

Date: Monday, August 01, 2022 Statistics: 347 words Plagiarized / 3910 Total words Remarks: Low Plagiarism Detected - Your Document needs Optional Improvement.

160 https://oamjms.eu/index.php/mjms/index Scientific Foundation SPIROSKI, Skopje, Republic of Macedonia Open Access Macedonian Journal of Medical Sciences. 2022 Jan 03; 10(T8):160-166. https://doi.org/10.3889/oamjms.2022.9490 eISSN: 1857-9655 Category: T8 – "APHNI: Health Improvement Strategies Post Pandemic Covid-19" Section: Pediatrics Nutrition Education using Booklet Media with and Without Counseling and the Association with Home Food Availability and Parent Feeding Practices in Preschool Children Herni Herawati 1*, Putri 1, Purnamasari 1, K.

1, Kurnia 1, Sintha Dewi Purnamasari 1, Prasetya Lestari 2 1Department of Nutrition, Faculty of Health Sciences, Alma Ata University, Kasihan, Indonesia; 2Department of Midwifery, Faculty of Health Sciences, Alma Ata University, Kasihan, Indonesia Abstract BACKGROUND: Fruit vegetable among children Indonesia lower recommendations, may due types food at and feeding such restriction parent Providing education booklets counseling healthy (fruit and vegetable) consumption can help to provide information to parent's thus resulting healthy behavior, compared to merely providing booklets without counseling. AIM: The of study to the of education booklets counseling counseling on home food availability and parent feeding practices in preschool children.

METHODS: A quasi-experimental study utilized a pre-test and post-test design with a control group. Sampling methods included purposive and random Purposive was to Danurejan district the with highest percentage Yogyakarta Meanwhile, random sampling applied select and (Early Education Pendidikan Anak Dini [PAUD] or kindergartens Taman Kanak-kanak [TK]). There were 56 people (28 intervention and 28 controls) taken from 4 The group nutrition using as as 30–60 min session out the home. control was with but not counseling.

The pre-test was carried out before nutrition education was given, and the post-test was conducted 30 days after nutrition Fruit vegetable at were using and feeding were using Comprehensive Feeding The tests to assess outcomes between groups included pair t -test, Wilcoxon, Mann–Whitney, and independent t -test. RESULTS: There were increase in healthy eating guidance and monitoring before and after nutrition education was provided in the intervention group (p = 0.00; p < 0.05), but no differences were found in restriction, child control, and parent (p 0.11, = p 0.28; = There a in control before after education the group = p 0.05), there no in eating guidance, monitoring, restriction, and parent pressure (p = 0.17, p = 0.18, p = 0.53, 0.62; p = 0.05). CONCLUSIONS: Results demonstrate that using counseling in addition to nutrition education booklets can increase mother within families.

Edited by: Ksenija Bogoeva-Kostovska Citation: Herawati HD, Putri AG, Purnamasari Y, Rahayu HK, Triastanti RK, Purnamasari SD, Lestari P. Nutrition Education using Booklet Media with and Without Counseling and the Association with Home Food Availability and Parent Feeding Practices in Preschool Children. Open Access Maced J Med Sci. 2022 Jan 03; 10(T8):160-166. https://doi.org/10.3889/oamjms.2022.9490 Keywords: Nutrition education; Booklets; Counseling; Child feeding practices; Preschool children *Correspondence: Herni Dwi Herawati, Department of Nutrition, Faculty of Health Sciences, Alma Ata University, Kasihan, Indonesia. E-mail: hernidwi@almaata.ac.id Received: 13-Oct-2021 Revised: 21-Nov-2021 Accepted: 02-Dec-2021 Copyright: © 2022 Herni Dwi Herawati, Amelia Greatika Putri, Yulia Purnamasari, Herwinda K.

Rahayu, Resti Kurnia Triastanti, Sintha Dewi Purnamasari, Prasetya Lestari Funding: This article was supported by Alma Ata University and the Ministry of Education and Culture, Research and Technology, and Higher Education, the Republic of Indonesia through the World Class Professor grant program (No: 2817/E4.1.KK.04.05/2021, 14 August 2021) Competing Interests: The authors have declared that no competing interests exist Open Access: This is an open-access article distributed under the terms of the Creative Commons Attribution- NonCommercial 4.0

International License (CC BY-NC 4.0) Introduction The of among continues to increase in both developed and developing countries. on Basic Research (Riskesdas) 2018, prevalence obese under in is especially rural are than urban (8.2% 7.9%) Meanwhile, prevalence obesity children under in Province the Region Yogyakarta 2018 4.7% where of regions City) in first with obese compared 4 districts, 2.86% [2]. Obesity among children is caused by unhealthy lifestyles, lack physical [3] unhealthy eating patterns or consumption of high-calorie but low-fiber foods [4], [5].

