CHAPTER 1
INTRODUCTION

1.1 Background

Health at the toddler stage plays a major role in shaping quality health for a nation (Ginting *et al*., 2024). Children at the age of toddlers are in a very rapid process of development and growth, so health problems can have an impact on reducing the quality of life of children in the future. Toddlers with healthy growth and development increase the potential to become productive and highly competitive individuals, which plays a role in building quality human resources (HR). Therefore, attention to the health of toddlers must be carried out from the early period of growth, because this period is known as the *golden age* which determines success in forming the basis of child development.

The toddler period is often referred to as the *golden age*, starting from the age of 0-5 years where there is rapid development in various aspects. This is in line with the opinion of Luh Ayu Purnama Dewi (2017 Rijkiyani *et al*., 2022) that this period is called the golden period because more than 100 billion brain cells are ready to be stimulated, so that the potential for child development can take place optimally. During this period, children experience various rapid developments ranging from physical, mental, and cognitive growth. This view is also in line with the opinion expressed (Ginting *et al*., 2024), that the health of toddlers has a great influence on determining future development and welfare, because of the rapid physical and cognitive growth in toddlers, special attention is needed so that children grow optimally.

In today's modern society's lifestyle, there are changes that affect consumption patterns among children that tend to shift towards being unhealthy and worrisome, as well as potentially inhibiting growth and development. One of them is foods that contain high sugar are now easy to get, such as chocolate, ice cream, and sweets that are easy to find in the area around home and school. This habit is also influenced by the parenting style of parents in supervising and understanding the nutritional content that will be consumed for children. This situation makes children need support from parents in controlling sugar levels in the food and drinks consumed. According to Lohan *et al*. (2016)Rahmawati & Satiti, 2024) This can affect children's eating habits in daily life which can later have a big impact on their health.

In addition to unhealthy consumption patterns, rapid advances in digital technology also have an impact on changes in children's behavior, one of which is reducing the level of

physical activity in children. The ease of digital technology in accessing entertainment such as television, mobile phones, and shows that offer attractive visuals, tends to make children more interested in spending time watching in front of the screen than playing outside the home. Meanwhile, physical activity is important for motor development and helps control blood sugar levels. The result of these lifestyle habits, if applied repeatedly since toddlerhood, can also potentially increase the risk of health problems such as the emergence of symptoms of non-communicable diseases (NCDs).

Non-communicable diseases are non-communicable health problems (Zulsefriandi *et al*., 2023). This disease is not caused by a bacterial infection, but is influenced by an unhealthy lifestyle, poor diet, lack of activity, as well as genetic and environmental factors. Then, the types of non-communicable diseases according to the World Health Organization article data include cardiovascular diseases (heart attacks and strokes), cancer, chronic respiratory (chronic obstructive pulmonary disease and asthma), and diabetes mellitus (*World Health Organization*, 2025). One of the non-communicable diseases that is often experienced as a result of high sugar consumption patterns and lack of physical activity is diabetes.

Diabetes Mellitus (DM) is a metabolic disease condition with signs of high blood sugar levels caused by abnormalities in insulin secretion, insulin action, or both (Marbun *et al*., 2022). According to data from the International Diabetes Federation (2021), Indonesia ranks fifth in the world as the country with the most diabetics, with a total of 19.47 million or 10.6% of the total population of 179.72 million people (Rastipiati *et al*., 2025). The types of diabetes that cause diabetes itself are divided into two, namely type-1 and type-2, type-1 diabetes occurs because the sufferer cannot produce insulin properly so they have to inject insulin regularly. Meanwhile, type-2 occurs due to a poor lifestyle, such as excessive sugar consumption which makes blood sugar levels rise above normal limits. This is in line with the opinion by Angelina & Hermanto (2022), that diabetes arises due to increased blood sugar levels due to insulin resistance and reduced insulin production from the pancreas (Angelina & Herwanto, 2022). In this study, we will only focus on the prevention of type 2 diabetes due to a poor lifestyle.

