

# Nutrition Program Planning Based on Local Resources in Urban Fringe Areas of a Developing Country

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**Abstract**—Obesity prevalence and severe malnutrition in Indonesia has increased from 2007 to 2013. The utilization of local resources in nutritional program planning can be used to program efficiency and to reach the goal. The aim of this research is to plan a nutrition program based on local resources for urban fringe areas in a developing country. This research used a qualitative approach, with a focus on local resources including social capital, social system, cultural system. The study was conducted in Mijen, Central Java, as one of the urban fringe areas in Indonesia. Purposive and snowball sampling techniques are used to determine participants. A total of 16 participants took part in the study. Observation, interviews, focus group discussion, SWOT analysis, brainstorming and Miles and Huberman models were used to analyze the data. We have identified several local resources, such as the contributions from nutrition cadres, social organizations, social financial resources, as well as the cultural system and social system. The outstanding contribution of nutrition cadres is the participation and creativity to improve nutritional status. In addition, social organizations, like the role of the integrated health center for children (Pos Pelayanan Terpadu), can be engaged in the nutrition program planning. This center is supported by House of Nutrition to assist in nutrition program planning, and provide social support to families, neighbors and communities as social capitals. The study also reported that cultural systems that show appreciation for well-nourished children are a better way to improve the problem of balanced nutrition. Social systems such as teamwork and mutual cooperation can also be a potential resource to support nutritional programs and overcome associated problems. The impact of development in urban areas such as the introduction of more green areas which improve the perceived status of local people, as well as new health services facilitated by people and companies, can also be resources to support nutrition programs. Local resources in urban fringe areas can be used in the planning of nutrition programs. The expansion of partnership with all stakeholders, empowering the community through optimizing the roles of nutrition care centers for children as our recommendation with regard to nutrition program planning.

**Keywords**—Developing country, local resources, nutrition program, urban fringe.

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## I. INTRODUCTION

NUTRITIONAL problems have always emerged as a serious problem which affects the future development of a nation. Children with problematic nutritional status starting from early childhood, as a consequent, are likely to suffer from impaired brain development, lower intelligence, as well as learning difficulties, and as a result will also have a higher tendency to drop out of school or postpone their studies [1]. In 2010, it was 43 million or 6.7%. The highest prevalence of childhood overweight is in developing countries [2], [3].

In Indonesia, one of the public health problems encountered by today's society is the double burden of malnutrition problems, which includes both undernutrition and overweight. Based on 2010 Report of Indonesia Basic Health Research (Riset Kesehatan Dasar/Riskesdas), the prevalence of overweight in toddlers has increased to 14% from 12.2% in 2007. The findings of Riskesdas in 2013 show that nationally, the prevalence of malnutrition in toddlers is estimated to be as many as 19.6%. Compared with the figures recorded in 2007, shows an increase of 18.4%, or more than 4.6 million toddlers. Central Java ranks number 14 out of 33 provinces in terms of malnutrition cases in 2013 (17.6% or 480,441 children) (Directorate General of Nutrition and Maternal and Child Health, 2013 as cited in Kementerian Kesehatan RI, 2013) [4].

The strategy to improve the nutritional status of community is nutrition program planning. Government efforts at the national level to create policies and integrated measurements in the field of food and nutrition include namely the National Action Plan for Food and Nutrition (RANPG) and the First 1,000 Days of Life Movement programs. In addition, programs at the provincial and district levels have also been undertaken and include: 1) Monitoring pregnant women and children under-five years, 2) Nutrition services within the community, 3) Epidemiological studies, and 4) The benefits of breastfeeding.

The program has not significantly improved the country's nutritional status because the concept of the nutrition program is various and relates to basic factors such as impacts of education and economic level on the complexity of programs and their efficiency. Hence, local resources need to be enhanced to achieve the goals of national programs.

Local resources are the region strength to explore the potential benefits to communities. Studies show the benefits of local resources such as social capital, the social system, cultural system and other resources related with nutritional status [5], [6]. Recent studies have reported that social capital

affects the nutritional status of children in Thailand. Social capital includes health volunteer participation, reciprocal relationship and proactive people [7].

Local resources for race, ethnicity and socio economic status are different; it is also different in various regions within the country or even in the same region at different times [8]-[10]. Local resources are related with the social culture in an urban area, which are different to an urban fringe area due to shifting livelihood, acculturation, education and experience [11]. The urban fringe area is a suburban area with different characteristics to the urban area and is expanding in many regions across Indonesia.

