The influence of plant landscape color on the quality of life for students in Sichuan Vocational College of Health and Rehabilitation, Zigong city, Sichuan province, China

Langyue Zhu

A Thesis Submitted in Partial Fulfillment of Requirements for
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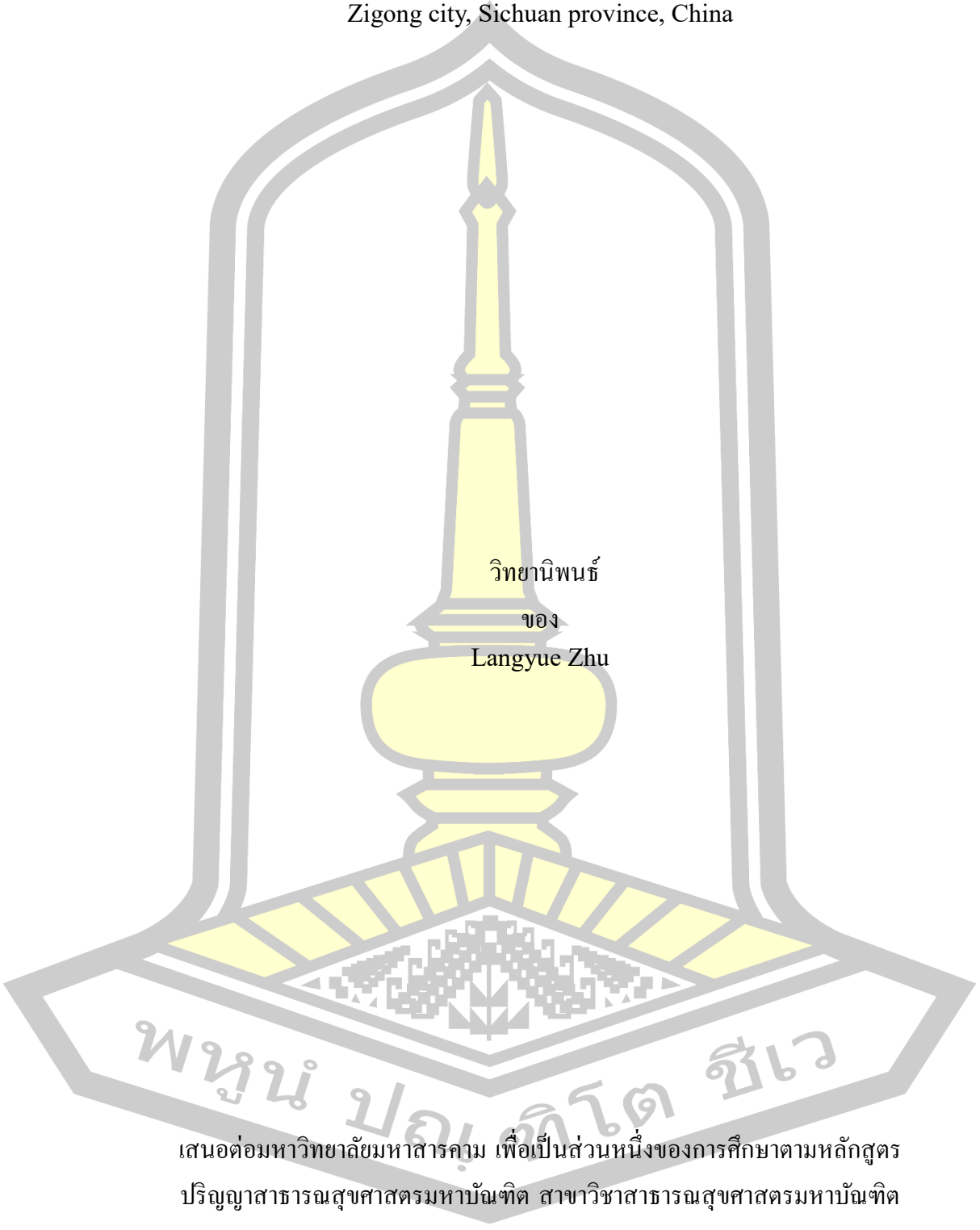