Current cases of diabetes have not only attacked adults, but also began to be detected in the age group of toddlers and children. According to Linda Hasibuan in cnbcIndonesia.com (2023), there are around 1645 children in Indonesia with diabetes, with 46% of the age group of 10-14 years, 31.5% of the age group of 5-9 years, and 19% of the 0-4 years old

(Hasibuan, 2023). With the increasing cases of diabetes that have begun to attack the toddler age group, it shows the need for diabetes prevention at the age of toddlers that emphasizes a healthy diet, daily sugar restrictions, and sufficient physical activity from early childhood. Toddlers at risk of diabetes are influenced by unhealthy diets such as sugary foods and drinks, and lack of physical activity is also a contributing factor for diabetes. This condition will become a serious problem if it is not prevented immediately.

The role of parents is very important in supporting the development of toddlers by consistently providing nutritional intake according to their age stage. Especially mothers who form healthy habits for children, such as setting limits on the intake of sugar consumed in the child's body, and encouraging their daily physical activity. Good knowledge from a mother makes her able to choose various types of food that are in accordance with the portion of the child's needs in fulfilling balanced nutrition (Nudin *et al.*, 2025). On the other hand, the vulnerability of parental monitoring makes it easy for children to get used to consuming foods and drinks high in sugar, coupled with the lack of children's activities in daily life increases the risk of diabetes symptoms in children under five.

Therefore, parents need to realize their attention through setting a healthy children's diet and sugar limits every day, then encouraging children to be more active and agile as an effort to control sugar. Parents can influence the formation of children's eating habit behaviors, by imitating parents' habits when they are in the home environment (Bauer *et al*., 2011 in Muhimah & Farapti, 2023). Furthermore, parents must also monitor the health of toddlers every month to detect possible disorders of high sugar levels in the body. However, in addition to parents' efforts in maintaining diet and health monitoring in toddlers, parents also need to create a healthy surrounding environment to support healthy eating habits for toddlers.

Previous studies relevant to diabetes in children showed a significant association between parenting and the incidence of diabetes in school-age children ($p = 0.006$) (Rahmawati & Satiti, 2024). Although the study was conducted in a higher age group than the focus of this study, it still has the same findings, namely that the findings confirm that parental behavior and parenting play an important role in shaping children's health risks. Both school-age children and toddlers, parents remain the main decision-makers in regulating children's diets and children's living habits.

The determination of the age range of toddlers of 2-5 years in the study was chosen because of the presentation from Mrs. Warda as an assistant midwife of KIA and the choir

of PTM Tanggulangin, At this age, the child has completely eaten family food and has started consuming various types of food. Therefore, the risk of excess sugar and fat intake begins to increase, so GDA testing is relevant to monitor blood sugar balance as an early detection effort.

Figure 1.1 Interview with Midwife Pangestu Putri Laily, A.Md.Keb
and observation of GDA screening activities of the Kalitengah Village posyandu
(Source: Personal Document, October 02, 2025)

The location of observation and research interviews in the field was carried out during the screening of blood sugar levels for toddlers in two villages in the Tanggulangin District area, namely Kalitengah Village and Banjarasri Village. This is done to find out the results of GDA screening and direct interviews with parties involved in the implementation of activities in the field. The results of observation of posyandu activities at the Chairman of RT03/RW 03, Kalitengah Village. It was found that toddlers with GDA test results above 140 mg/dL, this figure indicates a condition that needs to be watched out for as a prediabetes stage before later at risk of developing into diabetes.

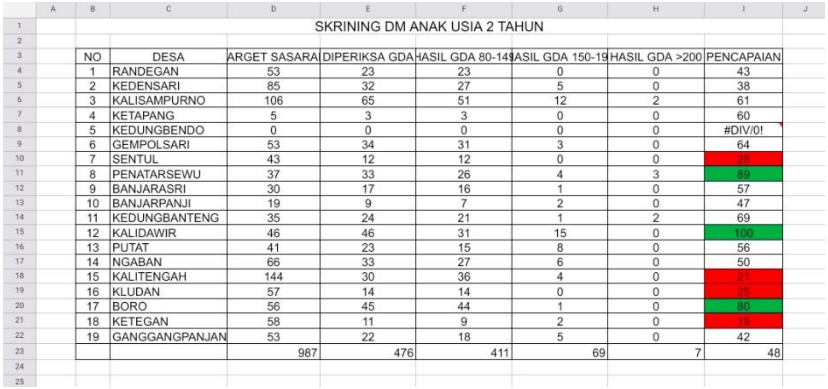
According to the explanation of the midwife of the Puskesmas Tanggulangin who is in charge of Kalitengah Village, Mrs. Pangestu Putri Laily, A.Md.During the GDA screening and counseling activities with parents, "The most influential is the consumption of chocolate and strawberry uht milk. For symptoms that are physically visible are not present, weight is also not necessarily a symptom of diabetes, on the contrary, most of those who are thin are even those who have diabetes, for overweight toddlers it is assumed that too many calories are also not necessarily diabetic".

