

Dynamic Self-Determination of Self-Care and Positive Deviance Model for Stunting Prevention in Indonesia

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ABSTRACT

Objective: To describe the dynamic self-determination of self-care (DSDoSC) and positive deviance (PD) models in changing stunting prevention behavior. **Material and Methods:** This research is a quasi-experimental study with a sample of 90 mothers taken by purposive sampling. Thirty mothers were given the DSDoSC intervention, 30 were given the PD intervention, and another 30 were in the control group. This research was conducted in July – October 2019. The variables studied were feeding behavior, nurturing behavior, personal hygiene behavior, environmental cleanliness and air sanitation, and behavior seeking health services. To analyze the difference in mother behaviour before and after test, we used Paired t-test. Analysis of Variance (MANOVA) was used to analyze the difference of mother behaviour among groups. The level of significance was $p < 0.05$. **Results:** The PWD group showed that eating behavior, parenting behavior, personal hygiene behavior, environmental hygiene and water sanitation, and behavior seeking health services had significant numbers. In the DSDoSC group, eating behavior, parenting behavior, environmental hygiene, water sanitation and health service-seeking behavior were significantly ($p < 0.05$). The results of the Manova test showed that there was an effect of PD and DSDoSC on stunting prevention behavior. **Conclusion:** Self-dynamic for self-care model and the positive deviance model both can change a mother's behavior for the better in feeding, parenting, environmental hygiene, and water sanitation, seeking health services, but not changing behavior about personal hygiene behavior.

Keywords: Sanitation; Parenting; Hygiene; Growth Disorders; Feeding Behavior.

Introduction

One of the main problems in handling stunting in Indonesia is it only handles the children, but there has been no serious effort to change the mother's behaviour in stunting prevention so that the risk of stunting will remain. Changes in the mother's behaviour depend on the willingness of the mother and the support and commitment of all related stakeholders to prevent stunting [1]. Behaviour is a fundamental thing that a mother must possess in order to become a habit that is applied in her daily life. Health education, giving additional food to infants and posyandu (Integrated Healthcare Center) services are considered to be less effective to prevent stunting due to the fact that often mothers who have been given health education and understanding about stunting do not apply them in daily life, so new strategies are needed and should be originated from the mothers themselves and local wisdom in stunting prevention [2].

The Dynamic Self Determination of Self Care assisting model is a model where families are encouraged to actively manage their healthcare needs independently according to their abilities. A model of assistance to families is by providing education, support, care, information, and planning health needs [3]. Respondents had been given the widest opportunity to develop their plans for what changes would be made regarding stunting prevention; thus, respondents were more easily apply them in daily life so that the behavior that has changed would be relatively lasting than behavior caused by the intervention of others. Respondents were constantly encouraged and motivated to dynamically determine their care, meaning that the greatest motivation of patient self-care comes from within themselves. Stunting prevention behaviors that have changed later are slowly expected to become a habit in daily life [4].

Assistance with positive deviance models is an innovation in efforts to eradicate malnutrition in the community. This approach identifies the target positive deviance (under nutrition toddlers) and non-positive deviance (normal undernourished toddlers) to be carried out. While the process of new knowledge transformation to the target of positive deviance is carried out in the form of face-to-face counseling directly with mothers of toddlers or caregivers, the process of transferring new knowledge between the two families is carried out by assistants/cadres who have been trained [5]. Positive deviants have identified positive and beneficial behaviours for child development in terms of feeding behaviour, parenting behaviour, personal hygiene behaviour, environmental hygiene behaviour and water sanitation and health care seeking behaviour. Favourable habits that are based on local culture and can be applied have been collected by researchers and then transferred to respondents in the non-positive deviance group [6].

Positive Deviants classically share their experiences of health behaviors that are applied daily to the respondents, where their daily behavior turns out to support the growth and development of their children even though they do not have adequate knowledge about good health behaviors and not from families with sufficient financial capacity.

