

STUNTING PREVENTION BEHAVIOR BASED ON DYNAMIC SELF DETERMINATION OF SELF CARE AND POSITIVE DEVIANCE MODELS

¹Hurun Ain, ²Yuni Sufyanti Arief

¹Fakultas Keperawatan Universitas Airlangga
¹Politeknik Kesehatan Kementerian Kesehatan Malang
²Fakultas Keperawatan Universitas Airlangga

Email:

[¹hurun_ains@poltekkes-malang.ac.id](mailto:hurun_ains@poltekkes-malang.ac.id)
[²yuni_sa@fkip.unair.ac.id](mailto:yuni_sa@fkip.unair.ac.id)

Abstract

Purpose: This study describes the dynamic self-determination of self-care (SDSC) and positive deviance (PD) models in changing stunting prevention behavior

Methodology: The study was a quasi-experimental design with a sample of 90 mothers who had children aged 7-36 months taken by purposive sampling. 30 mothers were given SDSC intervention, 30 were given PD intervention, and the other 30 were in the control group. This study conducted from July – October 2019. The variables studied were feeding behaviors, parenting behavior, personal hygiene behavior, environmental cleanliness and air sanitation, and health service seeking behavior. Paired t-test and Multivariate Analysis of Variance (MANOVA) test was used

Findings: The results of the paired t-test in the PD group shows that feeding behaviour has a score of 0.015, parenting behaviour shows a score of 0.029, personal hygiene behaviour has score of 0.018, while environmental cleanliness and water sanitation show the score of 0.000, and Health service seeking behavior has a score of 0.000. In the SDSC group, the feeding behavior shows a score of 0.013, parenting behaviour has a score of 0.040, personal hygiene behaviour has a score of 0.231, environmental hygiene and water sanitation have a score of 0.000, and health service seeking behavior shows a score of 0.000. The results of the Manova test showed that $p = 0.002$, simultaneously, and there was an effect of PD and SDSC on stunting prevention behavior

Limitation: this study did not compare with the neutral group which was given the standard intervention

Contribution: The results of this study can be used as a reference in the handling of stunting in the community, especially areas that are the locus of stunting

Keywords: Dynamic Self-determination of Self-care, Positive Deviance, Prevention Behavior, Stunting

1. 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 (Beal et al., 2018). Changes in mother's behaviour depend on the willingness of the mother and the support and commitment of all related stakeholders to prevent stunting. 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, posyandu 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 (Perkins et al., 2017) (Laksono et al., 2019).

The Dynamic Self Determination of Self Care assisting model is a model where families are encouraged to actively manage their health care needs independently according to their abilities. A model of assistance to families is by providing education, support, care, information, and planning health needs. Respondents had been given the widest opportunity to develop their own 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 has changed later are slowly expected to become a habit in daily life (Rice, 1999).

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 (Brian Keeley, 2019). 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 (Palupi et al., 2019). Favourable habits

that are based on local culture and are very possible to be applied have been collected by researchers then be transferred to respondents in non-positive deviance group (Bullen, 2011).

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 (Roche et al., 2017a)

2. Literature review and hypotheses development

Study conducted by (Chek et al., 2022) The positive deviance approach helps to recognize the common feeding practices and the local wisdom unique to the urban poor population. After a positive deviance study in 2000 found that successful pregnancies had increased consumption of meat and vegetables, daytime rest, and antenatal care; less second-hand smoke exposure; and symptoms of no urinary tract infection (Ahrari et al., 2006). Based on study (Kestler-Peleg et al., 2015), the findings supported the structure of the Breastfeeding Motivation Scale according to self-determination theory. Nutrition education by applying the self-determination theory can increase support for autonomy (Thaha et al., 2021). Self-determination theory (SDT)-a theoretical perspective-and motivational interviewing (MI)-a set of clinical techniques-have both been used in health behaviour intervention contexts (Patrick & Williams, 2012). Positive Deviance methodology has much to offer as a powerful means of changing behaviours and improving health and nutrition status for mothers, infants, children, and families (Schooley & Morales, 2007). The PD/Hearth interventions support mothers to improve infant and young children's nutrition practices and reduce underweight (Roche et al., 2017b). There has been a wide application of Self-Determination Theory (SDT) to understanding motivation and regulation of eating and weight (Zimmer-Gembeck et al., 2019). Positive deviant mothers (those with children with a HAZ > 0) largely exhibited optimal infant and young child feeding practices explained by maternal information seeking behaviours; mothers acknowledging the importance of maternal health; and social support (D'Alimonte et al., 2016).

