments in the prevention of anemia. Wright & Leahay (2009) mentioned that knowledge can be an intermediary factor in the prevention of anemia. Besides the environmental and cultural factors in which a person is raised can also influence the action (Azwar, 2010). In the developmental component, CFAM assessment shows the relationship between family members and individual relationships within the family with the environment.

The relationship of family members in the form of togetherness in the family that reflects the bonds of affection. Togetherness in the form of joint dining, recreation, and two-way communication. A very close relationship can be a family strength in providing support (support) among family members in performing health measures in this case is the prevention of anemia. This condition is expected to motivate mothers in improving the fulfillment of food with adequate nutritional and iron adequacy (Wright & Leahay, 2009).

Motivation is the desire of the individual self in doing something to achieve certain goals. Motivation is influenced by expectation and desire and individual The mother's motivation is getting stronger in fulfilling the nutritional needs of the child so the iron micronutrient as nutritional requirement of the child will be in accordance with the Recommended Nutritional Numbers (AKG). This is expected to prevent iron deficiency anemia especially in children who are malnourished. Motivation of mother in fulfilling requirement of child iron need to be maintained so that the benefit obtained by child better. Forms of effort that can be done is to provide health education by posyandu cadres toddlers and local health personnel. Posyandu toddlers can be optimized in providing health education to mothers to improve knowledge and action in the prevention of anemia (Handoko, 2001).

Family relationship with environment (school, work environment, neighbors, big family), facility in environment (posyandu balita). Relationships with the environment such as schools, large families and

workplaces are found to be good relations. Relations with the neighbors are almost entirely excellent and there is availability of health facilities in anemic prevention efforts such as posyandu balita may be the result of CFAM assessment of good developmental components as well. It is expected to support the prevention of anemia and the child's iron requirement is met (Wright & Leahay, 2009).

Calgary Family Asessment Model Functional component in prevention of anemia
Knowledge and attitudes can influence the prevention of anemia in children that called predisposing factors of behavior. Good knowledge is expected to produce a favorable attitude response. A favorable attitude will be seen in the individual's actions in preventing anemia, meaning attitude and knowledge are the basis for shaping behavior. But good attitudes and knowledge may not ensure good mother action in prevention of anemia in children. Factors of family support and facilities are needed to enable attitudes to be real action (Azwar, 2010).

Assessment of daily life activities is shown in the functional component consisting of routine activities, responsible for caring for children, problem solving, beliefs of disease, follow-up during illness. Activity Daily Living in the last month's habit by mothers in preventing anemia is mostly not done routinely. Maternal nutritional and iron adequacy attitudes include several barriers, including taste, difficulty in provision and cost (eg no time, no choice of food that is not available or can not cook) (Strolla, Gans & Risica, 2006; Femke & Jonker, 2014). Based on the respondent's answer the obstacles in the fulfillment of most nutrients include: cooked foodby mothers are not favored by children, foods with high iron content is expensive, the ability to choose less food so that the mother feels the child feels bored. These conditions indicate the need to improve the ability of mothers in overcoming obstacles to meet the child's iron nutrition needs.

The ability of mothers fulfilling the needs of iron include the confidence in providing and consuming various healthy foods that willl meet the nutritional adequacy standard. Mothers as respondents have an obligation to regulate the feeding of family members, especially preschool children. The results of the mother's answers still feel unsure in the ability to choose a daily diet with balanced nutrition or high iron food and mother is not sure in the provision of high-iron foods whenever children eat in a day such as from animal or liver sources and beef containing heme iron . The type of foods most often provided by the mother are rice, spinach, soup, egg, tempe and tofu. Based on these results, mothers need training efforts on how to select a high-iron foodstuff and a good way of processing so that the nutrient content is not lost and the presentation that attracts the child to eat (Supariasa, 2002).

Wright & Leahay, 2009 states that the ability of the family to solve its own problems effectively is obtained almost entirely by the head of the family. How to solve problems should be done by family members through discussion before decision making, so not only by the father as the head of the family. The formation of roles in the family is shaped through family habits, one of which roles is responsible for caring for children in sickness. The result of the functional assessment on the subcomponent of child care task in this research is got half the task of caring for the child is the mother's responsibility, this role is actually the obligation of the parents (father and mother) and not the mother's obligation only (Sudiharto, 2012).

The result of the subgroup of the family development stage is obtained in the phase of the family with young people. Arranging the birth spacing of children, financial tasks, strengthening relationships with extended families and establishing children is a task of development at this stage. Parents at this stage of development usually have their own division of tasks and division of power areas, this is because families at this stage have more complex developmental tasks. The division of duties is working father, and mother at home taking care of the child (Friedman, 2013).

Anemia handling required follow-up efforts to health services in case of symptoms that interfere with daily activities. Follow-up measures is activities that undertaken by the family through prevention and preventative measures. Before taken to health services should be done preventive efforts that can make the conditions do not get worse. The results of the assessment on the functional components obtained results mostly only made curative / treatment efforts only by bringing to health services. Preventive or prevention of anemia is an attempt by the family to avoid going to a more severe stage, whereas medication / curative efforts alone can reduce the temporary morbidity rate (Kholid, 2012).

Confidence is something that becomes the basis of family in making efforts to prevent disease. The sub-component of belief becomes the basis of the family in assuming the dangerous or not a disease. That is, if you think certain diseases are harmful so that family make prevention efforts (preventive). The results of research almost all respondents assume that anemia in children is not a big problem because the symptoms are not as heavy as other diseases such as cancer or disability. The belief causes the perception that the impact of anemia is not dangerous so no need to be preventive measures. Confidence is the underlying factor in the change of individual behavior, the consciousness of the individual will cause a change in behavior that is last longer than the change due to external encouragement (Maulana, 2013).

Based on the analysis of respondents' answers, the results of functional assessment can be influenced by knowledge. Respondents mostly lack knowledge in choosing the appropriate foodstuffs with the needs of child iron, food ingredients that contain iron and how to properly process, the benefits of iron. Based on this, it is necessary to educate the need of iron as a nutritional component of micronutrients in foods, including foods containing iron, iron requirements for child growth, iron benefits and the impact that occurs when iron deficiency (Supariasa, 2002). In addition to knowledge, psychological and physiological factors such as attention, concentration of interest, emotion and fatigue (Maulana, 2013). During CFAM assessment there are possibilities that can interfere with maternal concentration in filling in anemic precautions, such as fussy children. This condition can affect the success of respondents in the process of filling the information so that the data obtained not meet the expectations.

CONCLUSIONS AND SUGGESTIONS

Conclusion
1. CFAM structural components in the prevention of anemia based on the boundaries of families, extended families and wider systems.
2. CFAM developmental components in the prevention of anemia are affected by family member relations, relationships with the environment, and infrastructure in the environment.
3. CFAM family functional components on prevention of anemia is an influential component related to daily life activities, consisting of routine activities, responsible for caring for children, problem solving, belief in illness and follow-up during illness. Mothers role in the prevention of anemia are mostly not routine (54.5%). Responsible for caring for children 50% by one parent only (mother. How to solve the problem by the head of the family (68.1%). Follow-up during illness by making curative effort as much as 72.7%. Confidence against disease 81.8% assumes that anemia is not a dangerous disease.

Suggestion
1) Mothers who has preschool children are supported to increase their understanding of anemia prevention by seeking independent information via the Internet or other sources of information and actively inquiring with local health workers or cadres.
2) Optimization of Posyandu Balita to provide health education about the importance of iron for children and screening of anemia events for early detection so that can be done prevention and handling of child anemia.

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