Material and Methods

Study Design and Ethical Clearance

This research was an experimental research design with pre and post-test with a control group design. The study was conducted over four months, from July – October 2019. The study complied with the General Data Protection Regulation and the Declaration of Helsinki and was approved by the Ethics Committee of Poltekkes Malang (no. 250 /KEPK-POLKESMA/ 2019). Participants were informed about confidentiality concerns regarding their participation in the study before and at the start of each focus group and provided informed consent.

Population and Sample

Ninety mothers with children aged 7-36 months in Wonorejo village Singosari Malang were recruited using a purposive sampling technique in June 2019. The inclusion criteria for samples were as follows: 1) Mothers who have children aged 7-36 months, 2) Not a single parent. The exclusion criteria were respondents who did not follow the intervention given. The sample was divided into three groups by random allocation, 30 respondents as treatment group 1, 30 as treatment group 2, and 30 others as a control group. The treatment for group-1 was given assistance for stunting prevention of the dynamic self-determination of the self-care model for one month continuously. The treatment group-2 was given assistance for stunting prevention of the positive deviance model for one month continuously.

The mother's behaviour regarding stunting prevention is taken before and after assistance. Mother's behaviour is assessed in terms of feeding behaviour, parenting behaviour, personal hygiene behaviour, environmental hygiene behaviour, water sanitation and health care seeking behaviour. The questionnaire was tested for validity and reliability, which showed that the instrument was valid and reliable; it was used to measure the mother's behaviour in stunting prevention.

The criteria for mother's behaviour in stunting prevention are as follows:

- a. Feeding Behaviour, good: score 52-66, fair: score 37-51, bad: score 22-36.
- b. Parenting behaviour, good: score 59-75, fair: score 42-58, bad: score 25-41.
- c. Personal hygiene behaviour, good: score 10-12, fair: score 7-9, bad: score 4-6.
- d. Behaviour of environmental hygiene and water sanitation good: score 10-12, fair: score 7-9, bad: score 4-6.
- e. Health seeking behaviour good: score 38-48, fair: score 27-37, bad: score 16-26.

Statistical Analysis

Normality test data was done using the Shapiro-Wilk test. To analyze the difference in mother behaviour before and after, we used Paired t-test. Analysis of Variance (MANOVA) was used to analyze the difference in mother behaviour among groups. The level of significance was $p < 0.05$.

Results

Table 1 shows some of the characteristics of the respondents..

Table 1. Characteristics of treatment and control group.

Variables	Self Dynamic Group		Positive Deviance Group		Control Group	
	N	%	N	%	N	%
Age (year)						
15 – 25	18	60.0	20	67.0	21	80.0
26 – 35	12	40.0	10	33.0	9	20.0
Total	30	100.0	30	100.0	30	100.0
Level of Education						
Elementary	10	33.0	14	47.0	11	37.0
Junior high school	13	44.0	10	33.0	11	37.0
Senior high school	7	23.0	6	20.0	6	20.0
College	0	0.0	0	0.0	2	6.0
Total	30	100.0	30	100.0	30	100
Occupation						
Jobless	16	54.0	19	64.0	15	50.0
Private sector	4	13.0	7	23.0	7	23.0
Entrepreneur	10	33.0	4	13.0	8	27.0
Total	30	100.0	30	100.0	30	100.0

Family income (Rp)						
<2.000.000	5	17.0	5	17.0	4	13.0
2.000.000-5.000.000	20	66.0	18	60.0	20	67.0
5.000.000-10.000.00	5	17.0	7	23.0	6	20.0
Total	30	100.0	30	100.0	30	100.0

The mother's behaviour in stunting prevention has changed after being given assistance with the dynamic self-determination of a self-care model. Table 2 shows that feeding behaviour, parenting behaviour, environmental hygiene and water sanitation, health seeking behaviour was statistically significant ($p < 0.05$), while the personal hygiene behaviour showed no significance ($p > 0.05$) (Table 2).

Table 2. Stunting prevention behaviour (pre-test and post-test) in the dynamic self-determination of self-care group.

