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Faculty of Design  
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**BACHELOR'S THESIS**  
on the topic:

Designing posters to educate about the effects of sugar on the human body

Performed by: a student of the BED-20 group

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## ABSTRACT

Society is constantly developing and progressing, and people are paying more and more attention to health. However, for most people, controlling sugar is not as urgent as controlling salt, oil, and total energy intake. The global population of diabetes patients has reached about 463 million, which is an exaggerated figure. These diabetes patients are distributed around the world, but most of them are in Asia. There are as many as 110 million diabetes patients in China, which is the country with the largest number of diabetes patients in the world.

With the development of society and economic progress, people's living conditions have greatly improved. Correspondingly, health issues have become increasingly serious. A high sugar diet is a global public health issue, and long-term high sugar diets can cause significant harm to the body, leading to various diseases. People's understanding of the concept of low sugar diet or the harm of high sugar diet is not clear enough. I will use information visualization design to effectively remind people of the issue of health and sugar control, helping them better understand the harm and impact of sugar on the human body.

This topic plan introduces the influence of sugar on human body, the type of diabetes, and the sugar content of food. Further research and expression on the effects of sugar on human body can be conducted through information visualization design and poster design. Information visualization design can cater to the public's reading style in the "image reading era" in the Internet era, and let people more intuitively understand the impact of sugar on human body through information integration and information charts. Data visualization also helps to strengthen people's awareness of low sugar lifestyle.

*Key words: Low sugar diet; Information visualization design; Healthy lifestyle; Hyperglycemic visualization.*

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## INTRODUCTION

**Relevance of the study:** Society is constantly developing and progressing, and people are paying more and more attention to health. However, for most people, controlling sugar is not as urgent as controlling salt, oil, and total energy intake. However, it is worth noting that in the past 20 years, China's annual sugar production has more than doubled. In addition, according to the statistics of the International diabetes Alliance, the global population of diabetes patients has reached about 463 million, which is an exaggerated figure. These diabetes patients are distributed around the world, but most of them are in Asia. There are as many as 110 million diabetes patients in China, which is the country with the largest number of diabetes patients in the world. The main reason why there are a large number of diabetes patients is that they do not understand and pay attention to sugar control. This article will use information visualization design to clearly express the hazards and effects of sugar, and use design works to depict the "sugar" in life.

**The purpose of the research :** With the development of society and economic progress, people's living conditions have greatly improved. Correspondingly, health issues have become increasingly serious. A high sugar diet is a global public health issue, and long-term high sugar diets can cause significant harm to the body, leading to various diseases. This health issue is particularly prominent among young people. I want to further demonstrate through my design work that a high sugar diet is unhealthy, and use information visualization design to warn and guide people to pay attention to controlling sugar in their daily lives. Young people face enormous work pressure, unhealthy lifestyles, and consuming high sugar foods and beverages are key factors leading to health problems. But young people nowadays do not attach importance to this, and the task of controlling sugar is very difficult, which plays a crucial role in maintaining people's quality of life and safety. People's understanding of the

concept of low sugar diet or the harm of high sugar diet is not clear enough. I will use information visualization design to effectively remind people of the issue of health and sugar control, helping them better understand the harm and impact of sugar on the human body.

### **Research Objectives :**

1. Analyze the impact of sugar on the human body
2. Analyze the causes and types of diabetes
3. Research the concept of a low sugar diet
4. Study the promotional effect of information visualization on things
5. Analyze the design works of existing low sugar diet concepts
6. Collect information and create a "sugar coated bullet" logo and font
7. Establish information visualization to enhance people's awareness of low sugar diets
8. Visualize and extend poster design based on data and information, and print works.

**The research subject (theme)** it's promoting the impact of sugar on the human body.

**The object (focus) of the research** popularize the type and cause of diabetes, and the influence of sugar on human body.

**Research methods** literature reading method, reading a large amount of literature related to this topic, to understand and master the low sugar diet and low sugar brand design culture. Comparative research method, comparing with existing low sugar brand design and light food packaging design, to understand a relatively complete design concept. Using a comprehensive research method, conduct an online investigation of low sugar culture to understand the current market situation and have a more accurate positioning of one's own design. Visual design method, using drafts, hand drawing, and computer software to create visual images, intuitively expressing the visual image, continuously adjusting, and ultimately designing a complete visual presentation. Discussion

method, deepening the understanding of graduation design works through discussions with teachers and classmates.

**Elements of scientific novelty** this study will help people to better understand the impact of sugar on people's bodies and the types and causes of diabetes. In order to use the development of the Internet era, information visualization design will be made to meet modern aesthetic standards and increase people's understanding of sugar.

**Practical significance** the research results can be used for the propaganda of diabetes and the health science popularization of people's influence on the body.

**Structure and volume of the thesis.** Structure and volume of the thesis. The bachelor's thesis consists of an introduction, three chapters, conclusions to each chapter and general conclusions, a list of used sources of 30 items and appendices . The work contains 17 drawings. The results of the research are presented on 64 pages.

# Chapter I

## INTRODUCTION

### 1.1 Topic Background

Society is constantly developing and progressing, and people are paying more and more attention to health. However, for most people, controlling sugar is not as urgent as controlling salt, oil, and total energy intake. However, it is worth noting that in the past 20 years, China's annual sugar production has more than doubled. In addition, according to the statistics of the International diabetes Alliance, the global population of diabetes patients has reached about 463 million, which is an exaggerated figure. These diabetes patients are distributed around the world, but most of them are in Asia. There are as many as 110 million diabetes patients in China, which is the country with the largest number of diabetes patients in the world. The main reason why there are a large number of diabetes patients is that they do not understand and pay attention to sugar control. This article will use information visualization design to clearly express the hazards and effects of sugar, and use design works to depict the "sugar" in life.

With the rise of new media technology and platforms, people's ways of obtaining information have also changed. Intuitive and vivid ways of conveying information are increasingly favored by audiences. By improving information visualization, design can meet the fragmented and fast reading needs of the audience, achieving intuitive communication and vivid translation of information.<sup>1</sup>

Information visualization design originated from research in the fields of human-computer interaction, computer science and technology, image, multimedia design, psychology, and business technology. Information

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<sup>1</sup> Research on the Design of Health APP Based on Information Visualization, Pan Mengqi [J]. Design, 2023,36 (11): 142-146

visualization design helps to reduce barriers to information transmission and communication. The service field of information visualization is gradually expanding in today's society, and the demand is becoming increasingly strong. Driven by the continuous development and growth of the electronic information industry, the practical value of information visualization design has gradually gained public recognition. The emergence of information visualization design is subtle and silent.<sup>2</sup>

Helen Keller expressed her desire to see the world with her eyes in "If You Give Me Three Days of Light". However, everyone knows that seeing information does not necessarily mean understanding, which requires visual design of information, transforming it from intangible to tangible and from rational to intuitive. All information designers are committed to using visual means to quickly convey accurate and effective information to readers.

The key difference between data visualization and scientific visualization lies in the different processing objects. Data visualization aims to study non spatial discrete data in large datasets, with the basic idea of representing each data item in the database as a single graphical element. The purpose of data visualization is to observe a series of numerical changes, which can help people manage, understand, and utilize patterns, so that data can serve the public in a more value oriented way.<sup>3</sup>

## **1.2Topic Purpose and Significance**

With the development of society and economic progress, people's living conditions have greatly improved. Correspondingly, health issues have become increasingly serious. A high sugar diet is a global public health issue, and long-term high sugar diets can cause significant harm to the body, leading to various diseases. This health issue is particularly prominent among young people. I want

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<sup>2</sup> Research on Information Visualization Design of Four Seasons Health Recipes, Li Ruoyan [D]. Hainan University, 2024

<sup>3</sup> Research on Information Visualization Design in Medical Science Popularization, Gorgeous [D]. Suzhou University, 2021

to further demonstrate through my design work that a high sugar diet is unhealthy, and use information visualization design to warn and guide people to pay attention to controlling sugar in their daily lives. Young people face enormous work pressure, unhealthy lifestyles, and consuming high sugar foods and beverages are key factors leading to health problems. But young people nowadays do not attach importance to this, and the task of controlling sugar is very difficult, which plays a crucial role in maintaining people's quality of life and safety. People's understanding of the concept of low sugar diet or the harm of high sugar diet is not clear enough. I will use information visualization design to effectively remind people of the issue of health and sugar control, helping them better understand the harm and impact of sugar on the human body.

