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308 Lasani Town, Sargodha Road, Faisalabad - Pakistan
Mob: +92 300 3008585, Fax: +92 41 8815544
E-mail: editorpjn@gmail.com



Research Article

Local Potentials as Capital for Planning Nutrition Programs for Urban Fringe Areas in Developing Countries

Bambang Budi Raharjo, K.H. Oktia Woro, Efa Nugroho and Bertakalswa Hermawati

Department of Public Health Sciences, Universitas Negeri Semarang, Indonesia

Abstract

Background: The prevalence of over-nutrition and malnutrition problems in Indonesia increased from 2007-2013. Effective utilization of local potentials when planning nutrition programs could maximize the results of these programs. **Objective:** This study aims to describe the local potentials that might be used as capital to plan nutrition programs for urban fringe areas in developing countries. **Materials and Method:** This study employed a qualitative approach. The study focused on the local potentials of social capital, social systems and cultural systems. The study was conducted in the Mijen district, which is an urban fringe area in Indonesia. The informants were chosen using purposive and snowball sampling techniques. There were 11 informants involved in this study. The instruments used were observation, interview, Focus Group Discussion (FGD) and analysis of Strengths, Weaknesses, Opportunities and Threats (SWOT). Data were analyzed using the model of Miles and Huberman. **Results:** This study reveals that the local potentials in the Mijen area are as follows: (1) Social capital in the form of active citizenship and creative cadres, social organization consisting of Posyandu (Integrated service posts), which are supported by nutrition houses and social support from family, neighbors and the factory community. (2) A culture system in the form of high cultural value for children with good nutritional health. (3) Social systems in the form of cooperation and mutual assistance. Further potentials that relate to the effects of urban fringe areas are as follows: (1) Mass construction and factory expansion due to the Mijen district being an urban expansion area, which results in better economic development opportunities for the community. (2) The emergence of private health care facilities run independently by individuals or by factories. **Conclusion:** Local potentials in urban fringe areas can be utilized for the planning of nutrition programs to provide an avenue to improve the nutritional status of society.

Key words: Urban, fringe, society, nutrition, SWOT, FGD

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Corresponding Author: Bambang Budi Raharjo, Department of Public Health Sciences, Universitas Negeri Semarang, Indonesia

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Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

Nutrition is a serious ongoing problem that impedes future development in developing nations. Toddlers raised without proper nutrition will have altered brain development, intelligence and learning achievement, making them more likely to drop out of school or delay their higher-level education¹.

World Health Organization (WHO) estimates that the prevalence of overweight among toddlers and children in 2008 was 40 million or 6% of the world total. The highest prevalence of overweight in toddlers and children is in upper-middle income countries. However, the fastest growth of this population comes from lower-middle income countries such as Indonesia^{2,3}.

One of the public health problems facing modern Indonesia is the double burden of malnutrition, under-nutrition and over-nutrition. Based on data from Riskesdas in 2010, the prevalence of overweight in toddlers was 14.0%, an increase from 12.2% in 2007. In 2013, Riskesda's results showed that nationally the prevalence of malnutrition in toddlers was estimated to be as high as 19.6%. Compared

to 2007, there was an increase of 18.4% (4,646,933 toddlers). The same also occurred in Central Java, where in 2013, the number of cases of malnutrition ranked 13 out of 33 provinces in Indonesia with 17.6% or 480,441 children affected.

Attempts to repair the nutritional status of communities are conducted through planning and nutrition programs. The government's efforts on a national level are conducted through policy making and concerted measures in the fields of food and nutrition, namely the National Action Plan for Food and Nutrition and the 1000 HPK movement (Fig. 1). In addition, plans and programs at the provincial and district levels have been carried out, such as: (1) Monitoring pregnant women and children under 5 years old, (2) Nutrition services within communities, (3) Epidemiological investigation and (4) Exclusive breast feeding.

These programs have not significantly improved nutritional status because nutritional problems are caused by various factors, such as education level and economic status, both of which require long and complex mitigation. Therefore, it is imperative to take advantage of local potentials to achieve the goal and maximize results.

