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## Lift The Flap Storybook to Grow and Raise Awareness about Sugar Intake in Early Childhood and Their Parents

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### ABSTRACT

This research entitled Lift The Flap Storybook to Grow and Raise Awareness about Sugar Intake in Early Childhood and Their Parents. The purpose of this research is to develop a media to grow and raise understanding of the balanced proportion of sugar intake in early childhood and their parents. The expected benefit from this research is to provide educational media that is easy to use and understand, and does not harm children, besides that it can instill awareness of healthy living from an early age and an understanding of the importance of balanced food intake by parents for family members. This research is a development research (R & D) using a qualitative approach as a data collection and analysis process. The subject of this research involved 20 parents who have early childhood as participants/media users and also three experts in the field of early childhood education, graphic design, and language as validators. The results of this research showed that: a) among the 20 participants who were involved in the study, 9 families had a pattern of excess sugar consumption, b) the results of media feasibility validation by experts show that the content, design and language in the media are in the good and very good categories, c) the results of trials related to the effectiveness of the use of media by users (parents and children) show that there is an increase in awareness as indicated by changes in sugar consumption patterns in children and parents (families) which initially tend to be more balanced..

**Keywords :** *Lift The Flap Storybook; Sugar Intake Awareness; Early childhood and Parents.*

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### Article history :

*Received: 10 Agustus 2020*

*Received in revised form: 10 September 2020*

*Accepted: 1 November 2020*

*Available online: 1 December 2020*



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## INTRODUCTION

The increasing number of non-communicable diseases in recent years, such as hypertension, cardiovascular disease, stroke and others, is known to be closely related to changes and habitual lifestyle patterns, one of which is manifested in the pattern of daily food consumption. This food consumption pattern is related to the intake of foods that contain heavy calories such as sugar<sup>1,2</sup>.

Regulation of the Minister of Health of the Republic of Indonesia No. 30 of 2014 and WHO (2015) have stipulated the inclusion of information on sugar content and health messages for processed food and ready-to-eat food. The health message states that the limit for sugar consumption is below 50 grams per person per day. The sugar intake that is consumed comes from jelly, gelatin, syrup, jam, chocolate, candy, honey, brown sugar, sugar, and artificial sweeteners. For the group of children aged 0-12 years, most sugar consumption comes from jelly, syrup, jam / jam, and candy.<sup>3,4</sup>

Based on previous research, there are several explanations related to the effects of sugar consumption, including: 1) being overweight in many cases is closely related to changes and habitual lifestyle patterns, one of which is manifested in the pattern of daily food consumption. This food consumption pattern is related to the intake of foods that contain heavy calories, such as sugar. In addition, excess sugar consumption is also closely related to the tendency of diseases such as diabetes<sup>5</sup>; 2) Overweight and obesity are associated with increased blood pressure, disease, and cardiovascular death in adulthood<sup>6</sup>; 3) Excessive sugar consumption can increase the risk of dental caries and obesity, in children. Then related to cases of non-communicable diseases in the age group of children, although hypertension, heart disease, and stroke usually occur in adults, this disease can start in children. Several epidemiological studies have reported that the prevalence of high blood pressure has increased significantly in children and adolescents. High blood pressure as a child will usually cause hypertension as an adult.<sup>7-10</sup>

Considering the increasing prevalence of non-communicable diseases which is triggered by the consumption of sugar intake which tends to be more than recommended, it is important to make efforts to increase awareness and understanding of balanced nutrition, which includes the ideal proportion of sugar consumption. As part of the effort to increase knowledge, understanding, and public awareness regarding the balanced proportion of sugar consumption, researchers are interested in conducting research that focuses on developing educational methods and interventions through the lift the flap storybook as an effort to increase understanding and awareness of the balanced proportion of sugar intake in society, especially early childhood and their parents.