In today's world, humans construct consciousness through the perception of information, and behavior is guided by consciousness. In this sense, "information design" constructs another world parallel to the real existence. In this being "designed"

In the world that is regulated and shaped, designers constantly enhance social life through behavioral presupposition and guidance, and in this process, create new things to build the tomorrow of this world. Although information visualization design cannot ultimately determine the direction of urban group behavior, it is fundamentally related to the construction of a humanized society and the future of informatization. The research topic of information visualization is also becoming an important aspect for more and more designers and social institutions to rely on wisdom and contribute their efforts. Because it is this seemingly trivial and even insignificant visual "tool" design that affects and organizes people's social behavior from various aspects of life, making ordinary daily life always shine with a quality of freedom and rationality, and ultimately enabling everyone's behavior to reach a relatively ideal direction and realm.<sup>4</sup>

With the development of social information, people are flooded with a large amount of information and various digital media, and the ability of the

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<sup>4</sup> Information Visualization Design and Public Behavior Research, Hu Xiaomei [D]. Central Academy of Fine Arts, 2014

public to receive, choose and process information is reduced, resulting in information fatigue. More and more information makes design pay more attention to practical content such as text and data, and the relatively new concept of information design has emerged. Information design is the use of design to organize information and effectively convey it. When the audience expects to share concepts and information, a clear visual communication method becomes very important. Therefore, the interdisciplinary design field of "information visualization" has emerged. Information visualization is a closely related branch of information design, aimed at studying the visual presentation of large-scale non numerical information resources, and utilizing techniques and methods in graphics and images to help people understand and analyze data. It not only reflects the main characteristics of information design, but also has its own unique and advanced expression methods. Its main function is to help users extract valuable information from abstract data and events and extract more interesting ways of information from each other's relationships, when people view it as. The emergence of information visualization provides people with a means of communication and exchange, which not only changes the meaning of information dissemination and design language, but also expands the possibilities of traditional charts and annotations such as pie charts, line charts, and bar charts.<sup>5</sup>

### **1.3 Topic research and research methods**

This topic plan introduces the influence of sugar on human body, the type of diabetes, and the sugar content of food. Further research and expression on the effects of sugar on human body can be conducted through information visualization design and poster design. With the development of society and the improvement of people's aesthetic standards, in the Internet era, good design is needed to improve people's awareness of healthy life.

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<sup>5</sup> Visual Design of Dietary Therapy and Health Preservation Information Based on Subhealthy Population, Jiao Tianye [D]. Kunming University of Technology, 2016

Information visualization is a technique that transforms complex data into visual forms for people to understand.<sup>6</sup>

Exploring design strategies for information visualization methods in the field of health communication, effectively enhancing the presence, dissemination, and influence of public health information.<sup>7</sup>

#### (1) Literature reading method

In order to comprehensively and deeply understand and master the essence of low sugar diet and low sugar brand design culture, I need to extensively explore various literature materials related to this topic. Through in-depth research on these literature, my aim is to gain insight into the current development status of low sugar culture both domestically and internationally, collect relevant academic journals, monographs, and online materials, and systematically summarize, organize, classify, and analyze these data.

I need to delve deeper into the low sugar diet culture both domestically and internationally. In China, with the popularization of healthy eating concepts, more and more consumers are paying attention to the sugar content in food and seeking healthier eating methods

By extensively reading relevant literature, collecting data, organizing and analyzing, and deeply analyzing the low sugar brand design culture, I can have a more comprehensive understanding of the current development status and future trends of low sugar dietary culture, providing strong support for my research and practice in this field. At the same time, I can also provide consumers with healthier and more delicious low sugar dietary choices through these studies, and promote the further development of low sugar dietary culture.

#### (2) Comparative research method

By comparing and analyzing these existing cases, I can discover their similarities and differences in design concepts. These commonalities may

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<sup>6</sup> The application of human-computer interaction technology based on information visualization in visual communication design, Li You, Wu Ziguli [J]. Automation and Instrumentation, 2024 (02): 182-186

<sup>7</sup> Promoting Social Welfare: Research on Visual Design Based on Public Health Information, Xue Yu, Wang Jin [J]. Design, 2024,37 (01): 141-143

include designs that focus on health, environmental protection, and convenience, while differences may be reflected in specific design elements such as colors, fonts, and patterns. These differences enable each design to stand out and attract different types of consumers.

After in-depth research and understanding of these cases, I began to think about how to form my own design direction. We need to clarify our positioning and target audience. I need to combine market trends and consumer needs for design innovation. For example, with the popularization of healthy eating concepts, more and more consumers are paying attention to the sugar content of food. Therefore, we can highlight the low sugar characteristics in the design, such as using eye-catching logos or text instructions to remind consumers. I need to constantly test and optimize to ensure that our design meets the needs and expectations of consumers. This includes collecting consumer feedback and suggestions, improving and adjusting the design, and constantly monitoring market changes and emerging technologies to timely integrate new design concepts and elements into our packaging design. By comparing and studying existing low sugar and light food design cases, we can better understand a relatively complete design concept and learn to form our own design direction. This will help us stand out in the fierce market competition and attract more consumer attention and love.

### (3) Comprehensive research method

In this era of increasing health awareness, low sugar culture has become a fashionable way of life. In order to better meet market demand and enhance brand competitiveness, I need to conduct in-depth online research on low sugar culture, understand the current market situation, and accurately position brand design.

I need to understand the background of the rise of low sugar culture. With the increasing emphasis on health, more and more consumers are paying attention to the sugar content in their diet. Low sugar diet not only helps to control weight, but also reduces the risk of chronic diseases such as diabetes and

cardiovascular disease. Low sugar culture is popular among young people, fitness lovers, diabetes patients and other groups.

I need to collect relevant information and data on low sugar culture through online channels. You can learn about the size, growth trends, consumer demand, and other information of the low sugar food market through search engines, social media, industry reports, and other channels. At the same time, I can also pay attention to the marketing strategies of some low sugar food brands, analyze their successes and shortcomings, in order to provide reference for my design.

Conducting online research is an effective way to understand the market situation of low sugar culture. By collecting relevant information and data, I can provide more accurate positioning for design.

#### (4) Visual design method

In the field of visual arts and design, creating visual images using tools such as sketches, hand drawing, and computer software is a crucial task. This process covers the entire process from conception to perfection, from roughness to refinement, aiming to intuitively express the designer's creative ideas, and through continuous adjustment and optimization, ultimately presenting a complete and attractive visual presentation.

In the early stages of design, one usually uses sketches or hand drawn techniques to outline their creativity and ideas on paper. This stage is often a moment of inspiration, where the ideas in the mind are concretized through hand drawing, forming a preliminary visual image. During this process, designers may use different lines, colors, and composition methods to express their understanding and insights into the design theme.

As the design deepens, computer software is being used for more precise and detailed image production. Through professional design software, it is easy to adjust the size, proportion, color and other parameters of images, achieving more accurate design effects. At the same time, the design software also provides a rich library of materials and templates, allowing me to quickly find materials that meet my needs and improve design efficiency.

Continuous adjustment and optimization are essential steps in the design process. I need to review my work repeatedly, identify and improve its shortcomings. This may require reconsidering the design scheme, adjusting color matching, optimizing layout structure, etc. Through continuous experimentation and modification, I can gradually improve my work to better meet design requirements and market demands. By constantly adjusting and improving, we can create more excellent, creative, and attractive visual works, adding more color and fun to people's lives.

#### (5) Discussion method

Through communication with teachers and classmates, I delved deeper into and understood our graduation project. Not only did I deepen my understanding of the project, but I also identified the shortcomings in current progress and areas for improvement. Through such communication, we can brainstorm and jointly explore better revision plans, thereby promoting the smooth progress of the project.

Through communication with the teachers, I have gained many valuable suggestions and guidance. The teacher provided strong support for my project with rich experience and professional knowledge. The teacher pointed out the problems we have in project design, implementation, and result analysis, and provided corresponding improvement suggestions. These suggestions not only helped me solve the current difficulties, but also provided direction for my future research.

The discussion with our classmates also benefited us greatly. Classmates have different backgrounds and perspectives, and their opinions and suggestions provide us with more ideas and inspiration. Through discussion, I can discover each other's strengths and weaknesses, learn from each other, and complement each other's strengths and weaknesses. This kind of communication not only enhances our friendship, but also strengthens our determination on the path of graduation projects.

In short, through communication and discussion with teachers and classmates, we are able to gain a deeper understanding of graduation projects and develop better revision plans. This not only helps us successfully complete our graduation project, but also lays a solid foundation for our future academic research and career development.