Figure 1.2 Interview with Mrs. Endah Setiana
parents of prediabetic toddlers in Kalitengah village
(Source: Personal Document, October 02, 2025)

The activity continued with an interview with Mrs. Endah Setiana, as a parent of a toddler with a temporary condition in the prediabetes category, "My child's GDA after being screened the result was 150 mg/dL, my child does like to eat ice cream because I sell food so I almost often eat sweet, but so far the child has never felt weak, even very active. It is also possible that the influence of too much sugar consumption is ", explained Mrs. Endah Setiana. According to the explanation of halodoc.com normal blood sugar levels in children under 6 years old are between 100-200 mg/dL, blood sugar levels before meals are around 100 mg/dL while after meals and before bed are close to 150 mg/dL.

Figure 1.3 Interview with Midwife Mrs. Fitri Hermawanti, Amd.Keb. and Assistant Midwife Wardatan Noor, AMK. and field observation of GDA screening activities of Banjarasri village posyandu
(Source: Personal Document, October 09, 2025)

The next step is to continue observations in the field as well as interviews at different posyandu, namely the Banjarasri Village Hall. According to the explanation of Mrs. Warda as an assistant midwife and person in charge of the Banjarasri Village GDA screening program, "For the GDA rate of toddlers who are in the prediabetes stage enter the range of 150 mg/dL – 199 mg/dL, while in the diabetes category stage enter the range of >200 mg/dL".



SKRINING DM ANAK USIA 2 TAHUN

NO	DESA	ARGET SASARA	DIPERIKSA GDA	HASIL GDA 80-149	ASIL GDA 150-19	HASIL GDA >200	PENCAPAIAN
1	RANDEGAN	53	23	23	0	0	43
2	KEDENSARI	85	32	27	5	0	38
3	KALISAMPURNO	106	65	51	12	2	61
4	KETAPANG	5	3	3	0	0	60
5	KEDUNGBENDO	0	0	0	0	0	#DIV/0!
6	GEMPOLSARI	53	34	31	3	0	64
7	SENTUL	43	12	12	0	0	28
8	PENATARSEWU	37	33	26	4	3	89
9	BANJARASRI	30	17	16	1	0	57
10	BANJARPANJI	19	9	7	2	0	47
11	KEDUNGBANTENG	35	24	21	1	2	69
12	KALIDAWIR	46	46	31	15	0	100
13	PUTAT	41	23	15	8	0	56
14	NGABAN	66	33	27	6	0	50
15	KALITENGAH	144	30	36	4	0	21
16	KLUDAN	57	14	14	0	0	25
17	BORO	56	45	44	1	0	80
18	KETEGAN	58	11	9	2	0	19
19	GANGGANGPANJAN	53	22	18	5	0	42
		987	476	411	69	7	48

Figure 1.4 Recap of DM screening data for children aged 2-5 years
(Source: Puskesmas Tanggulangin Midwife Document, October 08, 2026)

Based on the results of the recap of GDA screening data for 2-year-olds in 19 villages in the Tanggulangin District area given by Mrs. Warda as a skilled nurse - PTM Tanggulangin Choir and assistant midwife for Maternal and Child Health (KIA) Mrs. Fitri Hermawati, Amd.Keb, the results of the data recap in September 2025, there were 69 toddlers with GDA between 150 mg/dL – 199 mg/dL and 7 toddlers with GDA above >200 mg/dL.