Related to the use of the Lift The Flap book (windowed book) as an interactive medium in learning, there are several studies that discuss this, including lift the flap book (windowed book) which is used as: 1) a medium to introduce some concepts of knowledge such as metamorphosis in primary school student groups<sup>11</sup>; 2) media to introduce the concept of myopia (nearsightedness) to children<sup>12</sup>; 3) media to introduce examples of traditional clothing forms to children<sup>13</sup>; 4) median to improve

mathematical reasoning abilities of elementary school students and its effect on creative thinking skills and self-actualization<sup>14,15</sup>.

This research is important to do considering the following points:

- 1) Education, especially education in the family, still has a major role in developing understanding and cultivating positive character and behavior habits.
- 2) The focus of research subjects on early childhood and parents is deemed effective in instilling understanding and awareness regarding sugar intake limits. The early age phase is the phase where an individual is at a very rapid stage of cognitive development in receiving and processing the information received. It is possible to accept and internalize knowledge related to character cultivation and positive behavior habits in an individual at an early age.
- 3) The delivery of information that is carried out in a personal, fun, and full of warmth in parent-child interactions through interactive story media in the form of a lift the flap storybook is expected to provide meaningful experiences to both children and parents, so that information related to the implementation of nutrition education, especially regarding proportions balanced sugar intake can be accepted and internalized in the child.

The focus of this research is described in the following 3 questions:

1. What is the pattern of sugar consumption in children aged 4-5 years and their parents?
2. How is the media development for lift the flap storybook to grow and increase awareness about sugar intake in early childhood and their parents?
3. What is the feasibility of the media for the Lift The Flap Storybook book that has been developed to be used and can be used by parents and children?

## METHOD

The research design used in this study is a "Research and Development" approach combined with a qualitative approach in data collection and analysis. The stages in this research consisted of 4 steps which were modified from the research and development stages proposed by Borg and Gall, namely:<sup>16</sup>

### 1. Data collection stage

The data collection stage is carried out to determine the data needs in the field, which can be done by means of literature study and field studies.

- a. Needs analysis
- b. Literature study about the limit of the proportion of sugar consumption and the impact if the proportion is not balanced.
- c. Literature study on interactive learning media for early childhood

### 2. Planning Stage

The planning stage begins with: 1) determining the focus and research objectives; 2) determine the research subjects; 3) compile the design of the instrument used in the study; 4) planning a draft book

design for the lift the flap storybook to be made, then continued with the mapping of material / content related to the introduction of sugar as part of daily dietary intake; consumption limits; and health effects if consumed unbalanced. At this stage, at the same time planning a guidebook design that parents can use as media users.

### 3. Product development stage

At this stage, it begins with collecting the materials, managing the materials, then producing them into an lift the flap story book which is then carried out by the editing and printing process.

### 4. Product validation and testing stage

Books that have been printed are then evaluated, the form of evaluation of the book product is validation, which consists of two validations, namely validation of material experts, and validation of media experts. From here it will be obtained product feasibility data and expert advice. The suggestions from the experts are then used for stage I product revisions, the revised results from stage I are then used for second validation, namely to users, then input and suggestions from media users are used for stage II revisions.

The subjects involved in the stage II validation process as media users were determined based on the determination of subjects / participants in qualitative research which was directed not at a large number of participants but on typical cases according to the specifics of the research problem. In addition, the determination of the subject is also not directed at representation in terms of random numbers or events, but on context compatibility.<sup>17</sup> Based on this explanation, the researcher then determined the general criteria for the subject / participant of media users in the study as follows: 1) Parents with early childhood between 4-5 years; 2) children and / or their families (parents) tend to have less / unbalanced sugar consumption patterns.

The research data collection was carried out by several methods, including: questionnaires and interviews. The data analysis in this study was carried out by using qualitative data analysis techniques which included several activity streams; 1) transcripts of interview results and questionnaire results recap, 2) data reduction, 3) analysis, 4) data interpretation, 5) data triangulation.<sup>18</sup>

## RESULTS AND DISCUSSION

### **Sugar Consumption Pattern in Early Childhood Age 4-5 years and their parents.**

Data related to sugar consumption patterns in early childhood and parents were taken through purposive sampling technique through Posyandu groups in 2 villages in Lamongan district, namely Made Village, Lamongan District and Bedahan Village, Babat District, Lamongan Regency. The data was collected through a questionnaire instrument / questionnaire filled out by parents. From the data collection, 20 participants were selected, namely parents (housewives) with various professions, who have children and families whose sugar consumption patterns are not proportional. Of the 20 parents who were selected and willing to participate in this study, 9 families had a tendency to consume excess sugar.

