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The Influence of Implementation of Health Promotion Model Precede-Proceed Towards Growing Child, Nutritional Status, and Quality Of Life of Children

Heni Puji Wahyuningsih[1,5*], Bhisma Murti[2], Eny Lestari[3], Reviono[4], Margono[1,5], and Diani Fadmi Putri[1,5]

1. Department of Midwifery, Politeknik Kesehatan Kementerian Kesehatan Yogyakarta, Yogyakarta, 55293, Indonesia
2. Master's Program in Public Health, Universitas Sebelas Maret, Solo, Indonesia
3. Master's Program in Development Counseling, Post Graduate, Universitas Sebelas Maret, Solo, Indonesia
4. Faculty of Medicine, Universitas Sebelas Maret, Solo, Indonesia
5. Center of Excellence for Applied Technology Innovation in the Field of Public Health (PUI NOVAKESMAS), Poltekkes Kemenkes Yogyakarta, Yogyakarta, 55293, Indonesia

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*Corresponding author
Heni Puji Wahyuningsih

Email:
heni.pujiw@poltekkesjogja.ac.id

ABSTRACT

Quality of life (QoL) is a broader concept than merely measuring morbidity and mortality. The quality of life of the child is an important factor in determining the human resources (HR) in the future and requires serious attention. District worthy of children is a comprehensive structure based on the study that precede-proceed model principle to assess health needs to design, implement, and evacuate health promotion programs. This research aims to determine the influence of implementation health promotion model precede-proceed towards growing children, nutritional status, and quality of life in children's. This research is a quantitative observational study using research design of retrospective cohort studies. The target population is all toddlers aged 2-4 years. The study of the population of this study is all toddlers aged 2-4 years old who reside in the village worthy of children (districts exposed) and ordinary villages (groups not exposed) in the region of Sleman regency. Sampling using multistage random sampling techniques, 350 respondent were district exposed and not exposed. The results showed that the quality of life of the children was directly affected by growth children (b=0.043; SE=0.092; p<0.001), nutritional status (b=0.01; SE=0.126; p<0.001), mother's education (b=0.112; SE=0.031; p<0.001), Number of siblings (b=0.043; SE:0.058; p<0.001), and family consultation center (b=0.261; SE=0.058; p<0.001). Conclusion of this study is QoL of the children is directly affected by growth children, nutritional status, mother's education, number of siblings, and family consultation center.

Keywords: QoL, exposed, growth, family, proceed.

INTRODUCTION

The human development in Indonesia continues to experience progress, which is indicated by the continuous increase in the Human Development Index (HDI) (Payot, 2017). This development gap can have an impact on the poor quality of life of children (Mcguire, 2014). Quality of life of children (QoL) is one of the main problems in developing countries, including Indonesia. Children constitute the largest proportion of the Indonesian population at 33.9 percent or 82.6 million people, with the largest distribution between the ages of 0-6, 32.6 million people (Alfianrisa, 2017). QoL for children is an important factor in determining Human Resources (HR) in the future and needs serious attention (Fisher and Chanan, 2015).

Factors that influence QoL of children include parental education, marital status and social capital. The other actors influencing QoL are area of residence, lack of access to health services, low socio economic/poverty, exposed home

environment, presence of childhood disease (comorbidity), certain ethnicity, house density/ number of people in the household is more than (Fisher and Chanan, 2015) , large number of brothers, malnutrition/obesity problems, parenting style of parents who are too protective, parents who do not work (Pradono *et al.*, 2017; Gaspar, 2016).

One of the *Kabupaten Layak Anak* programs is the right to the family environment and alternative care. The family environment is an environment that is the first and foremost place for children to grow and develop. Care and education in the family from an early age greatly affects the quality of life of children. Children who develop in a precise and planned pattern will have good and strong personalities (Sitaresmi *et al.,* 2018). The quality and development of children will be optimal if interactions are made according to the needs of children under five in various stages of development. Health promotion strives for individuals, groups or communities to have a positive influence on health maintenance and improvement. In order for the intervention or effort to be effective, before intervention it is necessary to carry out a diagnosis or analysis of the behavior problem. The application of a health promotion model to improve the quality of life of children needs to be realized through a policy or program that is able to encourage community participation and community empowerment in the health sector, so the form of the *Kabupaten Layak Anak* program is expected to be a solution to improve the quality of life of children (Mexitalia, 2014).