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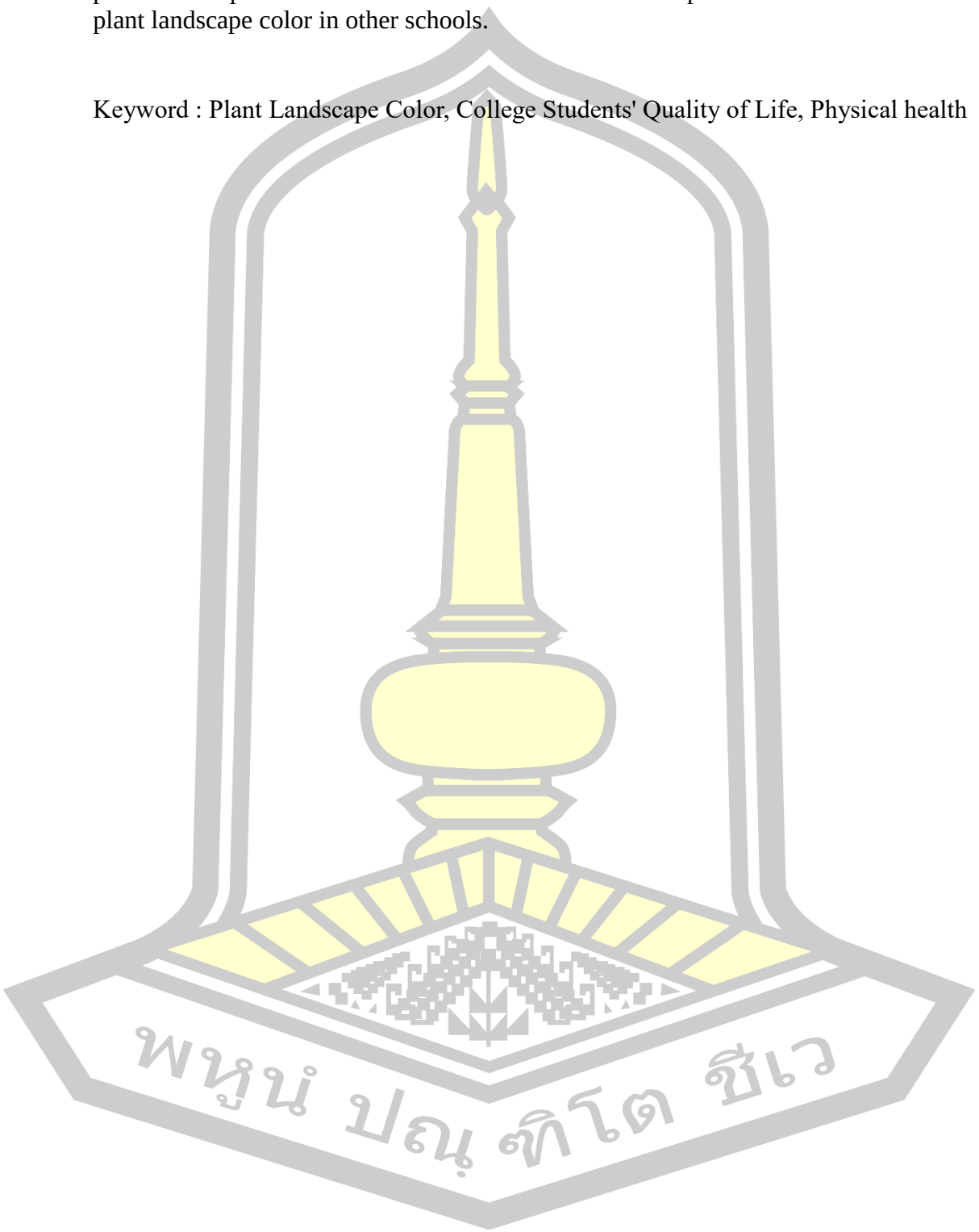
ABSTRACT