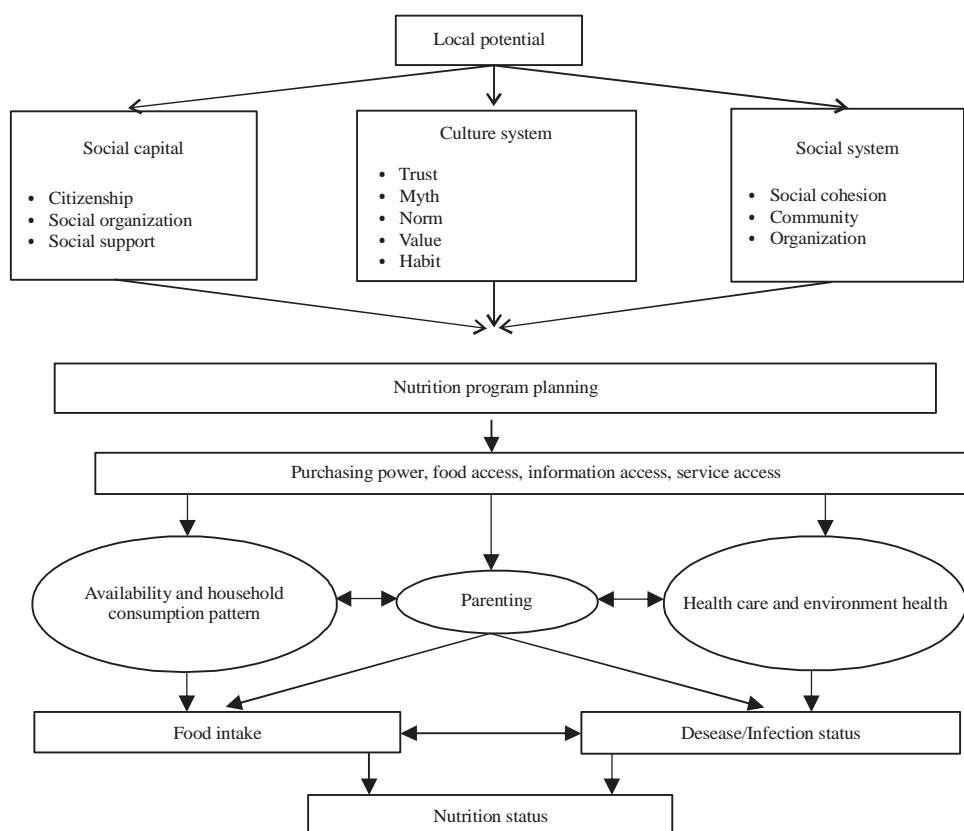


Fig. 1: UNICEF in 1990 and the National Action Plan on Food and Nutrition 2006-2010

Local potentials are abilities, strengths or powers possessed by an area that can be developed to generate benefits and advantages for the region. Studies from Handayani⁴ and Zuhud Ervival⁵ show that there are local potentials related to nutritional status, namely social systems, cultural systems, social capital and the potential of the natural resources in Indonesia. Research conducted in Thailand also revealed that social capital affects the nutritional status of children through the elements of participation and proactive reciprocity among health volunteers⁶.

Local potentials differ between races, ethnicities, traditions and socio-economic conditions. They also vary in separate regions within the same country or even in the same area at different times⁷⁻⁹. Local potentials related to the social culture in urban areas (cities) will be different from those in sub-urban areas, as well as in the urban fringes, because of the shift in livelihood, acculturation education and history¹⁰. An urban fringe is a sub-urban area with characteristics closer to those of an urban area. In developing countries, such as Indonesia, there are many areas that are beginning to grow. Hence, urban fringes are transition areas with special characteristics. Therefore, the problem in this study becomes the following: "What is the profile of local potentials with regard to the planning of nutrition programs in urban fringe areas?" This question can be answered by assessing the elements of social capital, social systems and cultural systems and by performing a SWOT analysis.