Facing such children's problems, the implementation of children's rights must be carried out by transforming children's rights structurally. Children's rights must be actualized in the highest political policy of the State. Various parties are obliged and responsible for ensuring the fulfilment of children's rights, starting from the smallest institutions, namely the family, community, village/sub-district government, district/city government, provincial government and government (Sitaresmi, *et al*., 2018). In order to accelerate the fulfilment of children's rights and as an effort to provide protection for children, a Child Friendly District/City policy has been formulated, and it has been stipulated in the Regulation of the State Minister for Women's Empowerment Number 2 of 2009 concerning the Policy for a *Kota Layak Anak*, KLA. KLA is a system of development of an administrative area that integrates comprehensive and sustainable commitments in programs and activities to fulfil children's rights (Profil Kesehatan Kabupaten Sleman, 2019).

The precede-proceed model has been integrated in the planning of community empowerment programs in the health sector based on community needs assessment. However, this model has never been implemented in the *Child Friendly District/KLA program.* KLA is a comprehensive structure that integrates regulations, community empowerment, or the environment that affects children's quality of life. the precede-proceed is applied in the empowerment *of Child Friendly Cities / KLA* because this model is used to assess health needs, develop an expansion of the concept in the form of health education which includes policies, regulations, and health behaviors.

Research related to the quality of life of children has been carried out, but there is no research that describes the effect of the implementation of health promotion precedence on the quality of life of children. The novelty in this study is that the researcher tries to describe quantitatively the influence of the precede proceed health promotion model on the quality of life of children. Currently, the precede proceeds model has been widely used in policy making, but has not yet been linked to its effect on children's quality of life.

Based on the study of the precede-proceed health promotion model, the KLA program is an application form of the precede-proceed model (Green, and Kreuter, 2015). The Objective of this study is to know the effect of implementing the precede-proceed health promotion model on growth and development, nutritional status, and quality of life of children.

MATERIAL AND METHODS

This type of research is a quantitative observational study using a research design of retrospective cohort study. This study was conducted to evaluate the implementation effectivity of the health promotion model of precede-proceed on QoL of children under the age of 2-4 years in the District of Eligible Children.

The target population of this research is all toddlers aged 2-4 years. The population of this research study is all toddlers aged 2-4 years old who reside in the village worthy of children (exposed group) and ordinary villages (groups not exposed) in the regency of Sleman, Yogyakarta, Indonesia. The number of sample of this research

was 175 in the group exposed and 175 in the group not exposed to the sampling technique is multistage random sampling.

The multistage random sampling technique is to select the exposed group and the group is not exposed to the fixed exposure sampling method. The technique is done by selecting groups with exposed status or groups not exposed to KLA. The trick is to take 15 KLA villages and choose 15 villages that are not exposed to KLA by random sampling. Then, selecting children from each village by means of simple random sampling from the toddler sampling frame, so that in each village there are 12 or 13 samples that are used as subjects. The selection of areas is classified based on the criteria of being exposed or not exposed. Exposed areas are areas that have implemented child-friendly programs for more than 5 years, while areas that are not exposed are areas that implement child-friendly programs for less than 2 years or have not implemented child-friendly programs. Sampling was carried out by drawing lots of subjects using a computer with Ms-Excel software based on the names of children in Sleman Regency, both in the exposed group and in the unexposed group. The chosen name is recorded as the subject.

Informed consent was obtained for all participants. Informed consent is filled in by mother/child's companion. Mothers or caregivers answered the question on their own. Trained investigators assisted the caregivers by reading the questions out to them when needed to alleviate pressure for illiterate caregivers. The time required to fill out questionnaires ranged from 20-30 minutes.

The instrument used in this study was a questionnaire. Growth and development were measured using DDST II, and nutritional status was measured by WHO BW / U standards. The variable quality of life was measured using a Paediatric Quality of Life Inventory™ questionnaire (PedsQL™) containing four aspects including aspects: physical, emotional, social and cognitive functions. The PedsQL questionnaire for children 2-4 years is the parent report filled out by the child's primary caregiver. Consisting of 4 dimensions (21 items) for children who have gone to school and 3 dimensions (18 items) for children who have not yet attended school include: 8 items of physical function, 5 items of social function, 5 items of emotional function and 3 items of school function. Assessment of children's quality of life is based on the answer score of each question item available on the instrument. All question items have the same value and consist of five answer categories. The answer category is 0 = never gets in trouble; 1 = there is almost never a problem; 2 = sometimes there are problems; 3 = there are often problems; 4 = there is almost always a problem. The score is then converted to a scale from 0-100, is 0 = 100, 1 = 75, 2 = 50, 3 = 25, 4 = 0 (Varni, 2015).