According to statistics, in 2022, there were a total of 3,013 higher education institutions in China, with various forms of higher education enrolling 46.55 million students. Approximately 13.965 million college students faced quality of life issues. Therefore, the psychological health problems faced by college students have significantly affected their quality of life and should be given high attention. This study takes Sichuan Vocational College of Health and Rehabilitation as an example to explore the impact of plant landscape color on the quality of life of college students. The research adopted a mixed-method approach, combining quantitative surveys and qualitative interviews, with a sample of 328 students. The survey tool assessed students' satisfaction with plant landscape color and quality of life. The study utilized SPSS software to establish a linear regression model with the four dimensions of quality of life as dependent variables and the five dimensions of plant landscape color as independent variables. Subsequently, the model was analyzed through regression equations to verify the hypothetical relationships between plant landscape color and each sub-dimension's impact on the quality of life of college students. During the verification process, this paper tested the tolerance and variance inflation factor (VIF) of each independent variable to determine whether there was a problem of multicollinearity. In the qualitative data analysis, content analysis was used, and qualitative interviews provided an opportunity for in-depth insights into students' personal experiences and preferences. The results showed that "Plant landscape color" is an independent influencing factor of "Quality of life" satisfaction and has a positive impact, meaning that the higher the satisfaction with "Plant landscape color," the higher the satisfaction with "Quality of life." This implies that if schools want to improve students' quality of life, they must start with "Plant landscape color." The study concludes that careful planning of campus landscapes, with attention to color diversity and distribution, can enhance students' quality of life. It is recommended that universities consider and focus on the planning of plant landscape colors when making decisions about campus development and maintenance. This study has

enriched the theoretical system of the field of college students' quality of life and plant landscape color to a certain extent and has also inspired research in the field of plant landscape color in other schools.

Keyword : Plant Landscape Color, College Students' Quality of Life, Physical health



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CHAPTER I
INTRODUCTION

According to the "China Higher Education Quality Report", the number of college students in China has reached 46.55 million, ranking first in the world. According to reports, more than 30% of Chinese college students have quality of life problems, and this number is increasing year by year. Students are facing increasing academic and employment pressure. If psychological counseling is not provided in time, it is easy to develop pessimism, which may lead to frequent extreme events such as depression and jumping off buildings. Due to the large number of students, although the professional human-intervention psychological counseling on campus is operating at full capacity, it still cannot guarantee that professional quality of life counseling will cover every student. Studies have shown that people whose activity range is mostly concentrated in green areas have less stress and lower depression, which can reduce the aggressive behavior of teenagers, and good plant landscape colors can also effectively improve the psychological problems that plague teenagers. Therefore, a good campus plant landscape color can provide college students with rich physical sensory experience and improve the quality of life for college students. This chapter consists of six parts: Background, Research Question, Research Objectives, Research Scope, Operations Research Definition, and Research Benefits. Make an introduction.

1.1 Background

With the acceleration of social pace, people's living pressure is increasing day by day, and their requirements for plant landscapes are also becoming higher and higher.Employment pressure, academic pressure, and work pressure lead to a series of psychological problems. There are fewer and fewer opportunities for human beings to contact with natural plants. At the same time, human beings are facing more and more internal and external pressures, which have seriously affected their own quality of life. Cases abroad show that the quality of life problem does not only exist in the middle-aged and elderly groups. Its manifestations are becoming more and more obvious when young people are younger. More and more young people are declining in physical fitness. They choose to escape in interpersonal communication and continue to lose confidence and fun in life. , the quality of life is seriously affected. At present, there are many extreme incidents caused by psychological problems among young people in our country, especially young people in college years. Their emotions are more susceptible to external influences and fluctuations, and the pressure from school, family and work has increased sharply. If they do not carry out a good psychological Diversion, which may result in some irrational, anti-social and anti-personality extreme vicious events. The occurrence of these emergencies has caused the entire society to pay attention to the quality of life of young people. Reports continue to indicate that more than 30% of college students in China have quality of life problems, and this figure is still rising (Wang Zimengqiu. 2018). According to statistics, in 2022, China has a total of 3,013