3. Research methodology

This research was an experimental research design with pre and post-test with control group design. The study was conducted over 4 months from July – October 2019

Population and sample: Ninety mothers who have children aged 7-36 months in Wonorejo village Singosari Malang were recruited using 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. Exclusion criteria for sample were respondents who did not follow the intervention given. Sample divided into 3 groups by random allocation, 30 respondents as treatment group 1, 30 respondents as treatment group 2, and 30 others as control group. The treatment for group-1 was given assistance for stunting prevention of the dynamic self-determination of self-care model for 1 month continuously. The treatment group-2 was given assistance for stunting prevention of the positive deviance model for 1 month continuously. Mother's behaviour about 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 and water sanitation, health care seeking behaviour. Questionnaire had been tested for the validity and reliability which showed that the instrument was valid and reliable, it was used to measure the mother behaviour in stunting prevention.

The criteria of mother's behaviour in stunting prevention 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 before determining statistical test using Spahiro-Wilk test. To analyze the difference of mother behaviour before and after test, we used Paired T test. *Analysis of Varians (MANOVA)* was used to analyze the difference of mother behaviour among groups. The level of significance was $p < 0$.

4. Result and Discussion

1) Characteristic of Respondents

This study shows some of characteristics observed from respondent as follow:

Table 1: Characteristics of Treatment and Control Group

Subject Characteristic	Self-Dynamic group		Positive Deviance group		Control group	
	(n=30)	%	(n=30)	%	(n=30)	%
Age (year)						
15 – 25	18	60	20	67	21	80
26 – 35	12	40	10	33	9	20
Total	30	100	30	100	30	100
Level of Education						
Elementary	10	33	14	47	11	37
Junior high school	13	44	10	33	11	37
Senior high school	7	23	6	20	6	20
College					2	6
Total	30	100	30	100	30	100
Occupation						
Jobless	16	54	19	64	15	50
Private sector	4	13	7	23	7	23
Entrepreneur	10	33	4	13	8	27
Total	30	100	30	100	30	100
Family income (Rp)						
<2.000.000	5	17	5	17	4	13
2.000.000-5.000.000	20	66	18	60	20	67
5.000.000-10.000.000	5	17	7	23	6	20
Total	30	100	30	100	30	100

Table 2. Stunting Prevention Behaviour (Pre-test and Post-test) In the Dynamic Self Determination of Self Care Group

Sub Variable	Self-Dynamic group		Delta (Δ)	<i>p value</i>
	Pre Test Mean \pm SD	Post Test Mean \pm SD		
Feeding behaviour	137,00 \pm 29,602	116,93 \pm 7,440	20,07	0,013
Parenting behaviour	86,73 \pm 17,169	77,47 \pm 4,688	9,27	0,040
Personal hygiene behaviour	90,80 \pm 20,481	84,87 \pm 6,058	5,93	0,231
Environment hygiene and water sanitation behaviour	27,00 \pm 4,071	20,20 \pm 0,561	6,80	0,000
Seeking health service behaviour	94,60 \pm 0,910	96,20 \pm 0,862	1,60	0,000

Table 3. Stunting Prevention Behaviour (pre-test and post-test) in the *Positive Deviance* Group

Sub Variable	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

Table 4. Stunting Prevention Behaviour (pre-test and post-test) in the *control* group

Sub Variable	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

Mother's behaviour in stunting prevention has changed 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 obtained a significant value of $p < 0.05$, while the personal hygiene behaviour did not change significantly $p \text{ value} > 0.05$ (table 2)