Apart from going through a questionnaire, researchers also conducted interviews with the participants. From the interview process, several participants, namely housewives from various professions, admitted that they did not know that there were normal limits / proportions in the consumption of sugar in children and families. They tend to provide foods that children like as long as it can increase children's appetite. The conclusion of the data is obtained, for example, from the following interview results:

Researcher Questions:

*"Do you know or have heard information that there are normal limits for sugar consumption for children and families?"*

Subject 'DDK':

*"Don't know, miss. I cooked as usual, not thinking and measuring (the proportion of sugar). But indeed my children and my family tend to like sweet things. Moreover, A (the subject's first child). he will not drink milk unless sugar is added. for me the important thing is that the child wants to eat it.."*<sup>19</sup>

Subject 'SGT':

*"Oh, right? There are restrictions like that ?. Before my child was one year old, even if I made team rice or porridge for children, I always added sugar or salt, so that it had a taste and the children wanted to eat it. Children also really like sweets, chocolate too. Ice cream almost every day. I don't know how to control it, because I also work. The child at home with his grandmother. These teeth have also started to become porous and there are holes."*<sup>20</sup>

Based on the results of the interview, it was found that the source of sugar consumed by children came from added sugar in milk, chocolate, and ice cream. If referring to the results of the analysis of the SKMI (Indonesian Food Consumption Survey) data presented by Atmarita<sup>5</sup>, there are two kinds of sugar which is consumed daily, namely, sugar that comes from fruits, such as fructose, or comes from milk (lactose), and sugars added to food and beverages, such as granulated sugar (sucrose). Type these two, known as "added sugar" are likely to be contributing to events obesity.

### **The Development of Lift The Flap Storybook to Grow and Raise Awareness of Sugar, Salt and Fat Intake in Early Childhoods and Parents.**

In the first step of developing Lift The Flap Storybook to Grow and Increase Awareness of Sugar Intake in Early Childhoods and Parents, researchers conducted preliminary surveys and interviews to answer and fulfill these needs. The results of the survey and initial interviews have been presented in the previous explanation.

Then related to the availability of information media to grow and raise awareness about sugar intake, it can be said that parents have not found the right media to inform the proportion of sugar consumption to children. So far, information related to this has only been obtained from casual information, for example from counseling at posyandu, early childhood education units, and from TV

or other mass media. This information can only be accessed and known by some parents, but cannot be accessed and known by children.

The data is summarized for example from the following sample excerpt from the participant interview:

Researcher's questions:

*"After you know the information about the proportion of sugar consumption for children and families. How do you pass this information on to children? What media do you use so that the information is easy for children to understand? "*

Subject 'TN':

*"There is no special media that I use to tell children about the consumption of food they should eat, it only informs at a glance the dangers of consuming excessively food and drinks that they are allowed to eat"<sup>21</sup>*

Subject 'MST':

*"I convey information on the proportion of sugar intake by telling them which foods and drinks are good and bad for them to consume, verbally only, through conversations, without using the media"<sup>22</sup>*

Subject 'DF':

*"Actually, I need a suitable media for children to tell them how much they can eat foods that contain sugar. but because so far we only get the information from posyandu or TV, we have to convey it to children who cannot immediately get and understand the information"<sup>23</sup>*

Information on the balanced proportion of sugar consumption so far is only limited to macro regulations<sup>3</sup> and guidelines<sup>4</sup>. There is no policy strategy or promotion program for a healthy lifestyle that can be directly applied in people's daily lives, especially those related to a nutritionally balanced diet.