Data obtained were analysed using univariate, bivariate, multivariate, and path analysis. Before conducting univariate tests, normality tests and homogeneity tests are performed. The test used is Kolmogorov smirnov. Univariate analysis was performed to display the characteristics of the research subjects and the descriptive variables of the study. Bivariate analysis to analyse the effects of endogenous variables using chi-square on categorical scale data and using independent t tests on continuum scale data. Multivariate analysis was carried out to see the variables that most influenced the quality of life of children. Analysis using multiple logistic regression on categorical scale data and using multiple linear regression on continuum scale data. The study was carried out after approval of the research proposal by the Faculty of Medical Universitas Gadjah Mada research ethical committee. Written permission from the Faculty of Medicine Universitas Gadjah Mada of centers was taken No. KE/FK/0699/EC/2020. Interviewees were received full explanations about the study including the purpose, process and benefits of the study. Informed signed consent was taken from interviews. Data analysis is carried out using the application AMOS 24.

RESULTS AND DISCUSSION

Data were collected from 175 children in the exposed area and 175 children in the unexposed. The results of the univariate analysis provide an overview of the frequency distribution of child characteristics and family characteristics (Table I). Bivariate analysis was used to determine the relationship between the dependent and independent variables studied. The incidence of stunting was determined by bivariate analysis using the Chi Square test. The determinant factors in the analysis are as follows:

The mother's latest education, marital status, number of siblings, parent's income, family consultation services, child-friendly community health centers, child-friendly participation, social capital, nutritional status, and growth and development affect the quality of life for children (Table II).

Table I. Frequency distribution of research variable.

No.	Characteristics		KLA		Non KLA	
			n = 175	%	n = 175	%
1.	**Mother's Education**	SD	12	6.9	11	6.3
		Junior High	28	16.0	19	10.9
		High school	80	45.7	94	53.7
		College	55	31.4	51	29.1
2.	**Marital status**	Marry	173	98.9	174	99.4
		Not married	2	1,1	1	0.6
3.	**Number of siblings**	< 2	135	77.1	129	73.7
		> 2	40	22.9	45	25.7
4.	**Parent's Income**	> 1.7 million	111	63.4	100	57.1
		< 1.7 million	64	36.6	75	42.9
5.	**Family Consultation Services**	Yes	175	100	79	45.1
		Not	0	0	96	54.9
6.	**Child Friendly Puskesmas**	Available	175	100	142	81.1
		Not available	0	0	33	18.9
7.	**PAUD participation**	Yes	173	98.9	165	94.3
		NotA	2	1,1	10	5.7
8.	**Social Capital**	Less Support	59	33.7	82	46.9
		Support	116	66.3	93	53.1
9.	**Nutritional status**	Fat	6	3.4	9	5.1
		Normal	169	96.6	166	94.9
		Thin	0	0	0	0
10.	**Growth and development**	Normal	166	94.9	154	88.0
		Abnormal	9	5.1	21	12.0
11.	**Quality of Life for Children**	Well	115	65.7	44	25.1
		Not good	60	34.3	131	74.9

Table II. Influence of variable independent to quality of life of children

Variable	r	P
Mother's last education	0.254	0.000
Marital status	0.460	0.002
Number of siblings	0.538	0.000
Parent income	0.975	0.001
Family consultation services	0.000	0,000
Child friendly Puskesmas	0.028	0.028
PAUD participation	0.747	0.000
Social capital	0.048	0.000
Nutritional status	0.667	0.000
Growth and development	0.165	0.000

Source: Primary Data Analysis

The results of the bivariate relationship between these variables were then further analyzed with the path analysis model. The path analysis model in this study is specified based on the precede-proceed theory. Results are declared significant if p value <0.05. After the bivariate test, the data were analyzed using path analysis. The analysis was conducted to determine the direct or indirect influence between mother's education, marital status, number of family, income of parents, family consultation service, child friendly health center, PAUD participation. Nutritional status, and child growth to quality of life of children (Figure 1).