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 value of $p < 0.05$, while the personal hygiene behaviour did not change significantly $p \text{ value} > 0.05$ (table 3)

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 change with $p > 0.05$, while the feeding behaviour has changed significantly with $p < 0.05$ (table 4)

1) 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 obtained a significant value of $p < 0.05$, while the personal hygiene behaviour did not change significantly $p \text{ value} > 0.05$. The dynamic self-determination of self-care model is a model where families are encouraged to actively manage their health care needs independently according to their abilities through consistent and ongoing assistance (Rice, 1999). This assistance was carried out for 1 month in which the assistance was carried out in 6 steps. The first step, respondent was given classical education about feeding behaviour, parenting behaviour, personal hygiene behaviour, environmental hygiene behaviour and water sanitation, the utilization of health services. Step 2 respondents have been asked to arrange simple plans for the next 2 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 home. Step 4 was a home visit/ home care to ascertain whether the respondent has started implementing the plan properly or not. The assistant continually provides education, motivation, care, information about stunting prevention behavior. Discussing with respondents, modifying plans according to needs, conducting advocacy with puskesmas Ardumulyo as needed is done every day to 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. 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

Through the assistance steps above, the respondents already have confidence about their ability to achieve performance levels by using their experience of past events that affect their lives. 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 him⁽⁷⁻⁸⁾

2) Mother’s behaviour in stunting prevention after being given assistance with the *Positive Deviance* model

Assistance with a positive deviance model is another approach in the effort to eradicate malnutrition in the community. 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 very possible to be applied are collected by researchers to then be transferred to respondents in the non-positive deviants group.

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 sufficient financial capacity.

Assistance has been carried out in a respondent’s home for twelve days (six days per week) continuously with different material each day but are interconnected. Through this intervention model, it is expected that mothers of toddlers will be able to master all materials more easily. The material taught during the intervention is divided into 4 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 1 day. The second step was given material parenting in the positive deviance family carried out for 1 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.

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. 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 problems of life. The poor state of knowledge of the mother causes her to have no knowledge outside of her environment (Augner, 2018)

In addition, values and culture are also closely related to personal hygiene behaviour (Lin et al., 2018). Based on the results of interactions with respondents during the study it can be concluded that they have believed that their personal hygiene is in accordance with what 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, 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. 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.

5. 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

Ethical Clearance-obtained from permission from the ethic commission of Politeknik Kemenkes Malang.

Conflict of Interest-no conflict of interests regarding the publication

Source of Funding-the Ministry of Health Republic of Indonesia.

ACKNOWLEDGMENTS The author would like to show gratitude to Politeknik Kesehatan Kemenkes Malang and the Puskesmas Ardimulyo Malang for funding this research. The authors wish to express their appreciation to all enumerators and participants for their efforts during the conduct of this experiment.

