

BAB I

INTRODUCTION

1.1. Introduction

Cases of scoliosis in Indonesia are one of the problems that need attention because of its significant number, which is estimated to be 5.4 million people suffering from scoliosis (humas.rsugm, 2024). Scoliosis is classified as a spinal disorder that forms the letter "C" or "S". According to Miller (2012, dalam Ramadhani & Romadhoni, 2022), A change in shape or deformity in the spine curved sideways, which is more than 10o followed by rotation in the vertebrae or spine is a condition of scoliosis. The types in scoliosis are divided into two, namely the non-idopathic and idopathic types. A person can be declared idiopathic scoliosis if a non-idiopathic test has been done but no triggering factors are found (Angelita, 2025). Non-idiopathic scoliosis has a clear cause, usually occurring due to other diseases, namely congenital abnormalities, neurological or muscular disorders, mesenchymal abnormalities, trauma, and infection. Meanwhile, idiopathic scoliosis is a scoliosis of unknown cause. Factors that affect idiopathic scoliosis are genetic, neuromuscular disorders, metabolic disorders, and environmental factors (Syarifah et al., 2025).

Scoliosis often occurs in children aged 10 years and older. According to Wang et al. (2024) in Angelita (2025), 90% of people with scoliosis are caused by idiopathic scoliosis and are categorized under *Adolescent Idiopathic Scoliosis* (AIS). Children with the age of entering puberty, namely 10-18 years old, especially those who are studying at school, are prone to scoliosis. In addition, males have a smaller development of scoliosis than females. This occurs due to the presence of the hormone estrogen which affects bone growth and connective tissue flexibility, so it can be at risk of abnormal spinal growth (Syarifah et al., 2025).

Based on the Decree of the Minister of Health Indonesia in 2021 concerning national guidelines for medical services for the management of adolescent idiopathic scoliosis, generally people with AIS do not feel pain from their condition. However, children who are in the period of growth are prone to increase the degree of curve, so that the curve of the spine can increase. In addition, pain can be caused by an increase in the degree of the curve of the spinal curve and can trigger respiratory disorders and neurological disorders. Thus, these conditions can affect children's comfort, especially in their learning activities. According to Mardiyanti (2021) in (Cahyaningrum et al., 2025), children of growing age, prefer sitting positions that they consider comfortable, such as bending over, leaning on chairs with excessive positions, or hanging legs

while sitting. This can affect back health which can trigger muscle tension, blood circulation disorders, and the spine experiences increased load, so there can be an increased risk of scoliosis.

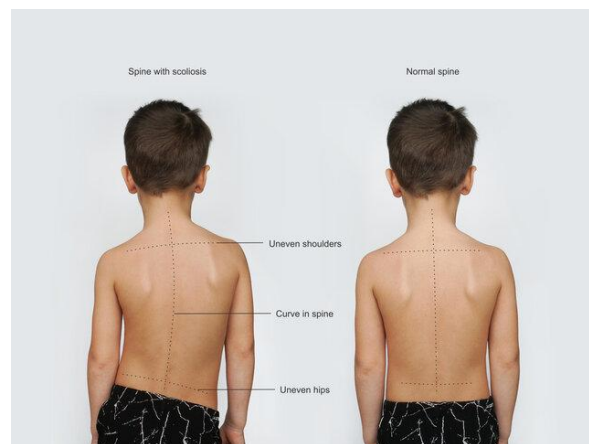


Figure 1. 1. Scoliosis

(Source : <https://www.rspremierbintaro.com/artikel/kenali-tanda-awal-skoliosis-dan-cara-deteksinya-sejak-dini>)

In addition to the incorrect sitting position, children of school age often carry excess weight in their backpacks, such as books, laptops, and lunches. The use of backpacks children tend to carry bags with one side of the shoulder which is more comfortable. This can trigger adverse impacts on the health of the spine such as nerve, bone, and soft tissue disorders so that it can have an impact on changing the shape of the spine (Wahyudin et al., 2021). There is also research conducted by Wahyudin et al. (2021), that there is a relationship between bag load and the risk of scoliosis in adolescents. Yolanda conducted tests on 65 adolescents and the results stated that adolescents who carried bags with weights had an impact on posture so that the spine could be tilted to one side. From this, the designer conducted a questionnaire survey that was distributed to junior high school teenagers aged 13-25 years about the daily weight of bags carried by teenagers in Surabaya. Based on the results of the questionnaire, there were 98 respondents, with the results of 43% of respondents feeling that sometimes their school bags feel heavy, 24% often carry heavy bags, 22% always carry heavy bags, and 11% never carry heavy bags. This proves that many adolescents still do habits that can worsen their posture and increase the risk of scoliosis, so it is necessary to provide education related to the risk of scoliosis so that adolescents can prevent scoliosis as early as possible.