MATERIALS AND METHODS

The study was conducted in Mijen district, Semarang, Central Java province, Indonesia. The area was selected as a test site because (1) It is an area that has become a site of study in accordance with the road map prepared by the researchers, (2) It is the area with the highest number of malnutrition cases and (3) It is an urban fringe area that is easily accessible by the investigators at any time. The determination of public health care centers (Puskesmas) was based on the number of existing cases of malnutrition, poor nutrition and obesity with the highest number being recorded in 2015 at the Mijen Health Center in the Mijen district. At that time, the number of malnutrition cases was as high as 117.

The research approach used in this study was qualitative, with a focus on local potentials to support nutrition programs in urban fringe areas. The determination of initial informants was conducted through a purposive sampling technique. Initial informants consisted of Puskesmas heads, one person from the nutrition division of the Puskesmas, two cadres from

a Posyandu and two mothers. Therefore, there were six initial informants and they met the following prerequisites: Residing or conducting their duty in the research area for at least one year, willing to become informants in this study and being able to communicate and provide maximum information. Mothers of toddlers were recommended by Posyandu cadres and Posyandu cadres were recommended by Puskesmas.

The snowball technique was used to add additional informants, consisting of one cadre, two mothers, the head of the nutrition division of DKK Semarang and the manager of a nutrition house. Therefore, the informants totaled 11 individuals. As a complement and to understand the nutritional status in each region, it was also necessary to check the statistics of the weight and height of children under 5 years of age. The instruments used were observation, interview, FGD guide and SWOT analysis instruments. The data were collected in the form of primary data and secondary data and the data collection techniques employed were as follows: (1) Observation was conducted to observe local potentials, which included social capital, the social system and the cultural system to perform the SWOT analysis. (2) Interviews were focused to gain insight into social capital, the social system and the cultural system, which are the local potentials for improving the nutritional status of the community. The observations were then focused using supporting data collected in the field that related to the nutrition house under the responsibility of Puskesmas Semarang. (3) FGD, which was conducted to complement and validate the existing data. Seven participants in the FGD consisted of mothers, Puskesmas and Posyandu cadres. (4) Inclusion of secondary data in the questionnaire was used to complete the data related to the required profile research areas, such as infrastructure, occupation, level of education and economy, including transport facilities and geography of the area. (5) Completion of the SWOT analysis, which was conducted to obtain data about the strengths, weaknesses, opportunities and threats related to nutrition programs.

The validity of the data in this study was gained through: (1) Performing a documentary study conducted over 3 months, (2) The use of data collection triangulation techniques, (3) Conducting discussions with experts and reviewers from research institutes and (4) Always checking the most authoritative observations and interviews, which were obtained for several other informants.

In this study, the data were analyzed using the analytical models of Miles and Huberman which include three concurrent activities consisting of data reduction, presentation of data (display) and conclusion (verification).

RESULTS

Local potential is an ability, strength or power possessed by an area that can be developed to produce benefits for the area. Local potential can be assessed in terms of the elements of social capital, social systems and cultural systems. Social capital is a resource that emerges from the interactions within a community, among both individuals and institutions, that create the emotional ties of trust, reciprocal relationships, social networks, values and norms that form the structure of society and are useful for coordination and cooperation in achieving common goals. The social system is a complex pattern of activity and personal actions within society that can exist as social cohesion as well as institutional or community organizations. A culture system is part of the culture as a complex of ideas, concepts, values, norms and rules. These ideas are not exclusive, in fact, they are always interconnected into a single system.

Mijen district is an urban fringe area located on the border between city and village. Mijen is a developing area with many new factories, residential complexes, infrastructure and economic activities. The characteristics of Mijen show the shift from a sub-urban area towards an urban area, i.e., an urban fringe area. The overview of the nutritional status in Mijen until May, 2016 shows that this district has an over-nutritional status of 3.1%, a malnutrition status of 4.2% and no toddlers with poor nutritional status. Thus, the nutritional status has improved from 2014-2015.

Social capital: The element of social capital consists of citizenship, social organization and social support. From the research in Mijen, the results are as follows.

Citizenship can take the form of active and creative participation: (1) Chairman of Posyandu cadres actively and creatively encourage mothers to weigh their toddlers through consistent reminders about the time of weighing and through intensifying the activities of the Posyandu. One chairman of Posyandu cadres is 40 years old, full of creativity and very encouraging and inspiring to other posts.