REFERENCES

- Ahrari, M., Houser, R. F., Yassin, S., Mogheez, M., Hussaini, Y., Crump, P., Darmstadt, G. L., Marsh, D., & Levinson, F. J. (2006). A positive deviance-based antenatal nutrition project improves birth-weight in Upper Egypt. *Journal of Health, Population and Nutrition*, 24(4), 498–507.
- Augner, C. (2018). Health, education and employment status of europeans aged 60 to 69 years: Results from SHARE survey. *Industrial Health*, 56(5), 436–440. <https://doi.org/10.2486/indhealth.2017-0220>
- Beal, T., Tumilowicz, A., Sutrisna, A., Izwardy, D., & Neufeld, L. M. (2018). A review of child stunting determinants in Indonesia. In *Maternal and Child Nutrition* (Vol. 14, Issue 4). Blackwell Publishing Ltd. <https://doi.org/10.1111/mcn.12617>
- Brian Keeley, et. al. (2019). *THE STATE OF THE WORLD'S CHILDREN 2019 Growing well in a changing world Children, food and nutrition. Growing well in a changing world* (C. Little (ed.)). UNICEF. <https://www.unicef.org/media/60806/file/SOWC-2019.pdf>
- Bullen, P. A. B. (2011). The positive deviance/health approach to reducing child malnutrition: systematic review. *Tropical Medicine and International Health*, 16(11 PP), 1354–1366. <https://doi.org/10.1111/j.1365-3156.2011.02839.x>
- Chek, L. P., Gan, W. Y., Chin, Y. S., & Sulaiman, N. (2022). A nutrition programme using positive deviance approach to reduce undernutrition among urban poor children under-five in Malaysia: A cluster randomised controlled trial protocol. *PloS One*, 17(10), e0275357. <https://doi.org/10.1371/journal.pone.0275357>
- D'Alimonte, M. R., Deshmukh, D., Jayaraman, A., Chanani, S., & Humphries, D. L. (2016). Using Positive Deviance to Understand the Uptake of Optimal Infant and Young Child Feeding Practices by Mothers in an Urban Slum of Mumbai. *Maternal and Child Health Journal*, 20(6), 1133–1142. <https://doi.org/10.1007/s10995-015-1899-3>
- Kestler-Peleg, M., Shamir-Dardikman, M., Hermoni, D., & Ginzburg, K. (2015). Breastfeeding motivation and Self-Determination Theory. *Social Science and Medicine*, 144, 19–27. <https://doi.org/10.1016/j.socscimed.2015.09.006>
- Laksono, A. D., Ibad, M., Mursita, A., Kusriani, I., & Wulandari, R. D. (2019). Characteristics of Mother as Predictors of Stunting in Toddler. *Pakistan Journal of Nutrition*, 18(12), 1101–1106. <https://doi.org/10.3923/pjn.2019.1101.1106>
- Lin, S. Y., Lin, C. Y., & Hsin, M. C. (2018). Comparison of social and culture based risk perception of personal hygiene behaviours. *Heliyon*, 4(10). <https://doi.org/10.1016/j.heliyon.2018.e00839>
- Palupi, I. R., . S., Meltica, R., & Faza, F. (2019). Feeding Practices and Nutritional Status among

- Children Under Five Years of Age in Sleman District, Yogyakarta, Indonesia. *Pakistan Journal of Nutrition*, 18(9), 888–894. <https://doi.org/10.3923/pjn.2019.888.894>
- Patrick, H., & Williams, G. C. (2012). Self-determination theory: Its application to health behavior and complementarity with motivational interviewing. *International Journal of Behavioral Nutrition and Physical Activity*, 9. <https://doi.org/10.1186/1479-5868-9-18>
- Perkins, J. M., Kim, R., Krishna, A., McGovern, M., Aguayo, V. M., & Subramanian, S. V. (2017). Understanding the association between stunting and child development in low- and middle-income countries: Next steps for research and intervention. In *Social Science and Medicine* (Vol. 193, pp. 101–109). Elsevier Ltd. <https://doi.org/10.1016/j.socscimed.2017.09.039>
- Rice, R. (1999). *Home Health Nursing Procedure* (2nd ed.). Mosby.
- Robb, M. (2012). Self-Efficacy With Application to Nursing Education: A Concept Analysis. *Nursing Forum*, 47(3), 166–172. <https://doi.org/10.1111/j.1744-6198.2012.00267.x>
- Roche, M. L., Marquis, G. S., Gyorkos, T. W., Blouin, B., Sarsoza, J., & Kuhnlein, H. V. (2017a). A Community-Based Positive Deviance/Hearth Infant and Young Child Nutrition Intervention in Ecuador Improved Diet and Reduced Underweight. *Journal of Nutrition Education and Behavior*, 49(3), 196–203.e1. <https://doi.org/10.1016/j.jneb.2016.10.007>
- Roche, M. L., Marquis, G. S., Gyorkos, T. W., Blouin, B., Sarsoza, J., & Kuhnlein, H. V. (2017b). A Community-Based Positive Deviance/Hearth Infant and Young Child Nutrition Intervention in Ecuador Improved Diet and Reduced Underweight. *Journal of Nutrition Education and Behavior*, 49(3), 196–203.e1. <https://doi.org/10.1016/j.jneb.2016.10.007>
- Schooley, J., & Morales, L. (2007). Learning From the Community to Improve Maternal-Child Health and Nutrition: The Positive Deviance/Hearth Approach. *Journal of Midwifery and Women's Health*, 52(4), 376–383. <https://doi.org/10.1016/j.jmwh.2007.03.001>
- Shieh, C., Weaver, M. T., Hanna, K. M., Newsome, K., & Mogos, M. (2015). Association of Self-Efficacy and Self-Regulation with Nutrition and Exercise Behaviors in a Community Sample of Adults. *Journal of Community Health Nursing*, 32(4), 199–211. <https://doi.org/10.1080/07370016.2015.1087262>
- Thaha, R. M., Hasan, N., Hadju, V., Jafar, N., Muhiddin, S., & Maria, I. L. (2021). Measuring self-regulation after nutrition education modules with Self Determination Theory (SDT) intervention among teachers with or at Risk Metabolic Syndrome. *Gaceta Sanitaria*, 35, S83–S86. <https://doi.org/10.1016/j.gaceta.2020.12.023>
- Zimmer-Gembeck, M. J., Joyce, J., Kerin, J., Webb, H., Morrissey, S., & McKay, A. (2019). Self-determination theory and food-related parenting: The parent socioemotional context of feeding questionnaire. *Journal of Family Psychology*, 33(4), 476–486. <https://doi.org/10.1037/fam0000524>
- Ahrari, M., Houser, R. F., Yassin, S., Mogheez, M., Hussaini, Y., Crump, P., Darmstadt, G. L., Marsh, D., & Levinson, F. J. (2006). A positive deviance-based antenatal nutrition project improves birth-weight in Upper Egypt. *Journal of Health, Population and Nutrition*, 24(4), 498–507.
- Augner, C. (2018). Health, education and employment status of europeans aged 60 to 69 years: Results from SHARE survey. *Industrial Health*, 56(5), 436–440. <https://doi.org/10.2486/indhealth.2017-0220>
- Beal, T., Tumilowicz, A., Sutrisna, A., Izwardy, D., & Neufeld, L. M. (2018). A review of child