The results of the data cannot be fully used as a strong basic reference, because there is a possibility of a decrease or increase in the number of cases, for this reason the posyandu program has a target GDA screening period of at least 3 months, so that it can be declared to be diabetic. However, from the data, it can be seen that there is an initial tendency of prediabetes to diabetes risk in toddlers to begin to appear in the region, which is used as a reference to show the urgency of diabetes prevention and health education for parents of toddlers aged 2-5 years, although the number of cases is not too high. Furthermore, the author collected data through a questionnaire in general with the criteria of parents of toddlers aged 2-5 years. This aims to be able to find out the picture of parental behavior and knowledge in a more representative manner.

This questionnaire is used to find out the level of awareness and habits of parents towards daily parenting in toddlers, ranging from food patterns to lifestyles applied to toddlers. Based on the questionnaire filled out by 130 parents with the respondent's age category, which is dominated by the age range from 25 to 35 years. The results of the questionnaire data explained that 87.7% or 114 parents knew that diabetes can also attack categories starting from the age of toddlers, 12.3% or 16 parents do not know that diabetes can also attack categories starting from the age of toddlers. The results of this percentage level will be a serious problem for children's development in terms of diabetes prevention

and result in delays in early treatment, so that the risk of diabetes in the age of toddlers is even higher.

Thus, the author chooses the Puskesmas Tanggulangin as *a stakeholder,* which is considered a public health service center and has a strategic role in educational and promotive efforts for children's health in the Tanggulangin District area, Sidoarjo Regency.

Puskesmas Tanggulangin it also runs promotive and preventive programs related to mothers and children, as well as the prevention of non-communicable diseases (NCDs) such as diabetes. In addition, it also has a wide network through the posyandu program, as well as counseling activities in the community, so that it becomes an ideal partner to help spread education on the importance of diabetes prevention in toddlers. The health center's approach with the community makes campaign activities considered more effective and on target. Plus a new program, namely GDA screening for toddlers, which has only been carried out since September, and has received direct understanding from midwives as health workers who handle posyandu in each village.

From the presentation of these problems, if parental awareness increases, it is hoped that it can reduce the number of diabetes incidence in toddlers aged 2-5 years. Thus, the solution that can be used is through designing a social campaign as a strategic step focused on making parents aware, related to the impact of an unhealthy lifestyle of toddlers and a form of diabetes prevention that begins to attack the age group of toddlers. With the aim of inviting parents to pay more attention to the consumption of sugar content contained in children's diets and often inviting them to do activities regularly.

According to Rogers and Storey (1987), a campaign is a series of structured communication activities aimed at making a certain effect on a number of target audiences that are carried out continuously for a certain period of time (Venus, 2018). Social campaigns were chosen because of their power to influence behavior and shape people's views through an approach that is not only visually appealing but also easy to understand by the public. Then the result of the campaign can be in the form of community involvement in the process of their behavior that changes to change social norms (Arianto, 2021 in Nabilah & Setiawan, 2023).

The real impact of existing campaigns can be seen by showing positive results, for example, stunting prevention campaigns. Campaigns ”Cegah Stunting Itu Penting” It is a national program that is used to increase public awareness of the importance of balanced nutrition, proper parenting, and good sanitation in preventing stunting in children. This

campaign has shown positive results based on the Indonesian Nutrition Status Survey (2024), recording a decrease in the national stunting prevalence to 19.8% from the previous 21.5% in 2023 (Ministry of Health of the Republic of Indonesia, 2025). Through digital media such as the official website of stunting.go.id and the @tp2stunting Instagram account, this campaign disseminates various educational materials in the form of infographic posters and videos. Therefore, this study seeks to design a social campaign on diabetes prevention in toddlers aged 2-5 years, using more creative visual communication strategies. This campaign also aims to protect children under five who have not been exposed to diabetes or prediabetes, so that the risk of these diseases can be reduced as early as possible through limiting excess sugar and forming healthy lifestyle habits from an early age.