Figure 1. 2. Questionnaire Survey Results
(Source : Personal Document)

Reporting from the UGM Academic Hospital, Indonesia has an estimated 5.4 to 8.1 million people suffering from scoliosis, with a ratio of 8:1 which is more experienced by women than men (humas.rsugm, 2024). In addition, Rangkuti et al. (2023) conducting idiopathic scoliosis screening in schools in Surabaya, by taking a sample of 405 students from 5 regions in Surabaya, namely a total of 81 students from East Surabaya, 81 students from West Surabaya, 81 students from North Surabaya, 81 students from South Surabaya, and 81 students from Central Surabaya. *The screening* was carried out on adolescents aged 12-16 years. From *the screening results*, the prevalence of *Angle of Trunk Rotation* showed that 0.49% of students had a rotation angle of more than 7°. This means that students in adolescence have the potential to experience scoliosis or the degree of curvature of the spine can increase. In addition, based on the results of interviews, data from St. Vincentius A Paulo Hospital or RKZ Surabaya states that there are cases of scoliosis every year with adolescent patients with data in 2023 there are 41 patients, 36 patients in 2024, and in 2025 (January-October) as many as 25 patients. The existence of scoliosis cases at RKZ Surabaya is clear evidence that the condition of scoliosis in adolescents really occurs and is experienced by adolescents in Surabaya.

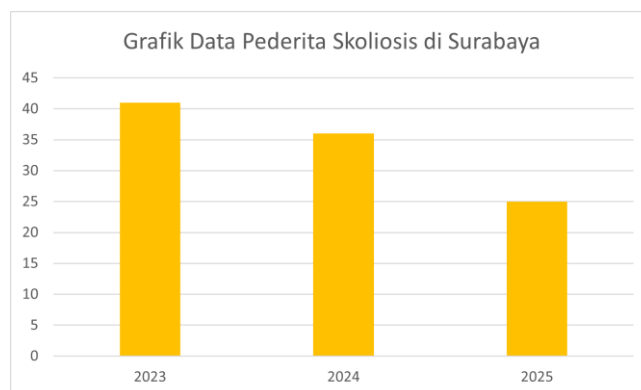


Figure 1. 3. Graph of Adolescent Scoliosis Patients in Surabaya
(Source : Personal Document)

From the results of observations on the internet, it was found that a social campaign with the topic of scoliosis was carried out by the *Scoliosis Research Society*. The campaign focuses on raising public awareness of scoliosis and spinal health through education, and support campaigns from local activities. In addition, the media used in the campaign is in the form of posters distributed through the *Scoliosis Research Society* website which is international and means that it is general so that it is not specific to certain ages and regions.

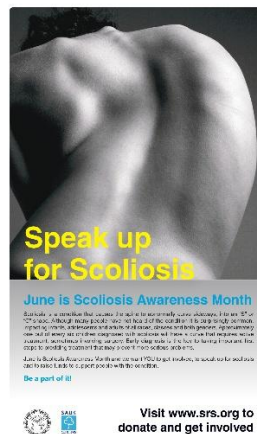


Figure 1. 4, Scoliosis Campaign by *the Scoliosis Research Society*

(Source : <https://www.srs.org/Files/Scoliosis-Awareness-Month/AwarenessMonthPoster-Spine.pdf>)

In addition to the campaign carried out by the *Scoliosis Research Society* with a focus on global campaigns, there are also campaigns related to scoliosis carried out in Indonesia, namely carried out by the Peduli Scoliosis community. The campaign was carried out on social media, namely facebook, twitter / X, Instagram, and Youtube Peduli Scoliosis which provides education related to scoliosis. However, the campaign did not run again after 2017, because the account was no longer active and did not upload new content on its social media, namely with the last post in March 2017.



Figure 1. 5. Scoliosis Campaign by Peduli Skoliosis

(Source : <https://www.facebook.com/peduliskoliosis1/>)

The final project design took the design of a social campaign with the topic of scoliosis by Reynata, (2024) from Multimedia Nusantara University. The title of the final project is "Designing a Social Campaign on the Prevention of the Degree of Curvature of Scoliosis in Adolescents Aged 10-15 Years" which has a geographical segmentation focused on Jakarta and age demographics, namely students aged 10-15 years who focus on people with scoliosis. In the design, campaign media in the form of social media, *billboards*, banners, *go screens*, advertisements on websites, and photoboos were used.