- stunting determinants in Indonesia. In *Maternal and Child Nutrition* (Vol. 14, Issue 4). Blackwell Publishing Ltd. <https://doi.org/10.1111/mcn.12617>
- Brian Keeley, et. al. (2019). *THE STATE OF THE WORLD'S CHILDREN 2019 Growing well in a changing world Children, food and nutrition. Growing well in a changing world* (C. Little (ed.)). UNICEF. <https://www.unicef.org/media/60806/file/SOWC-2019.pdf>
- Bullen, P. A. B. (2011). The positive deviance/hearth approach to reducing child malnutrition: systematic review. *Tropical Medicine and International Health*, 16(11 PP), 1354–1366. <https://doi.org/10.1111/j.1365-3156.2011.02839.x>
- Chek, L. P., Gan, W. Y., Chin, Y. S., & Sulaiman, N. (2022). A nutrition programme using positive deviance approach to reduce undernutrition among urban poor children under-five in Malaysia: A cluster randomised controlled trial protocol. *PloS One*, 17(10), e0275357. <https://doi.org/10.1371/journal.pone.0275357>
- D'Alimonte, M. R., Deshmukh, D., Jayaraman, A., Chanani, S., & Humphries, D. L. (2016). Using Positive Deviance to Understand the Uptake of Optimal Infant and Young Child Feeding Practices by Mothers in an Urban Slum of Mumbai. *Maternal and Child Health Journal*, 20(6), 1133–1142. <https://doi.org/10.1007/s10995-015-1899-3>
- Kestler-Peleg, M., Shamir-Dardikman, M., Hermoni, D., & Ginzburg, K. (2015). Breastfeeding motivation and Self-Determination Theory. *Social Science and Medicine*, 144, 19–27. <https://doi.org/10.1016/j.socscimed.2015.09.006>
- Laksono, A. D., Ibad, M., Mursita, A., Kusriani, I., & Wulandari, R. D. (2019). Characteristics of Mother as Predictors of Stunting in Toddler. *Pakistan Journal of Nutrition*, 18(12), 1101–1106. <https://doi.org/10.3923/pjn.2019.1101.1106>
- Lin, S. Y., Lin, C. Y., & Hsin, M. C. (2018). Comparison of social and culture based risk perception of personal hygiene behaviours. *Heliyon*, 4(10). <https://doi.org/10.1016/j.heliyon.2018.e00839>
- Palupi, I. R., . S., Meltica, R., & Faza, F. (2019). Feeding Practices and Nutritional Status among Children Under Five Years of Age in Sleman District, Yogyakarta, Indonesia. *Pakistan Journal of Nutrition*, 18(9), 888–894. <https://doi.org/10.3923/pjn.2019.888.894>
- Patrick, H., & Williams, G. C. (2012). Self-determination theory: Its application to health behavior and complementarity with motivational interviewing. *International Journal of Behavioral Nutrition and Physical Activity*, 9. <https://doi.org/10.1186/1479-5868-9-18>
- Perkins, J. M., Kim, R., Krishna, A., McGovern, M., Aguayo, V. M., & Subramanian, S. V. (2017). Understanding the association between stunting and child development in low- and middle-income countries: Next steps for research and intervention. In *Social Science and Medicine* (Vol. 193, pp. 101–109). Elsevier Ltd. <https://doi.org/10.1016/j.socscimed.2017.09.039>
- Rice, R. (1999). *Home Health Nursing Procedure* (2nd ed.). Mosby.
- Robb, M. (2012). Self-Efficacy With Application to Nursing Education: A Concept Analysis. *Nursing Forum*, 47(3), 166–172. <https://doi.org/10.1111/j.1744-6198.2012.00267.x>
- Roche, M. L., Marquis, G. S., Gyorkos, T. W., Blouin, B., Sarsoza, J., & Kuhnlein, H. V. (2017a). A Community-Based Positive Deviance/Hearth Infant and Young Child Nutrition Intervention in Ecuador Improved Diet and Reduced Underweight. *Journal of Nutrition Education and Behavior*, 49(3), 196-203.e1. <https://doi.org/10.1016/j.jneb.2016.10.007>
- Roche, M. L., Marquis, G. S., Gyorkos, T. W., Blouin, B., Sarsoza, J., & Kuhnlein, H. V. (2017b). A Community-Based Positive Deviance/Hearth Infant and Young Child Nutrition Intervention in Ecuador Improved Diet and Reduced Underweight. *Journal of Nutrition Education and Behavior*