After knowing the description of the real problems encountered in the field, the researcher then carried out a literature study and analysis of previous research journals that discussed the limits on the proportion of sugar consumption and its impact if it was consumed in an unbalanced proportion. Researchers also conducted literature studies and literature reviews related to interactive learning media that can help to foster understanding and awareness in early childhood.

At the planning stage the researcher then began to compile the design of the research instrument including the draft of the Lift The Flap Storybook design to be used, and also the draft of guidebook for parents in using the Lift The Flap Storybook. This stage was then continued with the product development stage, and then validation and trial stages .

### **Validation and the Feasibility of the Lift The Flap Storybook media that has been developed to be used by parents and children.**

#### Feasibility Test Strategy

A comprehensive assessment of the feasibility of Lift The Flap Storybook was used to achieve the objectives of rational validation. This was done by the researcher by conveying the media accompanied by an assessment instrument in the form of a scale (quantitative data) and suggestions form (qualitative data) to the expert validator. Thus the validator can validate the media made with detailed response techniques.

The validation results of the lift the flap Storybook by experts and practitioners.

To get maximum results, this lift the flap storybook has been validated by three experts. One expert in the field of Early Childhood Education, to validate the suitability of materials for early childhood. An expert in graphic design assessed the suitability of book image designs with the content and conditions of early childhood. And the third validator was a linguist who seen the suitability of the language used for early childhood. From these three experts, it was concluded that in terms of content, design, and language in the media, it was assessed in the good and very good categories.

Besides being validated by experts, this media has also been tested by media users in the field, in this case 9 parents who have early childhood whose families have a tendency to consume excess sugar. Aspects that are evaluated by users are the effectiveness, benefits and contribution of the media towards the intended use of the Lift The Flap Storybook. The test results related to the effectiveness of the use of media by users are presented in the pre-test and post-test table results as follows:

Tabel 1. Result of Pre test - Post Test of Effectiveness of Using Lift The Flap Storybook

No	Subject Initial Name	Pre-test score	Post-test score
1	RTA	4	2
2	ABK	4	3
3	SYN	4	2
4	SGT	3	2
5	MST	4	2
6	DDK	4	2
7	DF	4	2
8	TN	4	2
9	RDA	4	2

Description of pre-test / post-test scores / points:

- 4 = The pattern of sugar consumption tends to be very excessive
- 3 = The pattern of sugar consumption tends to be excessive
- 2 = The pattern of sugar consumption tends to be good
- 1 = The pattern of consumption of sugar is sufficient

Based on the data exposure in the table above, it can be said that after using the lift the flap storybook that was developed, there was an increase in awareness as indicated by changes in sugar consumption patterns in children and parents (families) who initially tended to be more balanced.



## CONCLUSIONS

Based on the analysis that has been done, it can be concluded that: 1) it is necessary to develop interactive media, namely the lift the flap storybook to grow and increase awareness of the proportion of sugar intake in early childhood and parents. This is based on the findings that: 1) the pattern of sugar consumption in the participant's family tends to be excessive, 2) the understanding and awareness of participants about the balanced proportion of sugar intake for children are not yet available, and 3) there is no interactive media that can be used optimally to provide understanding and awareness of children and their parents about the balanced proportion of sugar intake and its impact if consumed in excess. Media development is carried out through several steps including the following stages: 1) collecting initial data regarding the condition of the participants' sugar consumption patterns and the needs of media development; 2) planning which includes determining the focus and development objectives, determining research subjects / participants; preparation of research instrument designs; draft preparation of lift the flap storybook which includes; designing preparation, material / content mapping and language suitability; 3) product development which includes collecting materials, managing materials then producing them into a storytelling lift the flap book which is then carried out by the editing and printing process; and 4) product validation and testing which includes the validation process by experts and product testing by users (participants). The validation and testing process of the media showed that the content, design, and language in the media were in the good and very good categories and in accordance with the objectives of their development. The results of testing the effectiveness of the use of media by users (parents and children) show that after using the lift the flap storytelling media developed, there is an increase in awareness as indicated by changes in sugar consumption patterns in children and parents (families), which initially tend to be more balanced .

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