A case-control study involving 244 and non-obese in City and Regency in showed that

there was a significant difference between obese non-obese in of amount and of of and Vegetables a average and amount of vegetable and fruit consumption [6]. Herawati et al. Nutrition Education Using Booklet Media with and without Counseling and the Association with Home Food Availability and Parent Feeding Practices in Preschool Children Open Access Maced J Med Sci. 2022 Jan 03; 10(T8):160-166. 161 vegetable 33.5 g/ day [9].

There are several demographic factor affecting fruit vegetable such social and (gender, education, and culture) [10], exposure to junk food advertisements [11], parental eating behavior [12], feeding behavior [13], [14], feeding and or to at home [16]. Research that behavior forcing to consuming foods (vegetables), unhealthy (restriction), and children their intake control) children avoid dislike food and so they to foods in and [17]. addition, on on feeding with eating [18], to [18], and restriction [10], [18] associated with child weight. In line with case–control in Indonesia, which 101 children 101 children, showed parent and were risk for [20].

addition, important that affect intake children is food [21], children to consume that available home Several studies reported children's of certain of is related the availability of that food at home [16], [23]. The of habits the stages life an role the and development children The years an age develop that support healthy habits the [25]. Children's preferences through sight, smell by other in home environment Children's environmental is who help build healthy habits to and consumption from an early age [27].

Forming food behavior (fruits vegetables) an age children cannot separated the of [25]. is that knowledge the quality food to in of the recommended amount of intake, food portions, and types of food provided [13], [28], [29]. One nutrition to parents increase about importance of and consumption preschoolers through the use of media booklets and counseling. The booklet a that support smooth of educational activities because it can be received and captured the senses information by the eye can channel knowledge to the brain [30].

In the delivered message in form a with combination narration and so the contained more complete, more detailed, clear, and educative [30], [31]. While counseling a communication process counselor client help identify solve problems, to in behavioral related nutrition, increase person's status. nutrition what been includes domains knowledge, attitudes, behaviors to [32]. Negative is into behavior, for unhealthy practices parent and control) changed healthy feeding practices (healthy eating guidance, and monitoring) and less of and vegetables changed sufficient of fruit and vegetables.

A in in involving mothers showed the group provided counseling dietary for the of became compared the group. study adolescents in showed nutrition using booklet media is quite effective in increasing knowledge compared the group, knowledge coupled low of food calorie intake [34]. Preschool regarded a period growth development A nutritionally diet important ensure healthy active development. education one the that be to nutritional through one's attitudes, behavior.

researchers interested knowing the of education booklet media counseling without on parent feeding practices and home food availability. Methods Study design This study is quasi-experimental with a pre- and post-test group It conducted from to 2019, a Anak Dini (Early Education 162 https://oamjms.eu/index.php/mjms/index Taman Kanak-kanak (TK) (kindergartens) at Danurejan Sub-District, Municipality, This was based weight for children five in where highest percentage of those with overweight was located in this sub-district [36].

Participants Participants mothers preschool children = Inclusion included; of preschool children are 3–6 years, do have day time, school, and in Municipality parents provided consent their The sampling used purposive simple sampling. first was used select sub-district, that the highest cases Yogyakarta Danurejan was chosen Simple random was to PAUD/TK participants. 56 were from TK, Lempuyangwangi, Aba, and All participants then divided an group participants) control group (28 participants). Measures agree). The of food and vegetables) at home contains items about several types of fruit and vegetables found in the house either fresh, cooked, or There 26 items 23 items were to participants.

The were score 4 (>1 times/day), 3 (1 time/day), 2 (4–6 times/week), 1 (1–3 times/week), and 0 (never) [37], [38]. Intervention procedures Nutrition using and counseling carried by nutrition who been on booklet's and counseling booklet answer question, motivational Counseling was to intervention once about 30–60 min each the homes. control group was given booklets without counseling. Data analysis Normality test Shapiro–Wilk each group.

Analyzing the effect of intervention in each group used and t-test, the of intervention on changes in the effect of the intervention on in dependent between treatment control used t-test and The analyzed software SPSS version 21. Research ethics This has ethical from Ethics of Ata Number KE/AA/VI/952/EC/2019. Results The of participants both intervention control are in Table 1 . Over half of preschoolers were 5 years old. The family level showed the proportions around 2.000.000 3.000.000 120-200). Herawati et al. Nutrition Education Using Booklet Media with and without Counseling and the

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163 Discussion The effect of nutrition education with and without booklet media with and without counseling and the association with home food availability Regularly issues due the participant's of and about nutrition. formation recent from knowledge to responses the of action behaviors Behavior the reaction an to that from outside from him. is due to factors attitudes, values, etc.), enabling factors (availability of supporting facilities or tools, etc.), and reinforcement factors (laws, regulations, supervision, etc.) [40].