colleges and universities, with 46.55 million students in various forms of higher education, and about 13.965 million college students with quality of life problems. There are 134 ordinary colleges and universities in Sichuan Province. The number of students reached 2.052 million, and the number of students with quality of life problems reached 606,000. There are 3 colleges and universities in Zigong City, with a population of 46,000 and 13,000 students with quality of life problems. (National Education Development Statistical Bulletin. 2022). According to the data of Sichuan Health Rehabilitation Vocational College, there are more than 10,000 students in the school , and the number of students with quality of life problems accounts for more than 30%, reaching more than 3,000 people. Therefore, the quality of life problems faced by college students have caused the quality of life of college students to be affected. Serious impact should be given great attention.

Studies have found that excellent campus plant landscape colors can promote people's health, relieve restlessness, and have a good effect on emotional comfort. In the campus plant landscape color, garden plants, as an important part of the entire landscape space, can not only beautify the environment and purify pollution, but also the colors and spatial forms created in the entire space can promote physical and mental health and have positive effects on people's quality of life. As an important area for college students to entertain and study, the university campus is closely related to the life and work of college students, and the degree of student participation is extremely high. Therefore, the entire campus environment is closely related to the quality of life for college students, and the construction of the campus environment plays a key role in the healthy life of college students. The exploration and research of plant landscape colors on university campuses is an important direction to improve the quality of life of college students and is a key cure for psychological problems of college students. Therefore, the construction of restorative campus plant landscape colors should be strengthened. (Sun Siyun et al. 2023). In terms of supporting plant landscape facilities, Sichuan Vocational College of Health and Rehabilitation in Zigong City, Sichuan Province, China, moved to a new campus in 2018. Although the plant landscape facilities on the campus covering an area of 900 acres are planned, after only 5 years of cultivation and watering, the effect of the plant landscape has been lost. It has not yet reached expectations. According to statistics, there are 32 plant landscape community spaces in the school, and the total number of plants is 49. Arbor and ground cover type of plant configuration accounts for 70 %, which is the main type of plant configuration in campus plant landscape space. The plant landscape color of evergreen trees, deciduous trees shrubs, and ground cover accounts for about 30 %. The color of plant landscapes is generally concentrated in the color of ground cover plants and tree leaves, and is mainly concentrated in spring and autumn. The color of tree leaves changes little in summer, and the leaves of trees fall off in winter. There are 12 types of flowers, and the colors are concentrated into 4 colors: red, pink, purple, and white. The color of the plant landscape is relatively single and repetitive, which is

easy to cause visual fatigue. Therefore, this study conducts research and exploration on plant landscape colors based on the current status of student life in the school to find a plant landscape color combination suitable for students in this school, stimulate students' participation and activity in outdoor spaces, and improve the quality of students' campus life.

1.2 Research Questions

What influence does plant landscape color have on the quality of life of students at Sichuan Health and Rehabilitation Vocational College ?

1.3 Research Objectives

1.3.1 General Objective

Study the influence of plant landscape color on the quality of life of students at Sichuan Vocational College of Health and Rehabilitation in Zigong City, Sichuan Province ,China.

1.3.2 Specific objectives

(1) Describe the demographic characteristics and situation of students in Sichuan Vocational College of Health and Rehabilitation.

(2) Describe the plant landscape colors of college students in Sichuan Vocational College of Health and Rehabilitation.

(3) Describe the quality of life of students in Sichuan Vocational College of Health and Rehabilitation.

(4) Describe the influence of plant landscape color on students ' quality of life.