The method in designing this campaign uses *design things* that are carried out through 5 stages, the first stage *emphatize*, namely understanding the problem through interviews with the target audience and experts in their fields, conducting observations, conducting *focus group discussions* with several parents of toddlers and questionnaires distributed to parents of toddlers aged 2-5 years. The second stage *is to* analyze all the data obtained at the *empathize stage*. The third stage *of ideate* focuses on *brainstrorming* and *mind mapping* from the results of the analysis that has been carried out to produce ideas and solutions to the problems faced. The fourth stage *of the prototype* is to carry out the stages of making a campaign design design. Finally, the fifth *stage of the test* is to test the results of the campaign design to the target audience to see feedback, namely the response or response from the target audience and used to see the informative aspects of the campaign design design. Meanwhile, to see the effective aspects of the campaign from after the campaign is carried out, either *offline* by looking at changes in parents ranging from awareness, brushes or actions, and online by looking at the reaction of the target audience such as *likes*, comments and *content sharing*.

Through the design of this campaign, it is hoped that it will have a positive impact by increasing parental awareness in fostering understanding of the dangers of excess sugar in dietary habits and healthy lifestyle activities in toddlers, so that the quality of health of toddlers as part of human resources can be guaranteed in the future.

1.2 Problem Identification

1. According to data from the International Diabetes Federation (2021), Indonesia ranks fifth in the world as the country with the most diabetics, with a total of 19.47 million or 10.6% of the total population of 179.72 million people (Rastipiati *et al*., 2025).
2. According to Linda Hasibuan in cnbcIndonesia.com (2023), there are around 1645 children in Indonesia with diabetes, with the age group of 10-14 years 46%, 5-9 years old 31.5%, and age 0-4 years 19%.
3. Based on the results of a recap of GDA data from 19 villages in Tanggulangin District in September 2025, there were 69 toddlers with GDA between 150 mg/dL – 199 mg/dL and 7 toddlers with GDA >200 mg/dL.
4. The results of the questionnaire filled out by 130 parents explained that 87.7% or 114 parents knew that diabetes today can also attack categories starting from the age of toddlers, 12.3% or 16 parents do not know that diabetes can also attack categories starting from the age of toddlers.
5. This habit is also influenced by the parenting style of parents in supervising and understanding the nutritional content that will be consumed for children. This situation makes children need support from parents in controlling sugar levels in the food and drinks consumed. This is evidenced by the table of the number of toddlers who experience prediabetes to diabetes in the Tanggulangin District area obtained through midwives as campaign *stakeholders*.

1.3 Problem Formulation

Based on the identification of the problem above, it can be concluded that the formulation of the problem is "How to design an effective and informative social campaign to increase parental awareness about diabetes prevention in toddlers aged 2-5 years?"

1.4 Problem Limitations

1. The target in this campaign is parents who have children under the age of 2-5 years old. Age segmentation of parents is determined based on dominant characteristics obtained from the results of *focus group discussions* and questionnaires. The implementation of offline campaigns is carried out in the Tanggulangin District area and online campaigns through social media to reach a wider audience in general.
2. The design of this social campaign focuses on the prevention of type-2 diabetes in toddlers aged 2-5 years, due to an unhealthy lifestyle, especially due to sugar

consumption that exceeds the daily limit which is also exacerbated by lack of physical activity.

3. This campaign aims to invite parents who have toddlers aged 2-5 years, to start taking early prevention actions from type-2 diabetes in toddlers. So that they are not exposed to the risk of the disease.
4. Diabetes prevention this campaign is intended through the application of parental parenting for toddlers aged 2-5 years through supervising healthy food for toddlers, limiting daily sugar doses, regularly doing physical activity, and checking sugar levels.
5. This design does not discuss the medical aspects in depth, diagnosis, or clinical treatment, but rather conveys health information about forms of early prevention of diabetes in toddlers designed through an attractive, educative and persuasive visual communication approach strategy.
6. The campaign media used includes digital media in the form of content on social media and print media such as posters, *leaflets*, pocket books, x banners and merchandise used to support the posyandu program in one of the villages of Tanggulangin District, namely in Banjarasri Village.

1.5 Purpose of Design

1. Increasing parental awareness of the importance of maintaining a healthy diet and lifestyle in toddlers aged 2-5 years to prevent the risk of type-2 diabetes from an early age.
2. Provide educational understanding to parents through visual communication strategies that are engaging, persuasive, and easy to understand.
3. Fostering community participation, in building a positive environment to support healthy lifestyle habits in children as a form of diabetes prevention from an early age.