### **1.4 Current Research Status at Home and Abroad**

#### **(1) Domestic situation:**

From existing literature and research, the theme of low sugar, controlled sugar, and zero sugar is a new trend, and many studies have pointed out that high sugar diets can cause harm to the human body. In the new era of life, people are paying more and more attention to their health, and the demand for low sugar foods is also increasing. With the increasing awareness of people's health, many people have started to pay attention to the intake of sugar and try to avoid sweets as much as possible. When facing the problem of how to avoid modern wealth diseases, diet becomes particularly important. And how to make people better understand health knowledge? Design is a good way.

From the literature "Research on Information Visualization Design of Seasonal Health Recipes", it can be seen that in the context of China's "Big Health" strategy development, the demand for healthy eating among the public has also increased. How to quickly obtain knowledge and content related to dietary health has become a topic of concern for people. Although there are many recipes for dietary health on the market, most of them cannot meet the public's demand for quick access to dietary health content due to their slow dissemination and effectiveness. As a new form of communication in the fast-paced era, information visualization design expresses comprehensive content and flexible dissemination methods, which has innovative research significance in the dissemination of dietary and health knowledge. The combination of information visualization design and low sugar diet can improve the efficiency

of promoting low sugar diet, and has certain design practical value and social significance. The application of information visualization design in communication is very extensive, which can be used to present various types of data and information, thereby helping people better understand the concept of low sugar diet.

The article "Advantages of Applying Information Visualization Design in Health Science Popularization" points.

With the emergence of new media technology, visual elements such as text, patterns, and colors have become the main carriers of information visualization and dissemination, playing a disruptive role in the design and expression of information visual forms. For example, applying information visualization design in health education can enable the general public to quickly understand the development of the disease and the progress of treatment through various design methods.<sup>8</sup>In daily life, there are still many shortcomings in the promotion of smart health and wellness, and the public knows very little about smart health and wellness.<sup>9</sup>

With the continuous development of information technology, the concept of information visualization is occupying an increasingly important position in the field of visual communication design.<sup>10</sup>

## Summary Of The Chapter I

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<sup>8</sup> Research on the Application Trends of Information Visualization Design, Hu Liang [J]. Drama Film Monthly, 2023 (06): 87-88

<sup>9</sup> Research on Visual Design of Intelligent Health and Wellness Information, Wang Liping [D]. Nanjing University of Posts and Telecommunications, 2023

<sup>10</sup> Research on the Application of Information Visualization in the Field of Visual Communication Design, Liu Anlei, Fan Haodong [J]. Shanghai Packaging, 2023 (07): 37-39

1. Number of diabetese.Society is constantly developing and progressing, and people are paying more and more attention to health. However, for most people, controlling sugar is not as urgent as controlling salt, oil, and total energy intake. According to the statistics of the International diabetes Alliance, the global population of diabetes patients has reached about 463 million, which is an exaggerated figure.
2. People's understanding of sugar.A high sugar diet is unhealthy, and young people face enormous work pressure, unhealthy lifestyles, and consuming high sugar foods and beverages are key factors leading to health problems. But young people nowadays do not attach importance to this, and the task of controlling sugar is very difficult, which plays a crucial role in maintaining people's quality of life and safety. People's understanding of the concept of low sugar diet or the harm of high sugar diet is not clear enough. I will use information visualization design to effectively remind people of the issue of health and sugar control, helping them better understand the harm and impact of sugar on the human body.
3. Low Carbohydrate Diet.Low sugar and reduced sugar have been the main trends in food and beverage consumer goods in the past few years.

## Chapter II

### PROJECT RESEARCH

#### 2.1 Market Research

With the rapid development of technology and the rise of the Internet era, information visualization design has become increasingly important. Through literature research and market research, it has been discovered that information visualization design holds close ties with multiple disciplines, including statistics, computer science, and visual communication design, exhibiting strong interdisciplinary characteristics. This integrated approach allows for a more intuitive and clear understanding of complex subjects and phenomena.

As we all know, diabetes has been lingering for a long time, and its main clinical characteristics are frequent urination, emaciation, and weakness. It can cause many organ and tissue lesions. At present, there is no radical cure. It is one of the three basic diseases threatening human physical and mental health. At least 300 million people in China are in pre diabetes, and about 834000 people die of various complications caused by diabetes every year. Therefore, it is of great practical significance to do a good job in the comprehensive management of diabetes and effectively reduce the occurrence of diabetes complications.<sup>11</sup>

A low sugar diet is beneficial for metabolism. According to a small study reported by WebMD Medical News (2016-12-09) in the United States, eating a low sugar diet is beneficial for women's metabolic health, but eating a high sugar diet does not result in such changes.<sup>12</sup> American scholars found that high blood sugar is a symptom of diabetes, rather than the main cause of diabetes. They confirmed through animal experiments that diabetes can be improved as long as the calories provided by fat are reduced to 10% of the calories needed.

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<sup>11</sup> How to effectively control sugar in patients with diabetes, Li Chunxiang [N] Gansu Science and Technology News, April 3, 2024 (007)

<sup>12</sup> Low sugar diet is beneficial for metabolism [J]. Basic Medicine and Clinical, 2018,38 (04): 537

Research has confirmed that the key to control diabetes is fat rather than sugar. Choosing a low-fat and low sugar diet to prevent obesity is crucial to prevent diabetes.<sup>13</sup>

The theory of increasing the depth of health education believes that the transformation of knowledge into behavior is a long and complex process, and there are many factors that may affect the smooth transformation of knowledge into behavior. Only through systematic, dynamic, and continuous health education can adverse factors be eliminated or weakened, enabling patients to establish healthy behaviors of low sugar and low-fat diets as early as possible.<sup>14</sup>

In the contemporary era of big data, the explosion of information and the overwhelming amounts of data can be daunting for individuals to process. However, information visualization design provides a powerful tool to navigate this sea of information. By converting complex data into visually appealing charts and graphs, it arouses people's interest in the subject matter and offers valuable information hints to viewers.

One particular area where information visualization design plays a crucial role is in the understanding and awareness of diabetes. According to surveys, a significant number of adults over 30 years old suffer from diabetes, with the majority of them being overweight or obese. This trend suggests that diabetes is more prevalent in adulthood, particularly after individuals commence their working lives. Factors such as reduced physical activity and excessive nutritional intake contribute to weight gain, which in turn increases the risk of developing diabetes.

The prevalence of diabetes continues to rise with age, peaking between the ages of 60 and 69. Elderly individuals over 60 years of age account for approximately 40% of all diabetes patients, highlighting the need for increased awareness and education among this demographic. However, it has been observed that many people, including diabetes patients themselves, lack a strong

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<sup>13</sup> Prevention of diabetes should be based on scientific diet, Hu Xianguo [J]. Family Traditional Chinese Medicine, 2005 (06): 24

<sup>14</sup> Investigation on cognition and behavior of diabetes patients on low sugar diet, Zhang Yanxia [J]. Qilu Nursing Journal, 2010,16 (22): 60-61

awareness of the importance of maintaining a low-sugar diet. This lack of awareness can be attributed to various factors such as work pressure, traditional concepts, and even a lack of time to educate themselves about low-sugar diets.

Information visualization design can play a pivotal role in addressing this issue. By catering to the public's reading style in the "image reading era" of the Internet, it can effectively communicate the impact of sugar on human health through the integration of information and the creation of informative charts. By presenting complex medical data in an accessible and visually appealing manner, it can help individuals better understand the risks associated with high sugar intake and the benefits of adopting a low-sugar lifestyle.

Network information is complex, there is no lack of hidden risks of information to the user caused by bad effects.<sup>15</sup>

Furthermore, data visualization techniques can also be used to educate the public about diabetes prevention and management strategies. By visualizing trends and patterns in diabetes prevalence, it can help individuals identify high-risk groups and take proactive measures to reduce their risk of developing the disease. Additionally, by comparing the outcomes of different dietary and lifestyle choices, it can provide valuable insights that can guide individuals in making healthier decisions.

In conclusion, information visualization design holds significant potential in enhancing public awareness and understanding of diabetes and other health-related issues. By leveraging the power of visual communication, it can help individuals navigate the complexities of health information and make informed decisions about their well-being.(see Figure 2-1 to 2).