Cadres have close relationships with others and the highly creative cadres easily access help from places outside of their circle, such as from their environment (neighbors) and their friends. Additionally, the cadres also have close relationships with mothers, who are the most important factor in improving the nutritional status program. (2) Members of the Posyandu cadres are willing to fully assist with activities but cannot be independent. Their activities must be carried out under the instructions of a supervisor. (3) Active participation at the level of the city DKK by members of religious female

organizations (Aisyiyah), who are always present when invited to a coordination meeting and attempt to do what has been agreed with Puskesmas. (4) The number of medical colleges in the city that participate through education, research and community service as Puskesmas partners.

Social organization is directly involved as an improvement program for nutritional status. The main nutritional program is Posyandu (Integrated service posts). Posyandu in Puskesmas of the Mijen area consist of 10 posts, with the average number of cadres being 8 per post and the average education being at the level of a high school graduate. Periodical nutrition programs such as weighing and recording are conducted once a month by the cadres and are sometimes accompanied by consultation and the supply of additional food with non-governmental funds. Malnourished toddlers will be brought to the clinic, where they will receive counseling and special programs at a nutritional house. This nutritional house is founded by the Semarang Puskesmas office in cooperation with the public hospitals, the Department of Marine Affairs and Fisheries, the Board of Food Security, the Nutritionists Association, the Physiotherapy Association and Public Social Organizations. The services prioritize the recovery of malnourished children until they are nutritionally sound. Some supermarkets in the area of Mijen have supported Posyandu activities, although not routinely. Partnerships with factories or companies in Mijen have not been formed.

Social support is related to nutrition in the form of parenting and caring for the environment: (1) All families with or without toddlers contribute financially every month for the purpose of PMT toddlers. (2) Assistance when a child's mother is in trouble, as reflected in their mother's family malnutrition children suffering from thalassemia (Bu Dian) who should be hospitalized, then the neighbors' willingness to help take care of their children. Another social support system that requires attention is the strategic location of the Puskesmas, which are close to the highway with plenty of accessible public transportation, yet far from the center of government. The Mijen area is also an industrial development area with significant factory expansion. This may facilitate or establish social support related to health and nutrition.

Culture system: The elements of a culture system are beliefs, myths, norms, values and habits. Cultural systems revealed by the research are: (1) The habits of most mothers who do not work and take care of their own children. However, as factories have emerged, many mothers have begun to work and the parenting job is now entrusted to the maids who come in the morning. (2) Mothers prefer to buy food from stalls because it is more practical. (3) Mothers are reluctant to pay attention to

their child's nutrition. (4) There are norms related to nutrition, such as parent's beliefs about nutrition being hereditary, which are a very dominant factor in influencing nutritional status. The mothers believe they have done their best to provide proper nutrition, however, the results do not show significant improvement. Therefore, they think nutritional programs will be useless because they believe nutrition is hereditary. (5) The existence of a high value for children with good nutritional status, which leaves mothers embarrassed if their children are diagnosed as malnourished. (6) There are myths related to parenting, examples of which include prohibiting toddlers from consuming coconut milk because it will cause diarrhea or from consuming greasy food because it will cause coughing.

Social system: Elements of the social system consist of cohesion and institutional social organizations (community organizations). The results of the study reveal a social system that takes the form of kinship, cooperation and mutual aid via caring for malnourished children, as occurred for the family of Mrs. Dian, who has a malnourished toddler. Cooperation is seen with activities associated with the Posyandu, the men will prepare the weighing scale. Collective attention is also shown by the creation of a community place for mutually cooperative Posyandu activities.

SWOT analysis: Based on the description of the data on social capital, cultural systems and social systems, the SWOT analysis is outlined in Table 1.