Variables	Self Dynamic Group		Delta (Δ)	p-value
	Pre-Test Mean \pm SD	Post-Test Mean \pm SD		
Feeding behaviour	137.00 \pm 29.60	116.93 \pm 7.44	20.07	0.013
Parenting behaviour	86.73 \pm 17.16	77.47 \pm 4.68	9.27	0.040
Personal hygiene behaviour	90.80 \pm 20.48	84.87 \pm 6.05	5.93	0.231
Environment hygiene and water sanitation behaviour	27.00 \pm 4.07	20.20 \pm 0.56	6.80	0.000
Seeking health service behaviour	94.60 \pm 0.91	96.20 \pm 0.86	1.60	0.000

The behaviour of stunting prevention has changed after being given assistance with the positive deviance model. Table 3 shows that feeding behaviour, parenting behaviour, environmental hygiene and water sanitation, health seeking behaviour obtained a significant p-value < 0.05 , while the personal hygiene behaviour did not change significantly p-value > 0.05 (Table 3).

Table 3. Stunting prevention behaviour (pre-test and post-test) in the positive deviance group.

Variables	Positive Deviance Group		Delta (Δ)	p-value
	Pre-Test Mean \pm SD	Post-Test Mean \pm SD		
Feeding behaviour	135.27 \pm 28.14	116.27 \pm 6.58	19.00	0.015
Parenting behaviour	85.93 \pm 14.67	77.47 \pm 4.68	8.47	0.029
Personal hygiene behaviour	91.67 \pm 19.29	84.47 \pm 6.08	7.20	0.118
Environment hygiene and water sanitation behaviour	27.60 \pm 4.05	19.13 \pm 0.92	8.48	0.000
Seeking health service behaviour	94.60 \pm 0.91	96.20 \pm 0.91	1.60	0.000

The majority of stunting prevention behaviour has not changed in the control group. Table 4 shows that child care behaviour, personal hygiene, environmental hygiene and water sanitation, the behaviour of seeking health services has no significant ($p > 0.05$), while the feeding behaviour has changed significantly with $p < 0.05$ (Table 4).

Table 4. Stunting prevention behaviour (pre-test and post-test) in the control group.

Variables	Control Group		Delta (Δ)	p-value
	Pre-Test Mean \pm SD	Post-Test Mean \pm SD		
Feeding behaviour	132.40 \pm 29.08	117.67 \pm 21.45	14.73	0.004
Parenting behaviour	84.00 \pm 16.76	72.00 \pm 20.07	12.00	0.077
Personal hygiene behaviour	95.07 \pm 18.88	84.80 \pm 8.20	10.27	0.064
Environment hygiene and water sanitation behaviour	25.40 \pm 3.64	22.47 \pm 3.09	2.93	0.066
Seeking health service behaviour	94.87 \pm 0.92	96.13 \pm 0.94	1.27	0.080

Discussion

Mother's Behaviour in Stunting Prevention After Being Given Assistance with the Dynamic Self Determination of Self Care Model

Table 2 shows that feeding behaviour, parenting behaviour, environmental hygiene and water sanitation, health seeking behaviour was statistically significant ($p < 0.05$), while the personal hygiene behaviour did not change significantly ($p > 0.05$). The dynamic self-determination of the self-care model is a model where families are encouraged to actively manage their healthcare needs independently according to their abilities through consistent and ongoing assistance.

This assistance was carried out for one month in which the assistance was carried out in 6 steps. In the first step, the respondent was given classical education about feeding behaviour, parenting behaviour, personal hygiene behaviour, environmental hygiene behaviour and water sanitation, the utilization of health services [7]. Step 2 respondents have been asked to arrange simple plans for the next two weeks regarding feeding, care, personal hygiene, environmental hygiene and water sanitation, and health services, which they can apply every day on a daily basis. Step 3 respondents were asked to practice their plans in their homes. Step 4 was a home visit/ home care to ascertain whether the respondent had started implementing the plan properly or not [8]. The assistant continually provides education, motivation, care and information about stunting prevention behavior. Discussing with respondents, modifying plans according to needs, conducting advocacy with public health center as needed is done every day for each respondent. Step 5 respondents were allowed to apply the experiences they had gained from stage 1 to stage 5. This step is the saturated phase, where the stunting prevention behaviors that have changed later are slowly expected to become a habit in daily life. At this stage, respondents were discharged without assistance [9]. The assistant continues to make a home visit once a week or if needed by the respondent, via telephone contact. The step 6 is the final evaluation of a series of interventions [10].