## **2.2 Research on the Effects of Sugar on Human Body**

A high sugar diet has relatively high calories, and long-term intake of high sugar foods can have a series of negative effects on human health. Firstly,

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<sup>15</sup> Design of network information visualization security cognition system based on QSOFM network and FR algorithm, Min Z[J]. Journal of Cyber Security Technology, 2024, 8 (2): 146-162.

frequent consumption of high sugar foods may affect fat consumption. When the human body ingests too much sugar, if it cannot be metabolized and consumed in a timely manner, these sugars will be converted into fat and stored in the body, leading to obesity. Obesity not only affects appearance, but also increases the risk of chronic diseases such as cardiovascular disease and diabetes.

Secondly, a high sugar diet also imposes a certain burden on pancreatic islet cells. Islet cells are responsible for secreting insulin to regulate blood glucose metabolism. Long term intake of high sugar foods can put pancreatic islet cells in a high load state, leading to impaired function and subsequently affecting insulin secretion. This will lead to increased blood sugar, and may even lead to serious diseases such as diabetes. Diabetes patients need to strictly control blood sugar levels, and high sugar diet is undoubtedly worse.

In addition, a high sugar diet can also lead to abnormal hormone secretion in the body. Hormones play a role in regulating various physiological functions in the human body, and a high sugar diet can interfere with the normal secretion of hormones, leading to a series of health problems. For example, a high sugar diet may cause abnormal skin oil secretion, leading to skin diseases such as acne and dermatitis. At the same time, a high sugar diet can also affect the human immune system, leading to a decrease in immune system function and an increased risk of illness.

In order to maintain physical health and reduce disease risk, people should try to reduce their intake of high sugar foods and adopt a low sugar diet. A low sugar diet helps control blood sugar levels, which is particularly important for patients with diabetes. By reducing sugar intake, a low sugar diet can help patients control blood sugar, reduce the burden on pancreatic cells, and thus improve their condition.

Meanwhile, a low sugar diet can also help control weight. In daily life, people often consume too many calories, leading to fat accumulation and subsequently causing obesity problems. A low sugar diet can reduce calorie intake, help people control their weight, and avoid health risks caused by obesity.

In addition, a low sugar diet can also improve skin condition. A high sugar diet can lead to excessive skin oil secretion, which can cause various skin problems. A low sugar diet can reduce oil secretion, keep the skin fresh, and improve skin condition.

Finally, a low sugar diet can also enhance immunity. By reducing sugar intake, a low sugar diet can help the body maintain normal immune function and reduce the risk of illness. For people with weaker immune systems, a low sugar diet is undoubtedly an effective health measure.

In summary, a high sugar diet has many negative effects on human health, while a low sugar diet can help improve these issues. In order to maintain health, we should try to reduce the intake of high sugar foods and choose more low sugar, healthy foods. At the same time, it is also important to pay attention to one's physical condition and promptly identify and address potential health issues.

Information visualization is one of the important contents of digital media design, and the two have a complementary relationship.<sup>16</sup>The development of computer technology and network technology has made three-dimensional visualization for networks an important direction in the field of computer science.<sup>17</sup>Information visualization can improve user subjective satisfaction through experiential visual interaction.<sup>18</sup>

Diet therapy is the basis of treating diabetes, and is also one of the fundamental and best treatments for diabetes. The emerging concept of time nutrition shows that changing meal time can positively affect diet related chronic diseases, including metabolic risk factors related to breast cancer. Diet plays an increasingly important role in dermatological treatment. Ketone production and low sugar diet have potential anti-inflammatory and metabolic

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<sup>16</sup> Research on information visualization for digital media design methodology based on big data technology, Zhang R ,Zhao L ,Wang X [J]. Applied Mathematics and Nonlinear Sciences, 2024, 9 (1):

<sup>17</sup> Satellite network-oriented visualization analysis of 3D geographic information, Xiuxia L [J]. Internet Technology Letters, 2022, 6 (2):

<sup>18</sup> Interactive experience of information visualization in mechanical design, Chen R ,Xie J ,Guo S[J]. Applied Mathematics and Nonlinear Sciences, 2024, 9 (1):

effects, making them attractive in treating inflammatory skin conditions. A new study has found that a low sugar diet may be more important for people with high blood lipids, but adhering to a low-fat diet is still necessary. A small study suggests that eating low sugar meals is beneficial for women's metabolic health, while eating high sugar meals does not result in such changes. American researchers have concluded through a mouse experiment that a low sugar diet can alleviate symptoms of age-related macular degeneration (AMD). Low fat diet American scholars found that elevated blood sugar is the symptom of diabetes, rather than the main cause of diabetes. Glucose data shows that the average glucose value of migraine patients slightly increases compared to healthy controls, but drops below the personal standard range of glucose before the onset of migraine.<sup>19 20 21 22 23 24 25 26</sup>

### 2.3 Research on the Effects of Sugar on Human Body

In today's society, with the acceleration of life pace and the increase of work pressure, more and more people are starting to overlook their physical health, especially young people and office workers. In response to this social phenomenon, we propose an information visualization design scheme with the

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<sup>19</sup> .Impact of Ketogenic and Low-Glycemic Diets on Inflammatory Skin Conditions, Roster K ,Xie L ,Nguyen T , et al [J]. Cutis, 2024, 113 (2): 75-80.

<sup>20</sup> A low-glucose eating pattern is associated with improvements in glycemic variability among women at risk for postmenopausal breast cancer: an exploratory analysis , Jospe R M ,Liao Y ,Giles D E , et al[J]. Frontiers in Nutrition, 2024, 11 1301427-1301427.

<sup>21</sup> Low sugar diet is beneficial for metabolism [J]. Basic Medicine and Clinical, 2018,38 (04): 537

<sup>22</sup> The effect of sugar on blood lipids has been ignored [J]. Chinese Community Physician, 2020,36 (21): 185

<sup>23</sup> Li Duan, Yitu. Low sugar diet can prevent age-related macular degeneration [J]. Middle aged and Elderly Health, 2017 (07): 5

<sup>24</sup> Hu Xianguo. Prevention of diabetes should be based on scientific diet [J]. Family Traditional Chinese Medicine, 2005 (06): 24

<sup>25</sup> Yang Bo The significance of low sugar broad-spectrum diet model in the treatment of diabetes [C]//The Chinese Society of Traditional Chinese Medicine. Progress in Chinese medicine research on diabetes and its complications - Proceedings of the Second International Academic Conference on diabetes (diabetes). China Traditional Chinese Medicine Press, 1996:2

<sup>26</sup> A Digital Therapeutic Allowing a Personalized Low-Glycemic Nutrition for the Prophylaxis of Migraine: Real World Data from Two Prospective Studies, Valeska V L ,Franziska S ,Oliver W , et al [J]. Nutrients, 2022, 14 (14): 2927-2927.

theme of "sugar coated bullets", aiming to remind people of the importance of low sugar diets through intuitive and clear design techniques.

The design scheme of "sugar coated bullets", as the name suggests, aims to convey the concept of low sugar diet to the audience in a fascinating and easy to understand way. In the design process, we fully consider the aesthetic needs and cognitive characteristics of different age groups, especially focusing on the needs of young people and office workers. They often overlook their physical health due to the dual pressures of work and life, and a low sugar diet is an important aspect that they should pay attention to.

In the specific implementation, we take information visualization as the core of the design, combined with poster design, chart integration, and text information expression, to comprehensively present the importance of a low sugar diet. Through carefully designed charts and visual elements, we transform abstract data and information into intuitive and understandable images, allowing people to appreciate the beauty of design while deeply feeling the benefits of a low sugar diet for physical health.

In order to cater to the changing aesthetic trends of young people, we will also incorporate geometric elements into poster design to highlight visual impact. The geometric shapes are concise and clear, which not only conform to modern aesthetics but also effectively convey information. We hope to draw more attention to the concept of a low sugar diet through this design approach, in order to change unhealthy eating habits and prevent the occurrence of diseases.

The "Sugar coated Cannon Bullet" information visualization design scheme aims to remind people of the importance of low sugar diets through intuitive and clear design techniques. We hope that through this design, more people will realize the importance of a healthy diet, so as to develop good eating habits and maintain physical health. At the same time, we also hope that this design plan can attract widespread attention in society and contribute to promoting the popularization and development of healthy eating culture.

## Summary of Chapter II

1. The importance of information visualization. Information visualization design is closely related to multiple disciplines such as statistics, computer science, and visual communication design, and has a strong intersection. It can provide people with an intuitive and clear understanding of a thing. In the era of big data, the explosion of information and massive amounts of data can arouse people's interest in things, and various information charts can provide viewers with information hints.
2. The impact of sugar on the human body. The calories in a high sugar diet are relatively high, and if a person frequently eats a high sugar diet, it may affect fat consumption. If the intake of sugar is not metabolized and consumed in time, it will be converted into fat and stored, leading to obesity. Frequent consumption of high sugar diets can also cause abnormal hormone secretion in the body, leading to abnormal skin oil secretion and skin diseases.
3. Young people's attention to health. The design of "sugar coated bullets" as the main body of information visualization design is aimed at all age groups, but mainly targeting young people and working people. Due to the high work pressure of young people, they are not particularly concerned about their physical health. It is important to use intuitive and clear designs to remind people of the importance of a low sugar diet.