Accordingly, the problem to address in conducting research is to understand the alternatives impacting nutrition program planning based on local resources in urban fringe areas in a developing country like Indonesia.

## II. MATERIALS AND METHODS

This study was conducted in Mijen, Semarang, Central Java Province, Indonesia. This area is considered for study for the following reasons: 1) as an area that offers a series of studies in accordance with the road map of the current research, 2) it is an area with the highest cases of malnutrition, and 3) it is an urban fringe area and easily accessible by the researcher at any time. In addition, the Public Health Care Centers (Pusat Kesehatan Masyarakat/Puskesmas) at Mijen, which is located in the chosen study area, has the highest number of registered cases of malnutrition and obesity with an estimated 117 cases in 2015.

The research uses the qualitative approach with a focus on nutrition program planning based on local resources in urban fringe areas in Indonesia, using local resource elements as indicators such as social capitals, social system, cultural system and SWOT Analysis. Purposive sampling technique is used to determine informant to assess the current information about the available local resources and include the head of the Puskesmas, an officer in the nutrition section at the Puskesmas, two cadres of an integrated health center for children (Pos Pelayanan Terpadu/Posyandu), two mothers with children under-five years of age. Participants in the study include six males who meet the following criteria: live and work at research area for a minimum of one year, willingness to participate, able to communicate, and provide detailed information, as well as mothers with children under-five years of age identified by the Posyandu Cadres, who are themselves recommended by the Puskesmas team. In addition, additional research participants are included using the snowball sampling technique and consist of one cadres, two mothers with children under-five years of age and the Nutrition Section Head of the District Health Office in Semarang and the management of the House of Nutrition. Overall, 11 males working in a professional capacity participated in the study to provide information on the nutrition status of the study area, while anthropometry is used to measure the height and weight children under-five years old. Observation, interview, Focus Group Discussion and SWOT Analysis are the research instruments used in the study. To measure the validity of data

documented in the study area over a period of three months, triangulation technique is used considering research data, discussions with experts and reviewers in research institutions, periodical cross check of observation result and interviews with another experts. Data analysis use the Miles and Huberman models [12], including three simultaneous activities such as data reduction, display and verification.

Nutrition program planning alternatives formulated by Brain Storming Technique (BST) is a way to develop creative ideas. A brainstorming session was conducted and included participation of five males; the Nutrition Section Head of the District Health Office in Semarang, the Head of the Puskesmas, Nutrition Section of Puskesmas, a nutrition expert and health policy maker at Semarang State University.

## III. RESULT AND DISCUSSION

Puskesmas Mijen is a transition-urban fringe area, it is not an urban area, but is transitioning from suburban to urban. Based the research data, the strengths and opportunities of resources related to nutritional status improvement programs were identified as follows: the Puskesmas is strategically located and easily accessible to the community and offers good health care, including patient and outpatient care, as well as a standard health laboratory. It is supported by qualified human resources, including an experienced nutrition section head, who majored in nutrition. In addition, the Puskesmas has a team of enthusiastic, hardworking and committed officers. Puskesmas Mijen is influenced by a participative and authoritarian leadership style and tremendous creativity that focuses on building a close relationship between the head of the Puskesmas, the staff and other district health office and local government representatives, recognizing the importance of cross-sectoral participation to include all stakeholders in the Mijen district to cooperate and get involved in a healthy kids program.

The impact of the expansion of the area is apparent with the number of new independent private health care facilities that are provided by the community and companies. And the need for a different nutrition improvement program than the others similar areas arises [13]. As well, the opportunity for people to work at the new plant facilities and the corporate initiatives to assess and take responsibility (Corporate Social Responsibility) for the company's effects on the environmental and social wellbeing of locals, have improved the economic status of the region, which in turn, impacts the nutritional patterns of community such as any improvement of healthcare to family, qualified food choices and improvement of education and knowledge. The development of an industrial area increases the level of Corporate Social Responsibility (CSR) programs in surrounding community welfare programs including health and nutrition.

Social capitals such as the creativity and dedication of the Posyandu cadres head are useful to empower community and optimize the potency of human resources. Therefore, it encourages wider acceptance of programs within the community and ensures program sustainability. It can also foster autonomy in the community to improve nutritional

status. Nutrition in behavioral health is an important factor to promote social and environmental change, and therefore, the nutrition improvement program should be constructive and increase the autonomy of the community [14].