In addition to the campaign designs that have been mentioned, it was found "Designing a 135 Degree Sitting Campaign to Prevent Scoliosis in Children" in the design of the final project belonging to Retananda, D (2019) from Telkom University Bandung. The campaign design targets children aged 6-12 years with the target parents aged 30-50 years.

Based on the results of observations on the internet, it is still rare to find educational campaigns about the importance of preventing scoliosis, especially in children who are vulnerable to scoliosis, namely the age of 13-15 years. The lack of educational campaigns carried out, it is necessary to design an educational campaign to prevent scoliosis in adolescents aged 13-15 years so that adolescents are more aware of the importance of preventing scoliosis risks. The difference between this design and the previous design lies in the target audience that targets teenagers aged 13-15 years and focuses on the Surabaya area.

The high incidence of scoliosis experienced by adolescents, which is around 90% of cases is categorized as adolescent idiopathic scoliosis (Wang et al., 2024 in Angelita, 2025), Therefore, an educational campaign is needed for adolescents to provide understanding and efforts to prevent scoliosis so that adolescents can prevent as early as possible and can avoid the risk of scoliosis. In designing this educational campaign, it has a target audience of adolescents aged 13-15 years or equivalent to junior high school teenagers. *Targeting* has specific goals that have great potential compared to other segments (Yani & Nisa, 2018). Thus, the design of this educational campaign targets adolescents aged 13-15 years because it has a high potential for the risk of scoliosis.

The design design method used in this design is using *design thinking* with 5 stages. In the first stage, *empathize*, interviews, observations, and *Focus Group Discussions* (FGD) were carried out. The second stage *of definition* is analyzed from the results of data obtained from the *empathize process*. The third stage is *the ideate* focusing on brainstorming the results of the analysis that has been carried out. The fourth stage is *the prototype* which is carried out by

making a campaign design design. And the fifth stage is a *test* of a campaign on some audiences to get *feedback*.

The proposition of this design is that there are suspected bad habits that can risk increasing scoliosis or an increase in the curve of the spine carried out by adolescents aged 13-15 years. These bad habits are such as carrying a bag with heavy weights, carrying a bag with only one side of the shoulder, poor posture when sitting or sleeping, and using gadgets for a long time that affects the posture position. Therefore, the hypothesis of this design is to provide education to adolescents aged 13-15 years with an educational campaign to prevent scoliosis. From the educational campaign, adolescents are expected to be able to increase their awareness of making behavioral changes to daily lifestyle habits that are at risk of experiencing scoliosis

With this design, this scoliosis prevention education campaign aims to increase the awareness of adolescents, especially 13-15 years old, to be more concerned about the health of the spine to prevent scoliosis, so that healthy posture in children can be maintained.

1.2. Problem Identification

1. The high incidence of scoliosis is as high as 90% of all cases of scoliosis suffered by adolescents suffering from idiopathic scoliosis (Wang et al., 2024 dalam Angelita, 2025).
2. The need for scoliosis prevention education in adolescents is because based on a questionnaire survey, adolescents have habits that increase the risk of scoliosis, namely as many as 43% of respondents feel that sometimes their school bags feel heavy, 24% often carry heavy bags, 22% always carry heavy bags, and 11% never carry heavy bags.
3. The impact of scoliosis, if not prevented from the beginning, can cause pain in the back, respiratory disorders, and neurological problems so that it will affect comfort in activities (Kemenkes, 2021).
4. The lack of scoliosis prevention education campaigns found on the internet, especially the lack of specific educational campaigns targeting adolescents aged 13-15 years in Surabaya.

1.3. Problem Formulation

The following is a formulation of the problem based on the identification of the problem above:

How to design an effective and communicative scoliosis prevention education campaign in adolescents aged 13-15 years?

1.4. Problem Limitations

1. The design of this educational campaign focuses on early adolescents aged 13-15 years, namely junior high school students as the target of the campaign to prevent the risk of scoliosis.
2. This educational campaign area has a focus on geographical targets in Surabaya.
3. In the design of this educational campaign, it leads to the prevention of scoliosis risk factors, namely focusing on good lifestyle habits in adolescents.

1.5. Purpose of Design

1. Designing a scoliosis prevention education campaign to increase awareness of adolescents aged 13-15 years old about the risk of scoliosis to maintain good posture.
2. Providing educational information for adolescents aged 13-15 years to maintain spinal health through healthy lifestyle habits.