## **Chapter III**

### **DESIGN PROCESS AND RESULTS**

#### **3.1 Design Plan**

Logo design, as a visual recognition symbol, aims to represent the characteristics of things through concise, prominent, and easily recognizable images, thereby leaving a deep impression in people's vision. It is not only a form of visual art expression, but also an important tool for brand communication and corporate image shaping.

The core of logo design lies in its recognizability. A successful logo should be able to quickly attract people's attention and leave a deep impression in their hearts. This requires designers to fully consider the aesthetic needs, cultural background, and brand characteristics of the target audience during the creative process, in order to create a logo that is both in line with the brand image and easy to recognize.

In logo design, patterns and refined images play a crucial role. They convey the core values and concepts of the brand to the audience through unique visual elements and color combinations. For example, the logos of some well-known brands, such as Apple's apple shaped logo and Nike's hook shaped logo, have become symbols of the brand with their unique patterns and images, deeply ingrained in people's hearts.

In addition, Logo design also needs to consider its application effects in different media and scenarios. A good logo should be able to maintain its recognizability and aesthetics in various sizes, proportions, and backgrounds. This requires designers to fully consider the scalability and adaptability of the logo during the creative process, ensuring that it can play a good role in different application scenarios.

Overall, Logo design is a highly comprehensive form of visual art expression. It requires designers to have a profound artistic foundation, sharp

market insight, and rich practical experience. Only in this way can we create a logo that is both in line with the brand image and easy to identify, providing strong support for brand dissemination and corporate image shaping.

### **3.1.1 Logo design concept**

Derivative design, as a creative approach, involves the enhancement, modification, or extension of specific features or functionalities of existing products or foundations to create something novel and distinct. This innovative design process fulfills the personalized needs of consumers, transforms the content of design expressions, and enhances the aesthetic appeal of products.

The essence of derivative design lies in the reinterpretation and reinterpretation of traditional concepts or products. Designers explore new possibilities and incorporate fresh ideas to breathe new life into familiar items. This can range from adding modern functionalities to classic products, modifying existing designs to suit new trends, or simply reinterpreting a concept in a fresh and innovative way. To illustrate the concept further, let's consider the derivative design of eco-friendly products. In this case, designers strive to create products that are not only stylish and functional but also environmentally friendly. This might involve using sustainable materials, incorporating recycling features, or reducing the overall carbon footprint of the product. By combining aesthetics with sustainability, derivative designs can help to promote a more environmentally conscious lifestyle.

In conclusion, derivative design represents a powerful tool for creating innovative and personalized products that meet the diverse needs of modern consumers. By reinterpreting and enhancing existing concepts or products, designers can create unique and visually appealing items that are not only functional but also reflect consumers' cultural values and aesthetic preferences.

In order to visualize this theme, the initial creative idea was to pair lollipops—a symbol of sugary temptation—with shells, representing the hard exterior that masks the destructive potential inside. This simple yet powerful

combination was intended to convey the message that even something as seemingly harmless as a lollipop can have devastating effects on our health if consumed unchecked.

During the creation process, it became apparent that such graphics, while effective in communicating the basic idea, lacked the necessary depth and aesthetics to fully capture the complexity and gravity of the theme. Therefore, a decision was made to refine the concept and incorporate more elements that would enrich the visual representation and enhance the viewer's understanding of the issue.

Additional details were added to the lollipops and shells, making them more realistic and visually appealing. Vibrant colors and intricate patterns were used to highlight the allure of sugary treats while simultaneously drawing attention to their hidden dangers. Moreover, the concept of "cannon bombs" was further explored through the use of explosive imagery and dynamic lines that suggested the powerful force contained within each sugar-coated shell.

The expanded article includes a discussion of the science behind sugar's impact on the body. Statistics and empirical studies are cited to support the claims made about the harmful effects of excessive sugar consumption. These findings provide a solid foundation for the article's arguments and help to persuade readers of the importance of moderating their sugar intake.

The expanded article on the theme of "Sugar-coated Cannon Bomb" presents a comprehensive exploration of the impact of sugar on the human body. Through the use of rich visuals, detailed explanations, and scientific evidence, it succeeds in captivating the reader's attention and conveying the urgent need for greater awareness and action regarding sugar consumption. (see Figure 3-1).

### **3.1.2 Finalization of logo design**

In communication with the supervising teacher, due to the lack of conciseness in the shape of the lollipop, the candy on the lollipop was removed to simplify the image of the projectile. Then, a bow shape was used to decorate

the bomb, making it appear less stiff. After the second version adjustment, it was found that only the image of the bomb was highlighted, while the image of the sugar gradually weakened. Under the guidance of the teacher, the character "sugar" was directly transformed into the main body of the shell, highlighting the character "sugar" while also incorporating the image of the shell. Through continuous modifications, the character "sugar" was transformed into the shape of the shell, and the bow was used as the lead part of the bomb. Finally, the logo design was determined (see Figure 3-2).

### **3.2 Font Design**

Font design plays a crucial role in showcasing themes and enhancing publicity. A carefully designed font can not only strengthen the theme idea, but also enhance the infectivity of promotional information, making the audience strongly impacted visually, leaving a deep impression, and achieving a good psychological effect.

Firstly, font design can enhance the infectious power of images. Different font forms often convey different emotions and styles. For example, rounded fonts give people a warm and friendly feeling, while sharp edged fonts appear more serious and solemn. By cleverly applying font design techniques, we can make images more vivid and interesting, thereby attracting the audience's attention and stimulating their interest. Excellent font design can more vividly express themes and ideas. A good font design should accurately reflect the theme content and highlight the theme idea.

Font design can also enhance visual impact. In visual media such as promotional posters and advertisements, font is often one of the first elements to attract audience attention. By adjusting the size, thickness, color, and other attributes of the font, we can create a visually impactful effect that immediately attracts the audience. This visual impact not only enhances the promotional effect, but also creates a deeper impression on the audience of the promotional content.

In summary, font design plays an important role in showcasing themes, enhancing publicity, expressing ideas, enhancing visual impact, and showcasing the artistic, aesthetic, and creative aspects of the text. Therefore, when designing fonts, we need to fully consider the theme requirements, audience needs, and aesthetic standards in order to create font works that meet the theme requirements and have unique personalities.

### **3.2.1 Font design concept**

The font design of Sugar Coated Cannon Balls is an innovative and engaging attempt. I cleverly combine traditional fonts with modern aesthetics to bring people a novel visual experience. However, despite achieving some degree of innovation, I still lack complexity and uniqueness.

Firstly, from a complexity perspective, the font design of "Sugar coated Cannon Balls" appears relatively simple in terms of detail handling. Although the overall image gives a friendly and approachable feeling, it lacks sufficient depth and precision, which makes it difficult to stand out among numerous fonts. To enhance complexity, I try to incorporate more detailed elements into the font structure, such as subtle line variations or unique decorative elements, to enrich the level and expressiveness of the font.

In terms of uniqueness, although the font design of "Sugar coated Cannon Balls" cleverly transforms the character "rice" into a candy image, demonstrating a clever creativity, this transformation does not significantly distinguish the font from its original form. In order to enhance uniqueness, I further explore the cultural connotations and historical background behind fonts, combine them with more specific themes or images, and create more recognizable and personalized font images.

The font design of "Sugar Coated Cannon Balls" demonstrates enormous potential in the field of innovative font design. I have successfully softened the hard edges of traditional fonts and added a relaxed and enjoyable element to them, making the font more in line with modern aesthetics.

When describing font images, I add more adjectives and idioms to enhance language expression. For example, it can describe font lines as smooth as silk and round as jade, or describe font images as vivid, interesting, and full of childlike innocence. These vivid descriptions not only enhance the reader's reading experience, but also better showcase the unique charm of font design.

Although the font design of "Sugar Coated Cannon Balls" has certain shortcomings, its attempts in innovation and fun are still worthy of recognition. Through further experimentation, refinement, and refinement, it is believed that this font design can become a truly unique and engaging font work, bringing new vitality and creativity to the field of font design.