Nutrition using and counseling affect person's attitude, and improvement, education out the of media make easier

Table Difference of home food availability (fruit and vegetables) and parent feeding practices before and after intervention in the control group Variable Mean \pm SD p Before Intervention After Intervention Home food availability Fruit 0.34 \pm 0.16 0.36 \pm 0.14 0.12 b Vegetable 0.45 \pm 0.18 0.47 \pm 0.14 0.38 a Parent feeding practice Healthy eating guidance 3.34 \pm 0.37 3.43 \pm 0.34 0.17 b Monitoring 3.30 \pm 0.41 3.40 \pm 0.34 0.18 b Parent pressure 2.38 \pm 0.84 2.28 \pm 0.53 0.62 a Restriction 2.83 \pm 0.44 2.93 \pm 0.52 0.53 a Child control 2.70 \pm 0.71 1.98 \pm 0.61 0.00 b a Wilcoxon, b Pair t-test.

Table Difference of home food availability (fruit and vegetables) and parent feeding practices before and after intervention in the intervention group Variable Mean \pm SD p Before Intervention After Intervention Home food availability Fruit 0.38 \pm 0.20 0.76 \pm 0.22 0.00 b Vegetable 0.53 \pm 0.27 1.07 \pm 0.28 0.00 b Parent feeding practice Healthy eating guidance 3.11 \pm 0.63 3.80 \pm 0.20 0.00 a Monitoring 3.10 \pm 0.62 3.84 \pm 0.24 0.00 a Parent pressure 2.79 \pm 0.96 2.55 \pm 0.60 0.28 a Restriction 3.08 \pm 0.57 3.33 \pm 0.54 0.11 b Child control 3.22 \pm 0.88 3.08 \pm 0.82 0.48 a a Wilcoxon, b Pair t-test.

Table Change in the participant's home food availability (fruit and vegetabl es) and parental feeding practices after the intervention Variable Mean \pm SD p Intervention Group Control Group ? Home food availability Fruit 0.37 \pm 0.11 0.01 \pm 0,06 0.00 a Vegetable 0.54 \pm 0.22 0.03 \pm 0.08 0.00 a ? Healthy eating guidance 0.63 \pm 0.57 0.09 \pm 0.34 0.00 b ? Monitoring 2.35 \pm 2.26 0.11 \pm 0.36 0.00 a ? Parent pressure -0.14 \pm 1.07 -0.09 \pm 0.34 0.04 a ? Restriction 0.24 \pm 0.76 0.09 \pm 0.73 0.01 a ? Child control -0.14 \pm 1.13 -0.71 \pm 1.05 0.00 a aMann–whitney, bIndependent t-test.

Table 1: Distribution of participant characteristics Characteristic Intervention Group (n =28) Control Group (n = 28) (n) (%) (n) (%) Children's Age (years old) 3 0 0 1 3.6 4 5 17.9 414.3 5 16 57.1 17 60.7 6 7 25.0 6 21.4 Mother Primary school graduate 2 7.1 2 7.1 Junior

high school graduate 1 3.6 1 3.6 Senior high school graduate 18 64.3 18 64.3 College graduate 7 25.0 7 25.0 Father Labor worker 4 14.3 4 14.3 Private company employee 14 50.0 19 67.9 Entrepreneur 8 28.6 4 14.3 Civil servant 4 7.1 1 3.6 Mother Housewife/unoccupied 12 42.3 13 46.4 Labor worker 1 3.6 0 0 Private company employee 9 32.1 11 39.3 Entrepreneur 6 21.4 4 14.3 Civil servant 0 0 0 0 Monthly income (rupiah) <2.000.000 5 17.9 8 28.6 2.000.000–3.000.000 18 64.3 18 64.3 >3.000.000 5 17.9 2 7.1 Table 2 that income the increase the fruit vegetable home. intervention, >3.000.000 in group in increase the availability fruit vegetables home more equal to 1–3 time/week.