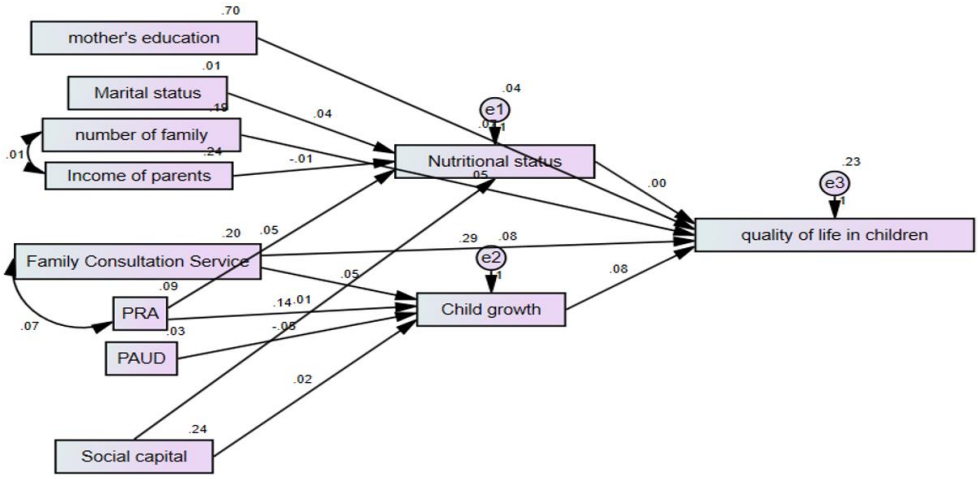

Figure 1. Structural model of influence variable to quality of life of children. Source: primary data analysis

Table III. Path analysis of independent variable to quality of life of children

Dependent Variable		Independent Variable	b*	SE	p	β**
Direct Influence						
Quality of life	⟵	Growth and development	0.43	0.092	0.000	0.831
Quality of life	⟵	Nutritional status	0.01	0.126	0.001	0.028
Quality of life	⟵	Mother's education	0.112	0.031	0.000	2.200
Quality of life	⟵	Number of siblings	0.043	0.058	0.000	0.841
Quality of life	⟵	Family consultation services	0.261	0.058	0.001	5.041
Indirect influence						
Growth and development	⟵	Social capital	0.040	0.030	0.000	0.771
Growth and development	⟵	Family consultation services	0.086	0.039	0.001	1.406
Growth and development	⟵	Child friendly health center	0.142	0.059	0.000	2.304
Growth and development	⟵	PAUD participation	0.030	0.081		
Nutritional status	⟵	PRA	0.070	0.037	0.000	0.568
Nutritional status	⟵	Marital status Social capital	0.019	0.117	0.001	1,308
Nutritional status	⟵	PRA	0.027	0.022	0.000	0.363
Family consultation services	⟵	Number of families	0.068	0.12	0.001	0.513
					0.000	1.104
Mother's education	⟵		0.013	0.008		
					0.000	8.681
N Observation = 350						
Fit Model		p = 0.001 (<0.05)				
CMIN = 1.83						
NFI = 0.813						
CFI = 1.00						
RMSEA = 0.049 <0.08						

Source: primary analysis data

The model fit measurement that shows the CMIN fit index results of 1.83 with a p value = 0.001; <0.05; NFI (Normed phot index) = 0.813; CFI (Comparative fit Index) = 1.00> 0.90; RMSEA (Root Mean Square error of Approximation) = 0.049 <0.08, which means an empirical model so that this research can be continued at a later stage (Table III). On this data (Table III) known that every increase of one unit of growth and development status will improve the quality of life of the child by

0.043 units (b = 0.043, SE = 0.092, p <0.001). Each increase of one unit of nutritional status will improve the quality of life of children by 0.001 units (b = 0.001, SE = 0.126, p <0.001).

The quality of life of children in the KLA group is better than the quality of life of children in the non KLA group (Table III). Quality of life is a child's functional condition which includes physical health, psychological, social support, and environmental conditions. Children living in unsupported areas will have a poor quality of life. The quality of children is a reflection of the quality of the nation and a mirror of world civilization. One indicator of the welfare of a society or a nation can be seen from the quality of life of children.

The use of the precede-proceed health promotion model can easily regulate the compatibility of planning with culture and goals, through research on various factors that have the potential to influence health behaviour, including the quality of life of children (Babaei, 2012).

The results of this study indicate that indicators of children's QoL are assessed by the level of education of parents, income of parents, number of families, marital status, family consultation services, availability of child-friendly health centers, participation in early childhood education, social capital, nutritional status, and child development (Bhisma Murti, 2015). This is in line with the indicators of community welfare according to UNDP (2014) as measured by the Human Development Index (HDI). HDI is a composite indicator of three development sector indicators, namely education, health, and economy. A number of studies have stated that better health can be found in groups of people who have high socioeconomic conditions (Huang *et al*., 2009).

Behavioural reasons can be classified into predisposing factors, enabling factors, and reinforcing factors. Furthermore, more responsive intervention strategies can be developed for each factor. Predisposing factors in this study include the mother's latest education, marital status, number of siblings, and parents' income. Green and Krauter also argue that perceptions of knowledge are high risk and influence motivation to change behaviour. In this study, it can be seen that the mother's latest education, marital status, number of siblings, and parents' income affect the quality of life of the child (Petersen, 2012).