House of Nutrition (Rumah Gizi) is a center with a number of facilities to treat people suffering from the problems of malnutrition. It offers counseling and medical treatment, as well as education to improve community nutritional status. It comprises health institutions, and is specifically focused on cross sectoral coordination in nutrition and significantly supports the improvement of community nutrition. It is facilitated by a pediatrician, psychologist, midwife and another health practitioner. The aim of House of Nutrition, as a health policy in the city, is to support improvement of the community's nutritional status, specifically with regard to the malnutrition of children under five years of age.

The research has identified the threats and weaknesses in relation to nutrition program planning in urban fringe areas as:

- 1) The average educational level is Junior High School-Senior High School, with limited knowledge of nutrition and still believing in food myths. The results of this research reveal that educational background is a key factor, while the characteristics of the residents in this area have a limited influence, on the nutritional status of the children in the region. The educational background of new mothers is a determinant in breast feeding practices. However, level of education does not significantly impact good nutritional knowledge [15]-[17]. While a higher level of education is consistent with working mothers, and therefore, an increase in the need for childcare. The findings of a study by Contreras [16] shows that mothers with a higher level of education are less likely to breastfeed exclusively, and are more likely to consume high calories snacks and food products, that is double burden to nutritional status.
- 2) The influx of new residents in the form of labor complicates disease control and the nutritional status of an area. The findings of research conducted in China conclude that new residents, including migrants, are an important factor to consider in predicting the health status of children [18]-[19]. In addition, the increase in working mothers with children under-five years raises the need for participation of family members or child care providers, which can also influence forms of parenting and nutrition.
- 3) Mijen as an urban fringe area which is located far from the city center and the central government. This distance is an obstacle to introducing policies and implementing programs, projects and activities, and difficulties related to transportation hinders monitoring activities. The quality of available infrastructure and the need to cooperate with other parties can also limit the efficacy of policies and programs. This results in the need for the development of a different fundamental approach and public health intervention in urban, suburban and urban fringe areas [17].

Mijen is an urban fringe center that is transforming through a growing industry area that has the potential 1) to improve

economic status, 2) to change the social culture from conventional to modern, with plus and minus impact 3) to increase the highest degree of urbanization which impacts on many changes for the local community [20]. The characteristic changes and factors should be considered in the development of nutrition program planning. Geographical location is also influential on social economy, environment, food consumption patterns, life style. It becomes basic determinant to develop nutrition program planning. Urbanization factors can influence the successful implementation and management of nutrition program [21], [22].

Based on the findings, it can be concluded that local resources schemes in urban fringe area related with nutrition program planning and the nutritional status of the UNICEF implemented scheme and the National Action Plan for Food and Nutrition (Rencana Aksi Nasional Pangan dan Gizi (Fig. 1). Social capital, social culture and social system, as local resources, basically determine nutrition program planning in an area. Each characteristic of an area is influenced by geography, urbanization, area expansion, and culture, which are interrelated. Local resources are expected to attain maximum outcome, decrease obstacles, and cope with human resources shortage. It is strengthened by Lopez's research [23] that policy related with nutritional status and diseases considered by the physical environment, social factors, culture and politics in the urban and suburban areas. Potential factors that can be exploited outside of healthcare should be considered to determine policies and nutrition improvement program. Adopting a systemic approach to the implementation of the program will be more effective than focus on individual behavior, such as that of the research of the South Australia HiAP Healthy Weight program which involved many related institutions and gained commitment improvement between institutions of non-health in alignment and harmonization with policies of health institutions to achieve the aims of the program at minimal expense [24], [25]. In this research, potential parties recommended for inclusion are higher education institutions in health, local government, religion and social institution and factories established at Mijen. Human resources at health institutions are key actors and political support from the highest government institution are also determinant factors for successful implementation of any program.

Nutrition program planning should consider heighten ease of access to food, including transportation policy in the distribution of food and the local food system, to facilitate a community produce market. Food distribution systems, the price of healthy food, and the economic status related with buying power in urban fringe areas are factors that need to be considered in transitional urban fringe areas. It should include policies for small retail businesses and marketing strategy for innovative products to support local produce that will also improve the local economy and affordability of healthy food [27].