### **3.2.2 Finalization of font design**

Due to the sharp edges and lack of affinity in the original design, in the second version of the design, I modified the square part of the sugar coating shell into a circle to better fit the shape of the candy itself. This transformation not only makes the entire design more harmonious and unified, but also increases the fun and affinity of the design, making the image of candy more deeply ingrained in people's hearts.

In the process of simplifying the candy image, I focused on retaining the basic features of the candy while removing some unnecessary details, making the overall image more concise and clear. This design not only makes the image of candy easier to recognize, but also enhances its expressive power in information visualization design and poster design.

In terms of color, I have made corresponding adjustments based on the theme tones of information visualization design and poster design. By using colors that match the theme, I successfully created a visual atmosphere that echoes the theme, making the entire design more vivid and interesting.

I also delved into the details of the design. By adding some rhetorical devices such as adjectives and idioms, I have made the design more vivid and expressive.

By modifying and optimizing the second version of the design, I successfully enhanced its affinity and expressiveness, making the candy's image more deeply ingrained in people's hearts. This improvement not only makes the design more in line with the requirements of information visualization design and poster design, but also enhances the quality and level of the entire design. (see Figure 3-3).

### **3.3 Information visualization design**

In the era of big data, the continuous surge in information volume has made people's demand for effective dissemination and acquisition of information increasingly urgent. As an efficient means of information dissemination, information visualization is gradually receiving widespread attention and application. Information visualization design, an art that presents and conveys information through visual means such as graphics, text, and icons, is becoming an indispensable part of modern society.

Information visualization design not only helps us better understand and remember information, but also enables complex data and information to be presented to the public in a more intuitive and understandable way. By cleverly utilizing visual elements such as color, shape, and size, designers can transform massive amounts of data into vivid and interesting charts and images, enabling audiences to grasp the core points of information at a glance.

Information visualization design can also enrich the ways of information dissemination and improve the efficiency of audience reception of information. Compared to traditional textual descriptions, visual information is more able to attract the audience's attention and stimulate their interest in learning. Meanwhile, information visualization can also help viewers establish connections between information, form a holistic understanding of information, and better understand and apply the knowledge they have learned.

Information visualization design, as an efficient means of information dissemination, is gradually changing our way of life and work. With the

continuous progress of technology and the deepening of people's understanding of information visualization, it is believed that information visualization will play a more important role in the future, injecting new vitality into the development of human society.

Color plays an important role in information visualization design, ensuring accurate and efficient communication of information. The attributes of color and individual differences among users work together to determine the color perceived by users.<sup>27</sup>

Visualization is of great significance for evaluating the effectiveness of information exchange<sup>28</sup>

### **3.3.1 Diabetes information visualization design**

Information visualization on diabetes is mainly designed from the type of diabetes, pathogenesis, diabetes patients, diabetes symptoms, diabetic complications, diabetes treatment methods, etc.

The main illustration character in the first information visualization design is a type I diabetes patient. Type I diabetes patients are mainly teenagers to young people. Most of these patients are thin, and the image of the illustration character is thin and young. Type I diabetes is mostly born. The illustration of type II diabetes is a fat middle-aged person. Most of the patients with type II diabetes are adults, mainly over 40 years old. Most of the patients with type II diabetes are caused by sugar. Therefore, the illustration of type II diabetes is overweight, holding hamburgers and drinks. This kind of food is generally high in sugar, which conforms to the image of type II diabetes patients. Because diabetes can cause skin problems, acne on his face is part of the design, highlighting the hidden dangers of diabetes. Diabetes can cause heart disease,

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<sup>27</sup> The practical application of color in information visualization design, unraveling mysteries [J]. Shanghai Packaging, 2023 (09): 151-153

<sup>28</sup> VisRecall: Quantifying Information Visualisation Recallability Via Question Answering, Yao W ,Chuhan J ,Mihai B , et al [J]. IEEE transactions on visualization and computer graphics, 2022, PP

and the broken love logo on its T-shirt reflects the characteristics of coronary heart disease (see Figure 3-4).

The second information visualization design mainly introduces various conditions caused by high sugar intake, mainly including human diseases easily caused by high sugar intake, age distribution of diabetes, science popularization of deep sugar index, methods of sugar reduction and control, and various diseases.

The main image of the second information visualization is the patient with type II diabetes. The illustration shows that if the glycemic index reaches 11.5 mmol/L, the patient will be diagnosed as diabetes. The method of reducing and controlling sugar uses many small icons to express concepts. The pie chart and bar chart can directly express the age distribution of diabetes and the overweight and obesity rate of Chinese residents. The overall blue tone highlights the theme of the disease (see Figure 3-5).

### **3.3.2 Visual Design of Sugar Content Information for Vegetables and Fruits**

Part of the reason why China has the most diabetes patients is that most people know little about the sugar content of things around them. Although many fruits and vegetables around them taste not sweet, they actually contain a lot of sugar in their bodies. The main idea of this information visualization design is to help people have a clearer understanding of the sugar content of food around them.

The main illustration character in the first information visualization is a sporty girl who often exercises and pays attention to her diet. Her figure and skin are the standards of a normal person, and the vegetables and fruits she is holding in her hand reflect this situation. In order to better express the sugar content of fruits and vegetables, vector illustrations were used to draw a part of the fruits and vegetables. The combination of text and illustrations has a more visual impact, making the visual design of the entire information more rich.

Compare the differences between high sugar foods and low sugar foods through a line chart. The combination of charts and text makes this sentence more impactful. The combination of various foods, vegetables, and fruits at the bottom expresses the need for a healthy and reasonable diet. Use words to describe the methods to prevent diabetes (see Figure 3-6).

The second information visualization design mainly reflects the benefits of green leafy vegetables, and the impact of green leafy vegetables on diabetes. The main image of the second information visualization design is a fat girl who does not like sports. The acne on her face and the fat body are the embodiment of diabetes. The histogram shows the prevalence of diabetes and the risk coefficient of eating vegetables or not eating vegetables. To highlight the theme of healthy eating, the overall color scheme is green (see Figure 3-7).

### **3.3.3 Diabetes information visualization design**

In general, for beverages with low sugar content, drinking them in small amounts is not very harmful. For beverages with high sugar content, drinking them may have an impact on physical health. A large amount of drinks may lead to diabetes. Because drinks contain a large amount of sugar, such as carbonated drinks, fruit juice, etc. carbonated drinks contain carbonated hydrolysis sugar, and fruit juice contains more sugar, which can directly participate in gluconeogenesis after entering the body and increase blood sugar, a large amount of drinks may lead to diabetes.

The first information visualization design mainly depicts the sugar content of common beverages, with the main illustration depicting a person holding a beverage and having a chubby body shape, reflecting the symptoms of obesity caused by frequent consumption of beverages. The illustration depicts the beverages that young people love to drink to attract their attention. The bar chart and bar chart clearly demonstrate that health has become a theme of consumption, and sugar free beverages are also becoming increasingly popular. In the future, people's awareness of health will be strong (see Figure 3-8).

The main image of the second information visualization echoes the main image of the first one. They are both fat and fat. Their symptoms are type II diabetes, while type II diabetes is a bit more heritable. Their images are like two brothers and sisters, which better interpret type II diabetes (see Figure 3-9).

### **3.4 Poster Design**

The core goal of poster design is to convey information and promote. In a diversified modern society, posters have become a powerful tool for information dissemination and brand promotion due to their unique visual impact. They can be applied in various occasions, whether it is commercial activities, product promotion, service promotion, or social issues, and can play a crucial role.

The poster design cleverly integrates visual and textual elements to convey information to the audience. An excellent poster often has a strong visual impact and can quickly attract the attention of the audience. The selection of colors, the combination of graphics, and the use of fonts are all key elements that make up the visual appeal of posters. These elements not only make the poster look beautiful, but more importantly, they can effectively convey the message to be conveyed.

With the continuous development of technology, the form of poster design is also constantly innovating. Nowadays, new forms of posters such as digital posters and dynamic posters are gradually emerging, presenting information in a more vivid and three-dimensional way, bringing audiences a brand new visual experience.

Poster design plays a crucial role in information dissemination and promotion. By cleverly combining visual and textual elements, posters can quickly attract the audience's attention, stimulate their interest, and thus achieve effective transmission and promotion of information. In the future, with the continuous innovation of design concepts and technological progress, poster design will showcase its unique charm in more fields.