1.6 Benefits of Planning

1. For Planners
    a. Utilizing the knowledge and theory that has been acquired during their education as a visual communication design student.
    b. Know the process and stages in designing a social campaign to increase parental awareness in preventing diabetes in toddlers aged 2-5 years.
    c. Gain hands-on experience in designing campaign materials based on real needs in the field.

d. Understand the challenges of people's social conditions related to diabetes so as to make designs more acceptable and relevant.
e. Hone practical skills in conducting interviews and field surveys to refine the campaign.

2. For the audience
    a. Increasing public understanding, especially parents, to be more aware of the diet and activities of toddlers about the risk of diabetes.
    b. Encourage community change to create healthy lifestyle habits in daily life.
    c. Helping to provide relevant information media and according to the conditions of the community.
3. For Instance
    a. Assisting the process of disseminating information through campaign media as a support in terms of education about diabetes prevention which is also at risk in toddlers aged 2-5 years.

1.7 Design Framework

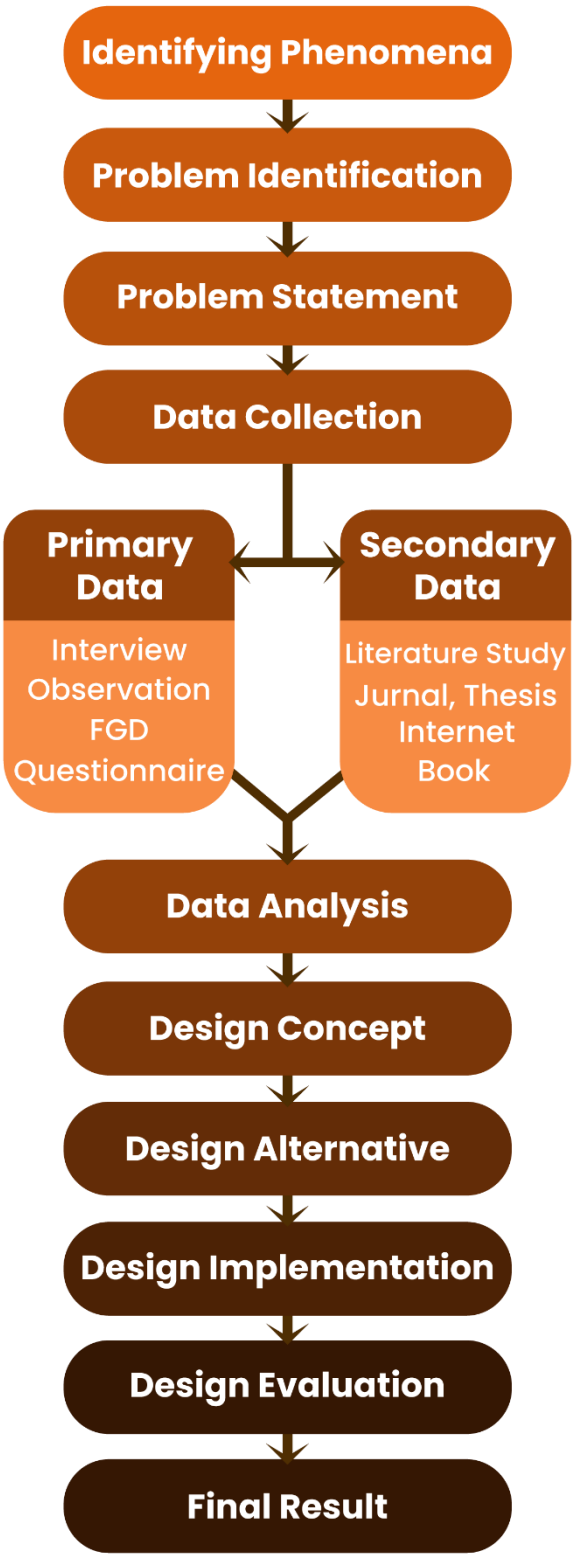


Figure 1.5 Design framework
(Source: Personal Documents, 2025)