1.4 Research scope of this study

1.4.1 Content scope

The main research content and direction of this article is that plant landscape color can alleviate the quality of life of students.

1.4.2 Population scope and target groups

Students at Sichuan Vocational College of Health and Rehabilitation, in Zigong City, Sichuan Province, China.

1.4.3 Regional Study Scope

Zigong City, Sichuan Province, China.

1.4.4 Timing research scope

September 2023 to June 2024.

1.5 Definition of Operations Research

1.5.1 Plant landscape color

Plant landscape refers to the natural or artificial environment composed of plant elements, including the combination of plants including flowers, trees, shrubs, ground cover plants, etc., as well as their layout and design in the overall environment. Plant landscapes can be used for a variety of purposes such as enhancing the aesthetics of the environment, improving air quality, and providing ecological services. The color of the plant landscape is to use the red, purple, pink, green and other colors of the plants to achieve a beautiful and harmonious effect (Yuan Xun. 2013). The plant landscape color of this study includes the following five aspects:

1.5.1.1 Color Psychology

The word color is a general term for red, orange, yellow, green, cyan, blue, purple, black and white, and the mixture between all these colors. The various characteristics of color combine to affect our perception system and affect The physical and mental state and development affect people's material life and spiritual life. Human beings feel colors through senses such as sight, hearing, smell, touch, and taste, and engage in artistic creation and artistic appreciation, among which visually received information accounts for about 70% of all information, and color occupies a very important position in visual art. Compared with visual art elements such as shape, light and shade, texture, color is more intuitive, vivid, expressive and visual impact. Color psychology is a subjective reflection of the objective world, when light of different wavelengths acts on the human visual organs to produce color perception, it will inevitably lead to some emotional psychological activities. In fact, the color physiological and color psychological processes are simultaneously crossed, and they are mutually related. When there is a certain physiological change, there will be a certain psychological activity; when there is a certain psychological activity, there will be a certain physiological change. (Duan Shu,2006)

1.5.1.2 Attention recovery

Place attachment can increase the psychological restoration of landscape , that is, people's attachment to beautiful landscape can help regain the physical, psychological and social abilities that were lost in the process of adapting to the external landscape . There are two theories to explain the psychological recovery function of place attachment. One is the attention recovery theory, which emphasizes the role of the environment in promoting the recovery of psychological functions; the second is the psychoevolutionary theory, namely the stress reduction theory, which emphasizes the recovery role of the environment . (He Lingrui et al. 2023)

1.5.1.3 Color harmony

Harmony of color refers to the harmonious and unified effect formed by arranging common and mutually similar pigments. Divided into two categories: 1) Harmony of similar colors, which refers to the change of purity and lightness when colors with similar properties are arranged together, so that it can achieve a uniform and coordinated effect with layered changes of shades; 2) Contrasting colorsHarmony refers to the coordination effect of two colors that are far apart in nature, especially two colors that are opposite to each other in complementary colors , and are configured through certain specific methods and rules. (Lin Chongde et al. 2003)

1.5.1.4 Mental stress

Mental stress reduction originates from psychological counseling but is higher than psychological counseling. The purpose of psychological stress reduction is to achieve physical and mental balance of the complainant and harmony in life, work and family. That is, psychological counseling does not help the seeker to solve any specific problems in life, but psychological decompression requires helping the seeker to solve specific problems in life, and to help the seeker show good adaptation in the face of the external world (stimuli and pressure) Sex, there is no intense emotional conflict when facing one's own inner world. (Peng Danling. 2001)

1.5.1.5 Naturally soothe emotional ups and downs

Naturally soothing emotions refers to making viewers feel happy and eliminating anxiety and irritability through natural plants or plant landscapes. In the research, the purpose of eliminating students' negative emotions is achieved through the color matching of school plant landscapes.