Supporting factors are factors that make it easier to change behaviour, including the necessary skills, environment, and resources to make behaviour change. Health promotion plays an important role in shaping environmental factors (Rastgarimehr *et al*., 2014). In this study, the supporting factors were family consultation services, the availability of child-friendly health centers, and PAUD participation. Family consultation services have a direct relationship to a child's quality of life. the availability of family consultation services in an area will affect the quality of life of children in that area (Nur *et al*., 2017).

Meanwhile, reinforcing factors are factors that reward the implementation of behavior change. In this study, the reinforcing factor includes social capital. Research by Li *et al* (2009) identifies predisposing factors including knowledge, health awareness, and health beliefs and needs. Supporting factors include accessibility of health promotion, attention to health promotion, and health resources, as well as reinforcing factors including socio-culture (Nur, *et al.*, 2014). The precede-proceed health promotion model is a health promotion strategy that involves community participation in improving health status (Safari, 2012). For this reason, in developing an effective health promotion program for the community, the precede-proceed theory is needed as a reference. precede-proceed are two things that cannot be separated, because both are related to one another, but to formulate an effective and influential health program for the community is more dominant in the precede stage which diagnoses social problems in society related to quality of life and epidemiological problems in the community (Muhaimin, 2016).

The health promotion model in the results of this study emphasizes efforts to assist the community in realizing a *Kabupaten Layak Anak/KLA* and moving towards an optimum quality of life for children. The concept of the quality of life of children needs to be reviewed again in an effort to promote health which cannot be separated from the determinants of local government public policies, the function of child care in the family, strengthened by the behavior of exclusive breastfeeding, health, and the environment that will produce quality children's health.

The ability of children to live and function effectively in society to foster a sense of self-confidence and autonomy (independence) to the maximum stage and not only free from disease. Compared to other groups of children, in the exposed locations children are more active in participating in PAUD activities, families are more active in seeking information about health, and

have a willingness to maintain children's health and independence. The findings in the child health promotion model in this study were that there were objective characteristics of children's health education that had a significant direct influence on the quality of children's health, namely (1) increasing children's willingness and ability to exercise independence; (2) advocating for the local government to produce public policies that support children's health; (3) function of the family in parenting and efforts to optimize children's health. This is done by the interests (stakeholders) simultaneously in a well-planned and programmed manner. Children's health shows significant improvements by maximizing health promotion in the community by empowering communities and families to improve children's quality of life, strengthening family functions,

This study uses the precede-proceed theory from Green and Kreuter as a theory of behaviour change and implementation, in the framework of thinking that the quality of life of children is influenced by predisposing factors such as maternal education, parental marital status, parental income, and number of siblings, enabling factors includes family consultation services and Child Friendly Puskesmas (PRA), as well as the reinforcing factor, namely social capital. Social capital interventions have been shown to affect the quality of life of children in the exposed and non-exposed groups. Precede is a guide in analysing or diagnosing and evaluating behaviour in health promotion education. Meanwhile, proceed is a guide in planning, implementing, and evaluating in health promotion.

The health promotion component needs to be strengthened with a simple, cost-effective, innovative, culturally and geographically appropriate model, incorporating problem-based and regulatory design and involving community participation (World Health Organization, 2019). Effective implementation of health promotion needs to involve sectors outside of health and adopt a health approach in all policies, not just health policies. Saffari *et al*. (2012) in their research, found that the precede model can lead to significant successes and achievements in improving health behaviour and can be used as an efficient and effective model in planning (Safari, 2012). Based on research by Ekhtiari *et al*. (2013) show that the precede-proceed pattern is a good and appropriate pattern for planning and implementing health programs in the community. Other studies have shown that the structure of the precede model of education includes predisposing, enabling, and reinforcing factors, influencing behavioural factors to acquire healthy behaviour which in itself can improve health levels and quality of life (Dehdari, 2008).

CONCLUSION

Based on research conducted shows that the application of the precede proceed health promotion model affects the growth of children, nutritional status, and quality of life of children. The application of a good model will affect the child's growth, nutritional status, and quality of life for the child to be good. Planning for community empowerment programs in the health sector needs to conduct a comprehensive needs assessment using literature review and investigation. The precede-proceed model can be applied to planning community empowerment programs in health based on community health needs assessment. The quality of life for a person is assessed from the aspects of education level, economic status, social capital, and environment.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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