The recommendations from the brain storming session for the development of a nutrition program plan in Mijen were identified as follows:

- (1) Development and extension of partnerships. Mutual relationship with all parties in line with the objectives. The programs are selected considering 1). The increasing number of programs which involve local government and Puskesmas, 2) Many new companies or factories in Mijen 3) Leadership of the Puskesmas team to approach and empower human resources, through fostering relationships with local government, companies and factories, higher education institutes, elementary schools, Agriculture Department, and Plantations Department. The activities that focus on the improvement of the nutritional status of a community need to be implemented using a holistic approach. The basic determinants to improve nutritional status include education, economy and health.
- (2) Fostering community empowerment through their participation in many programs on nutrition care center for children, through cooperation with Posyandu cadres and members promoting family welfare (Pembinaan Kesejahteraan Keluarga/PKK) and higher education institutions in health, focusing specifically on nutrition cases in the local community, promoting preventive measures, reporting the findings and assessing the progress of patients undergoing treatment or taking specific medication, and monitoring behaviors.
- (3) An integrated nutrition information system piloting project with District Health Office-Puskesmas-Community is vital to support and assess data related with monitoring and program evaluation.

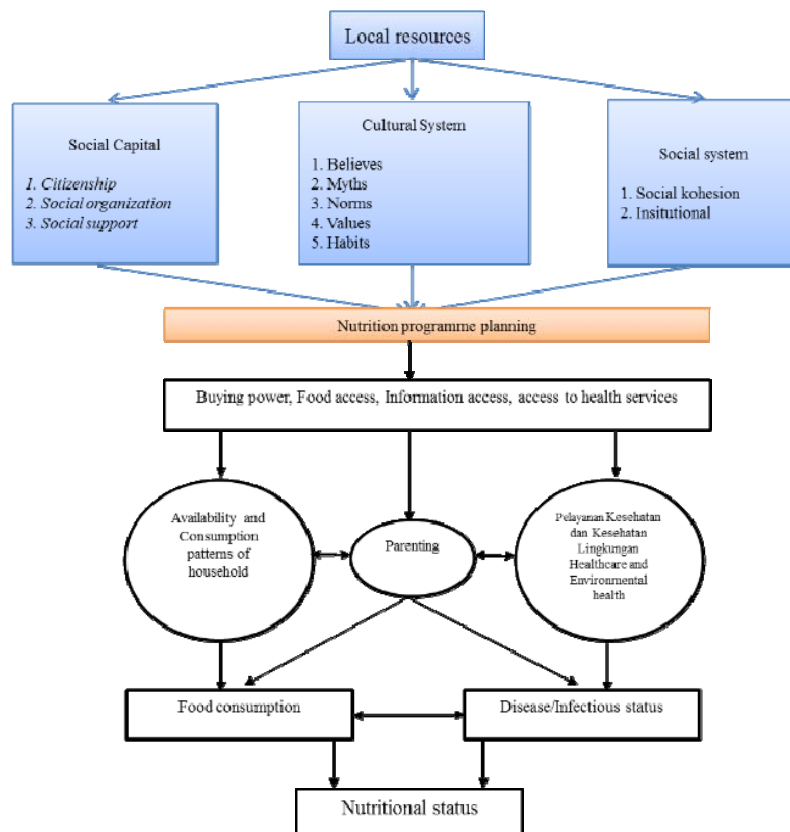


Fig. 1 Local resources scheme based on geography related with nutrition program planning and nutritional status (Adapted from [26])

#### IV. CONCLUSION

The results of the research identified local resources in the Mijen area that impact the development planning and successful implementation of nutrition programs including: 1) social capital such as citizenship, participation and creativity of cadres, social organization which comprise Posyandu which are supported by the House of Nutrition, social support from family and neighbors, as well as resources from community empowerment surrounding plants. 2) Promote cultural values the support and cherish the notion of the benefits of a well-nourished child. Such that a well-nourished child will be healthy, and exhibit normal growth and development, as well

as improved cognitive ability to achieve higher academic success, 3) Social system such as teamwork and mutual cooperation. In addition, the resources related to the impact of the urban fringe area include: 1) Many new factories have been opened in Mijen providing an opportunity to improve the economic status of the community. 2) A rise in the number of independent private health care facilities and companies in the community. The local resources available in urban fringe areas are vital for nutrition program planning. Hence, the recommended nutrition program planning consists of 1) Development of partnerships, 2) Improvement in community empowerment through their participation in many programs

on child nutritional care centers 3) An integrated nutrition information system piloting project, and cooperation with District Health Office, Puskesmas and the community.

#### V.RECOMMENDATIONS

The study findings recommend policy makers, and policies related to nutrition program planning should consider the limitation of local resources for successful implementation. Planning should consider program sustainability, how to empower resources and increase autonomy of community to cope health problem specifically nutritional problem.

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