Table 2: Income distribution on the average home food avaibility (fruit and ve getables) in the intervention and control group Monthly income (Rp) n Mean \pm SD n Mean \pm SD Intervention Group Control Group Before intervention After intervention Before intervention After intervention <2.000.000 Fruit 5 0.46 \pm 0.29 0.78 \pm 0.24 8 0.27 \pm 0.12 0.32 \pm 0.09 Vegetable 0.66 \pm 0.23 1.15 \pm 0.27 0.36 \pm 0.14 0.41 \pm 0.09 2–3000.000 Fruit 18 0.35 \pm 0.20 0.76 \pm 0.25 18 0.37 \pm 0.18 0.37 \pm 0.17 Vegetable 0.45 \pm 0.26 1.01 \pm 0.30 0.47 \pm 0.19 0.48 \pm 0.13 >3.000.000 Fruit 5 0.45 \pm 0.11 0.78 \pm 0.10 2 0.41 \pm 0.13 0.42 \pm 0.06 Vegetable 0.71 \pm 0.29 1.23 \pm 0.18 0.58 \pm 0.23 0.69 \pm 0.25 Based Table 3 , were significant differences in home food availability (fruit and vegetable), eating and before after was booklet and counseling in the intervention group (p < 0.05), that was an after However, there were no differences in parent pressure, restriction and control and intervention (p 0.05).

on Table 4 in the control group, there was a significant difference in child control < However, were differences in food (fruit vegetable), eating monitoring, pressure, restriction before and after intervention in control group (p = 0.05). Based Table 5, intervention that were differences home food (fruit vegetable) eating guidance, parent restriction, child control between the intervention group and control group (p < 0.05). 164 https://oamjms.eu/index.php/mjms/index clearer the to understand content presented and assist educators in conveying the content. While, counseling is a two-way communication process to between and to and client [41].

Media and are in information making easier someone understand that considered or complicated A study that booklets were effective for increasing knowledge as well as one's to consumption fast food and high-calorie and fat foods [31]. In line with this there a difference nutrition education using booklets and counseling on home food availability in the intervention group, which experienced an in healthy at (fruits and While the group, was no in food before after the intervention. In study, factors influence the food (fruit vegetable) families high provide vegetables and than with incomes. with an of >3.000.000/month more vegetables and fruit at home.

The effect of nutrition education with and without booklet media with and without counseling and the association with parent feeding practices The a knowledge nutrition, more will paid the and of [42]. in that are are basis influencing person's health in case, parents. education is a field of knowledge that allows a person to choose maintain diet on principles nutrition [42], Based the of study, there were significant differences in parent feeding practices eating and before after education the group.

While in the control group there was no difference before after intervention. results in with in group mothers have aged months underweight, leaflets counseling, shows there a in attitude giving feeding to leaflets [44]. research a group of mothers who had under-fives with underweight aged years, nutritional the results that was significant on motherknowledge the patterns toddlers experienced increase vegetable, and side dishes [45]. It can be said that parents who receive nutrition will healthy practices to their children by modeling, teaching, and encouraging children eat and such setting example for children by consuming vegetables and fruit, explaining the benefits of vegetables and fruit, seducing. If child vegetables fruit small ask the reason if the child does not finish and give praise if the child wants to eat vegetables and fruit. The of as is form implementation the of for to consume foods.

who introduce various of and to children, always information to importance of vegetables fruit children, always to children children to vegetables fruit, encourage to their of and until as recommended by the WHO. The role of parents (mother) as the initiator can be seen from the presence or of motherrole determining meals. This role can be seen from the mother in determining menus, spending budgets to purchasing vegetables and fruit as well as determining the types of preparations vegetables fruit.

also a role initiators giving the to the determine vegetables fruits buy help processing and on day children want eat vegetables fruit the and are purchased according to their wishes [46]. In the intervention group, there was no difference in feeding (parent restriction and control) and the It can said mothers have given education not able implement limit foods home, forced, mothers still their to the they to consume by themselves. This can be due to the provision of nutrition education in this study only once a month with a of min, that have fully implemented on foods home and let children the they to consume.

A study that were in the of complementary between groups who were given nutrition education using leaflets and counseling with leaflets only, where the frequency of nutrition education was 1 time/month for 3 months with a duration of 15–20 min. Research in the group of mothers who toddlers that provision nutrition education 3

times shows an increase in body weight [47]. Therefore, the of education be effective addition media methods and it necessary pay to frequency of providing nutrition education. Conclusion This research based on the results of the study, nutrition education using booklet media and counseling Herawati et al.

Nutrition Education Using Booklet Media with and without Counseling and the Association with Home Food Availability and Parent Feeding Practices in Preschool Children Open Access Maced J Med Sci. 2022 Jan 03; 10(T8):160-166. 165 is for changes home availability, eating and It not parent restriction child control behavior. Suggestions for further research are to make nutrition education more effective and to increase the frequency of nutrition education. References 1. Ministry Health The Indonesia. Basic Research 2018. Health and Development Department; 2018. 2. Provincial Office the Region Yogyakarta. Health of Special of 2019. Yogyakarta: Health of Special of Yogyakarta; 2019. 3.

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