Table 1: SWOT analysis

Strengths	Weaknesses	Opportunities	Threats
Social capital			
Active and creative Posyandu cadres Social capital support: <ul style="list-style-type: none"> • Puskesmas leadership models • Highly participatory, authoritarian and creative • Strategic location • Adequate health facilities, provided outpatient care, hospitalization, standard lab and good human resources • Representative health care infrastructure • There are some specialized nutritionists for nutrition problems • High participation of staff who are willing to work and are easy to collaborate with • The emergence of private health care facilities which are managed independently by individuals or companies 	Social capital support: The location is far from the center of government	Social capital support: <ul style="list-style-type: none"> • Closeness between the head of Puskesmas with staff as well as with leaders of relevant agencies such as health offices and local government • The emergence of awareness from cross disciplines to cooperate in activities; nutrition development • There is a nutrition house under coordination of DKK Semarang • Many construction sites and factories where Mijen may have opportunities for cooperation in the planning of nutrition development programs 	
Culture system			
High value for children with good nutrition	Lack of knowledge and information related to nutrition and people still believe in myths related to nutrition		
Social system			
The existence of good teamwork for Posyandu activities			
Others			
			<ul style="list-style-type: none"> • Obesity rates are high and have not changed • The number of new comers who work as factory workers makes the control of diseases and nutritional status increasingly complex • The number of mothers who work, thus requiring other people or family members who can help take care of their children

Source: Primary data

DISCUSSION

Mijen is an urban development area with several public construction and renovation projects, including the widening of roads, the creation of modern cafes and shops (malls, supermarkets), newly built health care clinics and new housing complexes. This area is built for the central plant, an industrial area with an impact on the number of young laborers arriving as factory workers. This area is not an urban area, but it is transitioning towards an urban fringe given the following characteristics of its society: (1) The average economic level of the people is middle class. (2) The average education is at the junior high school level. (3) The social systems of kinship, cooperation and mutual assistance have begun to weaken, but they are still more visible than in urban areas.

Based on the data, the strengths and opportunities associated with the nutritional status improvement program are as follows:

The locations of Puskesmas with health care facilities, such as outpatient and inpatient services and laboratory testing facilities are easily accessible by the citizens. This is supported by personals who are very supportive, the nutrition officer and the chairman of the nutrition division have diploma educational backgrounds in nutrition. In addition, each employee in a Puskesmas actively participates. They are hard workers and are easily coordinated. This conducive climate in the Mijen Puskesmas is affected by a participatory and authoritarian leadership model with high creativity. This has led to a closeness between of the heads of the communities and various staff members, as well as with leaders of relevant agencies such as the DKK and the local government and can be seen from an emerging of cross-sector concerns from the Mijen district to cooperate and play a more active role in toddlers' health.

The impact of regional expansion in Mijen includes, among other things, the emergence of private healthcare facilities and independent clinics run by factories that will facilitate public healthcare necessities. This makes the health care programs, including programs to improve nutrition in urban fringe areas, different from those in urban and sub-urban areas¹¹. In addition, the emerging plans of construction and factory expansion create opportunities for increased economic development, which will eventually have an impact on nutrition in the community, the results of which include the improvement of health care for family members, the selection of quality food for consumption and the improvement of education and knowledge concerning nutrition. The opening of an industrial park will also provide

opportunities for Corporate Social Responsibility (CSR) to improve the welfare of the surrounding community, including welfare in the field of health and nutrition. This is also reflected in the results of study by Walton *et al.*¹² who stated that there is a connection between the location or geography of an area and the overall nutritional status of its community. Rural areas, which have traditional socio-economic patterns show significant relationship between the various levels of the economy and anthropometric measurements, including body mass index, while in more modernized urban areas, this relationship does not occur.

Social capital in the form of high levels of creativity and activity, especially those of the chairman of Posyandu cadres is a form of empowerment that can be utilized to overcome the limitations of the existing human resources issue, allowing the program to be accepted in the community and to be sustainably maintained. It may also seek to foster self-reliance in meeting healthcare objectives, including nutrition. Community independence, which is manifested in healthy nutrition behaviors has an important role in coping with non-supportive social and environmental factors. Therefore, the nutrition improvement program should also be designed to increase self-reliance in the community¹³. In addition, the participation of cadres selected by groups of mothers that exist in the regions of the Posyandu concur with those of De Silva and Harpham¹⁴ who stated that the high social capital owned by mothers in society can provide a positive impact on the nutritional status of children. This is similar to the case in Cameroon, where efforts to improve the nutritional status of children through the strengthening of local health workers has emphasized a health mission in the social groups of the society¹⁵.