In modern environments, visual communication design has become a comprehensive discipline that combines technology and art. The development of various technologies has driven the emergence of new forms of design art, while also promoting changes in design concepts and ways of thinking. Visual representation, as a representation practice that expresses the meaning of information in the form of visual symbols, is a method and means to achieve information visualization.<sup>29</sup>

### **3.4.1 Diabetes information visualization design**

In the early stages of poster design, our original intention was to choose various fruits as the main images for the poster. This is a creative and attractive idea, but after completing the production of four posters, I found that the theme expression was too blurry and the images were too monotonous. This simple fruit image failed to effectively convey the core message and design concept I wanted to convey.

Faced with this dilemma, I have decided to have in-depth communication with my supervisor and seek directions for breakthroughs. After in-depth discussion and reflection, I have decided to completely change the design style of the poster. In the end, I chose geometric shapes as the main design concept for the poster. This decision stems from my profound understanding of geometric shapes in visual expression.

Geometric shapes belong to the abstract expression of shapes, and they have concise, eye-catching, and strong visual characteristics. By using different geometric forms, I can bring a rich and diverse visual language and psychological experience to the audience. For example, a circle can convey a harmonious and perfect feeling, while a triangle may evoke a stable and sturdy image. The application of these geometric elements in posters not only makes

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<sup>29</sup> Interactive Mode of Visual Communication Based on Information Visualization Theory , Xiaoke H[J]. Computational Intelligence and Neuroscience, 2022, 2022 4482669-4482669.

the design more creative and unique, but also conveys strong design concepts through concise shapes.

In the process of incorporating geometric elements into the poster, I fully utilized design techniques such as color, proportion, and layout to present a vivid visual impact. I use bright color contrast to make geometric shapes stand out in the poster; Through this transformation, I successfully solved the problem of unclear expression of poster themes and overly simple images. The new poster is not only visually more attractive, but also more rich and profound in connotation. They successfully convey the core message and design concept I want to express through the clever use of geometric shapes.

This change in design style has made us deeply realize that selecting appropriate graphic elements and expressions is crucial in poster design. By constantly trying and innovating, I can find more suitable design techniques to make poster works more creative and infectious.

### **3.4.2 Diabetes information visualization design**

Each visual design work is carefully matched with promotional posters with consistent theme tones. A poster with a blue themed color scheme cleverly utilizes elements such as circles, squares, and rectangles to create a modern and technological image. The heart shaped pattern in the center of the poster represents the theme of heart disease. It outlines the shape of the heart with simple lines, symbolizing the importance of heart health and life. The hamburger and ice cream patterns scattered around vividly display the types of food that may lead to obesity. The clever combination of these patterns not only conveys information about heart health and dietary health, but also gives people a strong visual impact.

A poster with green as the main color tone, green symbolizes vitality and vigor, therefore in this poster, the main elements are composed of various fruits and vegetables. These fruits and vegetables are depicted vividly, with bright

colors that make people drool. The overall color tone of the poster is soft, giving people a fresh and natural feeling, making people not feel bored at first sight. This poster not only showcases the rich diversity of fruits and vegetables, but also conveys the importance of a healthy diet, encouraging people to eat more fruits and vegetables to maintain good health.

A poster with yellow as the theme color tone, yellow represents sunshine and vitality, and this poster is also full of life atmosphere. The main elements on the poster include various foods and beverages, which are depicted in a colorful and captivating way. The circular pattern in the poster represents people's fat, while the cake represents desserts. These elements complement the overall color tone of the poster, creating a lively and interesting visual effect. In addition, the poster cleverly added some images of sports figures, which formed a sharp contrast with other elements in the poster, bringing a brand new visual experience to the audience. The addition of these sports villains not only enhances the interest of the posters, but also implies the importance of preventing diabetes through sports.

Through the display of these three posters, one can see the enormous potential of visual design in conveying information and expressing themes. These posters not only have appropriate color combinations, but also cleverly use elements, making it easy for the audience to understand and accept the information contained in them during the appreciation process. (see Figure 3-10~12).

### **3.5 Derivative design**

Derivative design, as a creative approach, involves the enhancement, modification, or extension of specific features or functionalities of existing products or foundations to create something novel and distinct. This innovative design process fulfills the personalized needs of consumers, transforms the content of design expressions, and enhances the aesthetic appeal of products.

The essence of derivative design lies in the reinterpretation and reinterpretation of traditional concepts or products. Designers explore new possibilities and incorporate fresh ideas to breathe new life into familiar items. This can range from adding modern functionalities to classic products, modifying existing designs to suit new trends, or simply reinterpreting a concept in a fresh and innovative way. To illustrate the concept further, let's consider the derivative design of eco-friendly products. In this case, designers strive to create products that are not only stylish and functional but also environmentally friendly. This might involve using sustainable materials, incorporating recycling features, or reducing the overall carbon footprint of the product. By combining aesthetics with sustainability, derivative designs can help to promote a more environmentally conscious lifestyle.

In conclusion, derivative design represents a powerful tool for creating innovative and personalized products that meet the diverse needs of modern consumers. By reinterpreting and enhancing existing concepts or products, designers can create unique and visually appealing items that are not only functional but also reflect consumers' cultural values and aesthetic preferences.

Puzzle and Rubik's Cube as derivatives can make teenagers more interested in the theme of sugar coated bullets, attract their attention, and deepen their understanding of low sugar diets and healthy living (see Figure 3-13).

The small signs and water cups on the office desk are designed for the working population. Decorative signs and practical water cups can be used as supplies for the working population, allowing them to inadvertently see sugar coated bullet themed derivatives, subtly influencing the importance of low sugar diet in their hearts (see Figure 3-14).

Woven fabric bags and pillows are derivative designs for the elderly. Woven fabric bags can meet the needs of elderly people for daily travel and packing. The pillows can be used for decoration at home, which is practical, soft, comfortable, and beautiful (see Figure 3-15).

It is necessary to advocate a light diet. It should be reminded that not only should middle-aged and elderly people have a light diet, but they should also develop good habits of not eating too salty from infants and adolescents.<sup>30</sup>

### **Summary of Chapter III**

1. Simple and clear logo and font design. Logo design is the recognition of symbols that represent the characteristics of things, appearing in people's vision with simple, prominent, and easily recognizable images. It can transmit certain information to the audience through certain patterns and refined images.

2. The Impact of Poster Design. The primary purpose of poster design is to convey information and promote. Posters can be used to promote various activities, products, services, social issues, etc. By combining visual and textual elements, posters can convey information to the audience, attract their attention, arouse interest, and stimulate their curiosity.

3. The expression of geometric abstract graphics. Using geometric shapes as the main design concept, geometric shapes belong to abstract expressions in graphics, with concise, eye-catching, and strong formal visual characteristics. Moreover, different geometric forms bring different visual language and psychological feelings to people. Adding geometric elements to the poster and conveying strong design concepts through simple shapes can have a more visual impact.

4. Information Visualization Design for Sugar. Information visualization on diabetes is mainly designed from the type of diabetes, pathogenesis, diabetes patients, diabetes symptoms, diabetic complications, diabetes treatment methods, etc.

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<sup>30</sup> .Promoting the dietary habit of low salt, low sugar, and increased vinegar [J]. Inner Mongolia Forestry, 1990 (04): 39+38

## **Chapter IV**

### **PROBLEMS AND SOLUTIONS DURING THE CREATION PROCESS AND DISPLAY OF DESIGN ACHIEVEMENTS**

#### **4.1 Problems in the design process**

When facing this design task, the biggest challenge I initially faced was how to determine the direction of the design. I don't know whether to focus on brand design, packaging design, or information visualization design. At the beginning, I had almost no idea, with only scattered ideas and some preliminary content in my mind.

When I started designing the logo, I quickly encountered a challenge. Due to my overly simplistic approach, the product I designed appears very simple, lacking depth and scalability. At the same time, the integration of font design and logo design is not good, which cannot form a harmonious and unified visual effect. This forces me to re-examine our design ideas and seek new inspiration and breakthroughs.

I also encountered considerable difficulties in information visualization design. Due to my insufficient grasp of information and superficial research on related topics, the designed content appears thin and hollow. I realized that in order to excel in this field, I need to have a deeper understanding of the principles and techniques of information communication, as well as how to highlight the core value and appeal of information through design.

In the process of designing posters, I also encountered some challenges. In the initial stage, I attempted to use fruits as the main visual element, but the effect was not ideal. My lack of precision in style control resulted in the visual effects of the posters appearing disorganized and lacking a unified aesthetic. I realize that in the design process, I need to pay more attention to the unity and coordination of styles to ensure that the overall effect of the design work meets expectations.