1.6. Benefits of Design

1. For the Author
 - a. To complete the final project of the Visual Communication Design study program as a requirement for graduation at the S1 level.
 - b. To gain insights from the results of the research through the process of designing an educational campaign.
2. For Adolescents
 - a. Providing education, especially to adolescents aged 13-15 years on the prevention of the risk of scoliosis so that they can maintain a healthy posture.
 - b. Increasing adolescents' awareness of the impact of scoliosis risk if prevention is not carried out.
3. For Agencies
 - a. Helping to provide education on the prevention of scoliosis risk to the public in the form of media in educating adolescents aged 13-15 years.

1.7. Design Framework

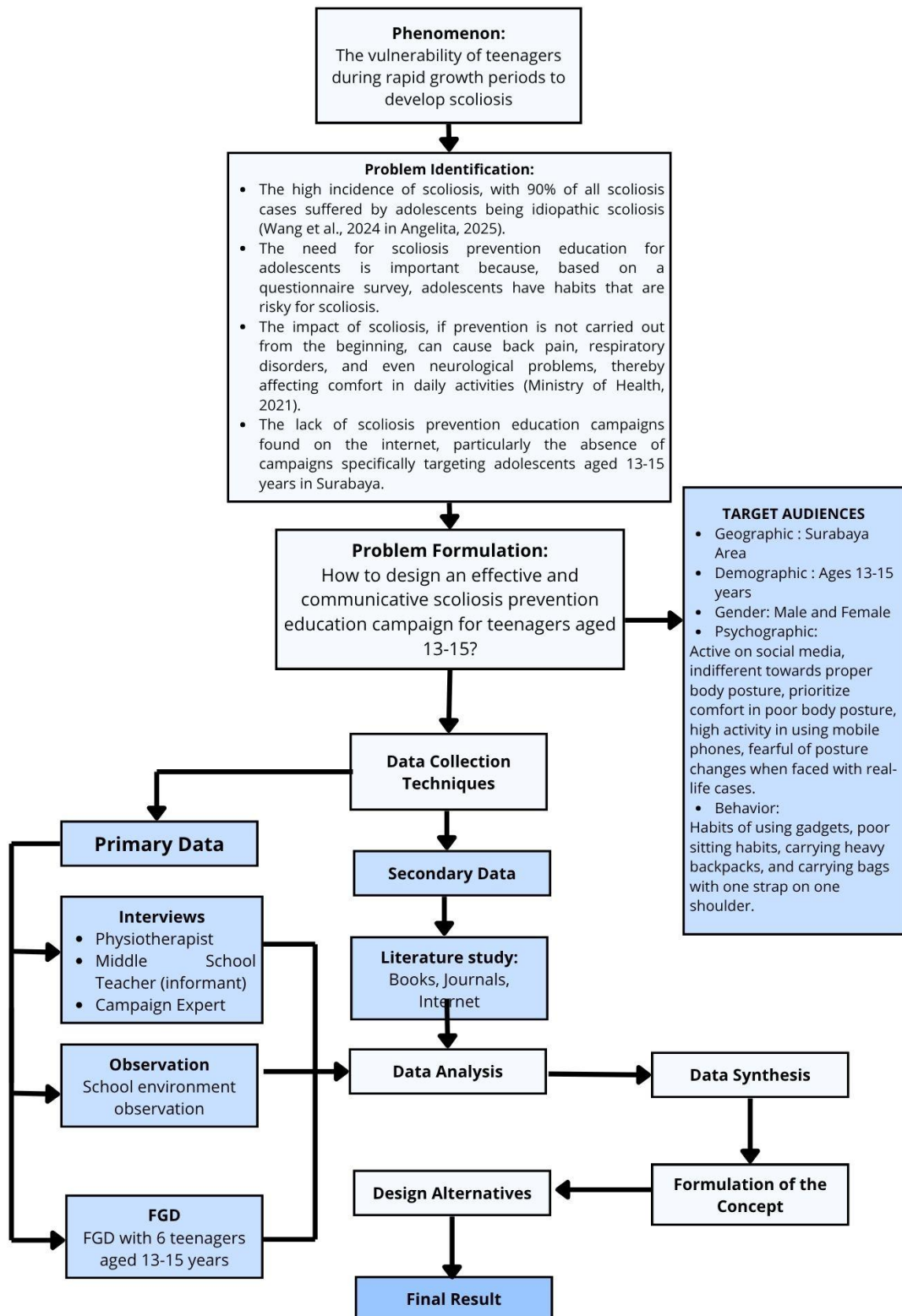


Figure 1. 6. Planning framework chart
(Source: Personal Documents)