Through the assistance steps above, the respondents already have confidence in their ability to achieve performance levels by using their experience of past events that affect their lives [11]. To instill this belief in respondents, researchers and their partners have continuously provided motivation that they can change their behavior. Researchers have given the widest opportunity to respondents to develop their own plans for what changes will be made regarding stunting prevention. Respondents dynamically do their own "care" for their children and this will bring strong self-efficacy to them.

Mother's Behaviour in Stunting Prevention After Being Given Assistance with the Positive Deviance Model

Assistance with a positive deviance model is another approach to eradicate malnutrition in the community [12]. In this study, positive deviants identified positive and beneficial behaviours for child development in terms of feeding behaviour, parenting behaviour, personal hygiene behaviour, environmental hygiene behaviour and water sanitation and health care seeking behaviour. Favourable habits that are based on local culture and are possible to be applied are collected by researchers to then be transferred to respondents in the non-positive deviants' group [13].

The positive deviants have classically shared their experiences of health behaviours that are applied daily to the respondents, where their daily behaviour is apparently supporting the growth of their children even though they do not have adequate knowledge about good health behaviours and not from families with a sufficient financial capacity [14].

Assistance has been carried out in a respondent's home for twelve days (six days per week) continuously with different materials each day but is interconnected [15]. Through this intervention model, it is expected that mothers of toddlers will be able to master all materials more easily [16]. The material taught during the intervention is divided into four steps: the first step is introducing various types of food sources that are usually processed by positive deviance family and their nutritional content, feeding by positive deviance mothers of toddlers and carried out for one day [17]. The second step was given material parenting in the positive deviance family carried out for one day. The third step was given materials for personal hygiene, environmental hygiene and water sanitation. The fourth step of the material is the utilization of health services [18].





In this study, there were no changes in personal hygiene behaviour in respondents who had been given a dynamic self-determination of self-care and positive deviance [19]. Factors that have been identified by researchers that are likely to be the causes are knowledge and cultural factors. Table 1 shows that the majority of respondents had an elementary school education. Knowledge is an important aspect in a person to be able to access all forms of change in life. With knowledge, someone will be easier to find solutions to solve all life problems. The poor state of knowledge of the mother causes he to have no knowledge outside of her environment [20].

In addition, values and culture are also closely related to personal hygiene behaviour. Based on the results of interactions with respondents during the study, it can be concluded that they believed that their personal hygiene is in accordance with what it should be because, so far, their children and family have never experienced illness related to lack of personal hygiene. According to them, the children have never experienced worm disease, although they rarely use footwear and rarely wash their hands with soap except when bathing. They believe that children who are too clean will not be strong and will get sick easily [21]. The majority of local people believe the same thing. This habit seems to have become a deep-rooted culture that the hygiene of children and families is good, and they lack of understanding and ignore self-cleaning hygiene that is too detailed such as having to wash hands with soap under running water, nails should not be dirty and long, and the obligation to use footwear [22].

Conclusion

The dynamic self-determination of self-care and positive deviance models have been able to change maternal behaviour in terms of preventing stunting in aspects of feeding, care, environmental hygiene and water sanitation, seeking better health services. But does not change personal hygiene behaviour.

Authors' Contributions

HA	 https://orcid.org/0000-0003-3976-3868	Conceptualization, Methodology, Formal Analysis, Investigation, Writing - Original Draft and Writing - Review and Editing.
FKS	 https://orcid.org/0000-0002-7471-8299	Conceptualization, Data Curation, Formal Analysis and Writing - Review and Editing.
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All authors declare that they contributed to critical review of intellectual content and approval of the final version to be published.		

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Conflict of Interest

The authors declare no conflicts of interest.

Data Availability

The data used to support the findings of this study can be made available upon request to the corresponding author.

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