- Behavior*, 49(3), 196-203.e1. <https://doi.org/10.1016/j.jneb.2016.10.007>
- Schooley, J., & Morales, L. (2007). Learning From the Community to Improve Maternal-Child Health and Nutrition: The Positive Deviance/Hearth Approach. *Journal of Midwifery and Women's Health*, 52(4), 376–383. <https://doi.org/10.1016/j.jmwh.2007.03.001>
- Shieh, C., Weaver, M. T., Hanna, K. M., Newsome, K., & Mogos, M. (2015). Association of Self-Efficacy and Self-Regulation with Nutrition and Exercise Behaviors in a Community Sample of Adults. *Journal of Community Health Nursing*, 32(4), 199–211. <https://doi.org/10.1080/07370016.2015.1087262>
- Thaha, R. M., Hasan, N., Hadju, V., Jafar, N., Muhiddin, S., & Maria, I. L. (2021). Measuring self-regulation after nutrition education modules with Self Determination Theory (SDT) intervention among teachers with or at Risk Metabolic Syndrome. *Gaceta Sanitaria*, 35, S83–S86. <https://doi.org/10.1016/j.gaceta.2020.12.023>
- Zimmer-Gembeck, M. J., Joyce, J., Kerin, J., Webb, H., Morrissey, S., & McKay, A. (2019). Self-determination theory and food-related parenting: The parent socioemotional context of feeding questionnaire. *Journal of Family Psychology*, 33(4), 476–486. <https://doi.org/10.1037/fam0000524>