The existence of the nutrition house facility, an agency of the health institution that specializes in nutrition support for cross-sectors of the community has strongly supported the improvement of community nutritional status. The nutrition house is a regency-level health institutional policy, as outlined in the program and it specializes in activities that support the improvement of nutritional status and gives priority to malnourished children.

The threats and weaknesses that require attention in the planning of nutrition programs in sub-urban areas involve an average level of public education at the junior high school level, which is exacerbated by a lack of knowledge about nutrition and a foundational belief in food myths.

The results of the study reveal that the characteristics of rural areas play a minor role on the nutritional status of children; the main factor is the level of education. A mother's educational level is a determinant of feeding practices,

although a high level of education does not automatically implicate knowledge of good nutrition¹⁶⁻¹⁸. This occurs because women with higher education levels have the possibility of increasing the family income and they tend to work; thus, their child rearing role is delegated to other people. Contreras¹⁷ stated that mothers with higher education tend to have low exclusive breast feeding frequency, high consumption of food and snacks and a high variety of food, which leads to the double burden of nutritional status. The number of new comers who work in factories makes the control of diseases and nutritional status much more complex. Research conducted in China concluded that newcomers, including migrants, become an important factor in predicting the health status of children¹⁹. Urban fringe areas lie further from the city center or the central government, which can act as a constraint on the implementation of policies, programs and activities, for example, there are difficulties associated with transportation and monitoring. Quality infrastructure then becomes necessary and public health interventions in urban, sub-urban and urban fringe areas differ greatly¹⁸.

Social capital, cultural systems and social systems act as local potentials and can form the basis for determining a plan of action for nutrition programs in a region. Each area has characteristics influenced by geography, urbanization, regional development and culture. Local potentials are expected to obtain maximum results and reduce the barriers that exist in the field, including the lack of human resources and funds. It is also strengthened by the results of study by Lopez and Hynes²⁰ who concluded that certain policies related to nutritional status and disease are made by considering the physical environment, social factors and cultural and political areas, either in urban or sub-urban environments; negative environments and environmental factors that can potentially be exploited are also considered. Sectors outside health care should be taken into consideration when determining nutrition policies and programs because a systemic approach to the program would be more appropriate than focusing only on programs that emphasize individual behavior. This finding is supported by the South Australia, Hiap program, "Healthy weight". The program involves many related institutions and results in increased commitment among non-health agencies, all while working in tandem with coexisting policies at agencies to minimize budget costs²¹. In this study, the institutions that currently hold potential to be involved are the medical colleges, local governments, religious social institutions (Aisyiyah) and companies that exist near the

Mijen area. In this case, the human health authority is the main actor and political support from the highest institution is also important.

The planning of nutrition programs will enhance access to food; which plays an important role in the nutritional status of communities and will include transportation policies regarding food distribution and the use of local food systems to facilitate marketed community products. Food distribution systems and the price of healthy food are both related to the level of purchasing power in developing urban fringe areas. This includes policies for small retail shops, the marketing of innovative products to improve local economies and the affordability of healthy food²².

CONCLUSION

The results of this study reveal that the local potentials for planning nutrition programs in the Mijen district, an urban fringe area are as follows: (1) The social capital of their citizenship in the form of active and creative cadres, social organizations comprised of Posyandu supported by nutrition houses, social support from family and neighbors and the potential from the factory-associated community, (2) The culture system of highly valuing children with good nutritional status and (3) The social systems of cooperation and mutual assistance. Further potentials that are also related to the effects of urban fringe areas are (1) The amount of construction and factory development in Mijen as an urban expansion area, which creates opportunities for better economic development and (2) The emergence of independent private health care facilities and factory-owned clinics.

SIGNIFICANCE STATEMENTS

This study needs to be done so nutrition programs can be made more efficient. Public acceptance of the nutrition program could be better because it planned using local potential. Local potential can be assessed from the elements of social capital, social systems and cultural systems. Local potential in urban fringe area can be utilized for the planning of nutrition programs that provide chances of success in improving the nutritional status of society.

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