We have not been discouraged in the face of these challenges. On the contrary, I have become more determined to solve the problem. I started actively searching for relevant materials and cases, learning excellent design concepts and skills, in order to find breakthroughs in the design process. At the same time, I have also strengthened communication and collaboration among team members to jointly discuss solutions to problems.

Through continuous effort and practice, I have gradually found ways to solve these challenges. I successfully completed this design task and submitted a piece of work. Through this experience, I have deeply experienced the hardships and joys of design work. I believe that in future design work, I will face various challenges and difficulties more maturely and confidently, and create more excellent design works.

## **4.2 Solutions to Problems in the Design Process**

At the beginning of the design, I knew that the Internet was a treasure house of creativity and a source of inspiration. Therefore, I have invested a lot of time and energy in searching for mature and creative works in the online world. I have carefully studied their form, structure, and expression methods in order to draw nourishment from them and provide reference and inspiration for my design.

After in-depth analysis and research, I have finally determined the direction of information visualization design. In information visualization design, I focus on presenting complex information in an intuitive and easy to understand way, helping the audience better understand and accept the information. I also value the artistic and aesthetic aspects of design, striving to convey information while providing viewers with a pleasant visual experience.

In terms of logo and font design, I have received careful guidance from my supervisor. In font design, I pay attention to the unity and coordination of strokes, striving to make the font look more beautiful and harmonious. In terms

of logo design, I took inspiration from the sugar coated shell and cleverly integrated the word "sugar" into the shell shape, forming a unique logo image. This design not only conforms to the characteristics of the brand, but also is easy to recognize and remember.

In information visualization design, I have incorporated elements of icon design and illustration design. These elements not only increase the brightness of the image, but also make the overall color style more unified and coordinated. At the same time, I also pay attention to the symbolism and symbolism of icons and illustrations, so that they can better fit the theme and enhance the expressive power of the design.

In terms of poster design, I carefully listened to the opinions of my supervisor and made comprehensive adjustments to the design style. I adopted geometric shapes as the main element and combined them with information visualization design to form a unique and creative design style. This design not only attracts the audience's attention, but also better conveys the theme and information of the poster.

Throughout the entire design process, I have always maintained a focus and pursuit of details. I use rich adjectives and idioms to describe the details and effects of design, making the article more vivid and vivid. At the same time, I also conducted in-depth discussions and analysis on the viewpoints mentioned in the original content, demonstrating comprehensive thinking and exploration.

Through this design practice, I have deeply realized the importance of creativity and inspiration. Only through continuous learning and exploration can one continuously improve their design ability and level. Looking ahead to the future, I will continue to work hard, constantly challenge myself, and pursue a higher level of design. I believe that in the future, I will create more excellent design works.

## Summary of Chapter IV

1. My own shortcomings, When designing a logo, the idea is singular, and the product is very simple and cannot be further extended or deepened. The font design cannot be well integrated with the logo design
2. A good solution, Logo design and font design, font design unifies strokes, and for the logo design of sugar coated shells, sugar characters are used as the main body of the shell shape, and the final draft is determined. The information visualization design incorporates icon design and illustration design, increasing the brightness of the image and matching the color style. The poster design listened to the guidance of the teacher and changed the style entirely, using geometric shapes as the main body, combining the poster with information visualization design.

## **Chapter V**

### **SUMMARY**

The graduation project is the answer sheet for my four years of university studies. Through this graduation project, which focuses on information visualization design, I have learned a lot. From the initial hesitation and confusion in choosing a topic to the final step of completing the design work, although the process was tortuous, the result was beautiful.

The theme of sugar coated bombs is one I want to do very much. I am very happy to choose the topic I like. Because people around me are troubled by diabetes, I always want to increase people's awareness of diabetes and awareness of low sugar diet through designing works.

My first time doing information visualization design helped me understand the purpose of information visualization design and the important role of information icons and visualization in daily life.

Due to spending a lot of time in logo design, I learned about standardized graphic production and realized that a small detail in design can determine many things. In poster design, I understand the importance of unified style and how to maximize visual effects.

During these few months of working on my graduation project, I also realized that learning should be planned and not let laziness defeat me. Through continuous learning, my computer design, design ideas, hand drawing ability, and overall perspective have all improved to varying degrees.

## CONCLUSION

After nearly a semester of hard work, my graduation project has finally been successfully completed. Looking back on the entire process of graduation design, it can be said that there were many gains and insights. The graduation project is not only a summary and refinement of the knowledge learned during the four years of university, but also a comprehensive examination and improvement of one's professional abilities.

Graduation design is a long-term and complex process. In this process, I constantly collect information, organize information, design ideas, and make modifications and improvements. Every detail needs to be carefully considered, and every step needs to be taken seriously. Through this process, I not only exercised my patience and perseverance, but also improved my thinking ability and problem-solving ability.

My graduation project made me deeply realize my shortcomings in design. In the design process, I found that my understanding of contemporary brand design is not deep enough, and my grasp of design concepts and styles is not accurate enough. This made me realize that to become an excellent designer, one not only needs to have solid basic skills, but also needs to constantly learn and explore new design concepts and technical means. My graduation project has also made me more clear about my career development direction. Through practice, I have become more determined to engage in the design industry and have identified the direction for future learning and improvement. I will continue to strengthen my professional skills, improve my design skills, and strive to become an excellent designer.

Finally, I would like to thank the guidance teacher for their careful guidance and the enthusiastic help of my classmates. It is their support and encouragement that enabled me to successfully complete my graduation project. At the same time, I also want to thank the school for providing me with a good learning environment and resources, which have provided me with valuable

practical opportunities and growth space. This graduation project has given me a lot of valuable experience and insights. In my future studies and work, I will continue to work hard, constantly improve my abilities and qualities, and strive to achieve my career dreams.

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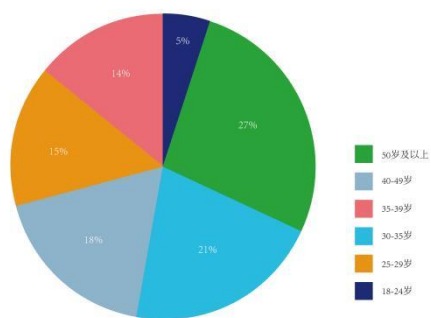
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## ANNEX



Figure2-1



糖尿病年龄分布

Figure2-2

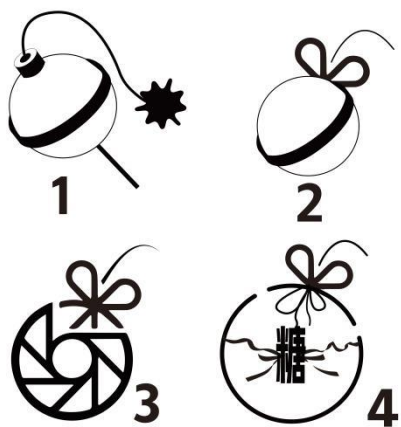


Figure3-1



Figure3-2

糖衣炮弹

糖衣炮弹

糖衣炮弹

Figure3-3



Figure3-4



Figure3-5



Figure3-6

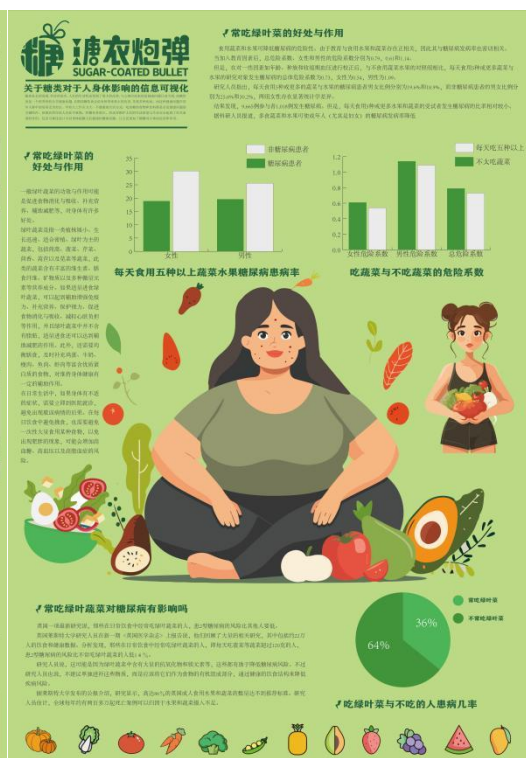


Figure3-7



Figure3-8



Figure3-9



Figure3-10



Figure3-11



Figure3-12



Figure3-13



Figure3-14



Figure3-15