1.5.2 Quality of life

The World Health Organization's assessment of quality of life mainly includes the following four aspects:

1.5.2.1 Physical health

Physical fitness refers to factors including body pain,energy levels, sleep and rest, and studies have shown that effective green cover can help voluntarily increase participation in physical activity. Play an important role in students' physical health.

1.5.2.2 Psychological

Psychological health is a state of complete physical, mental and social well-being of a person and not just the absence of disease or disability (World Health Organization. 2014). It was emphasized that psychological is not just a lack of mental illness, but also includes positive emotions, the development of personal

potential and participation in society. The psychological of students helps individuals achieve balance and happiness in all aspects and contributes to student development.

1.5.2.3 Social relationships

Social relationships are usually used to describe the interactions, connections, and mutual influences between people. Social relationships can include family relationships, friendships, colleague relationships, social networks, community connections, and other forms of interaction. These relationships can have a profound impact on an individual's quality of life, emotional satisfaction, and social support. In this study, students' social relationships refer to the relationships between students and students, and between students and teachers, which are also the main social relationships on university campuses.

1.5.2.4 Environment

Environment refers to all material and non-material elements used to describe the surrounding world, including elements created by nature and humans. The environment in this study mainly refers to the natural environment in the physical environment, including educational and non-educational teaching places in universities.

1.6 Research Benefits

At present, the quality of life of college students has attracted attention from all walks of life. For teachers and students, the appropriate color of plant landscape can increase the participation of teachers and students in campus activities, enhance the vitality of the campus, make the campus atmosphere harmonious, and play a key role in building the overall image of the school.

From a psychological and sociological perspective, a good way to solve psychological problems is to go deep into nature alone and soothe your emotional ups and downs. And more scientific evidence proves that the stimulation of plant landscape color is a good medicine for treating psychological problems and improving the quality of life.

In recent years, the academic circles have made in-depth research on the color of plant landscapes on university campuses, but there are few studies on its relevance in improving the quality of life of college students. Therefore, to carry out research on the impact ofplant landscape colors on university campuses on improving the quality of life of college students It can provide basis and reference for exploring the quality of campus life of college students.

CHAPTER II
LITERATURE REVIEW

The topic of this study is the influence of plant landscape color on the quality of life of college students in Sichuan Vocational College of Health and Rehabilitation in Zigong City, Sichuan Province, China. The purpose of this study is to determine the plant landscape color as influence to the quality of life of college students of Sichuan Vocational College of Health and Rehabilitation in Zigong City, Sichuan Province, China. This chapter reviews the literature, concepts, theories, and related research as follows:

2.1 Theory and Operation Method
- 2.1.1 Plant Landscape color
- 2.1.2 Quality of life
- 2.1.3 Influence of plant landscape color on quality of life
- 2.1.4 Mixed Method Research

2.2 Related research

2.3 Research Conceptual Framework

2.1 Theory and Operational Approach

2.1.1 Plant landscape color

Plant colors strongly stimulate the human visual nervous system. In landscape design, different plant color combinations will bring people different visual feelings. Since the Renaissance, the color matching of plants has begun to attract the attention of designers. The combination of different plants produces bold and exciting or beautiful and warm pictures, which not only beautifies the surrounding environment, but also improves people's sentiments to varying degrees (Huang Xian. 2014). The color of plant landscape is an important part of campus scenery. Its ornamental characteristics mainly focus on two aspects: color and shape, and have attracted widespread attention. Among plant landscape colors, plant flowers of different colors will convey different psychological colors and psychological feedback. Therefore, understanding the flowering status of campus plants and plant flower colors plays an important role in conducting in-depth research on campus plant landscapes. (Wang Meili. 2015).

Common plant flower colors include: white flowers, red flowers, yellow flowers, purple flowers, and blue flowers. In color psychology, white represents the psychological characteristics of purity, kindness, calmness, and openness. Red represents the psychological characteristics of purity, kindness, calmness, and openness in color psychology. Yellow represents excitement, enthusiasm, strength and desire in Chinese medicine, and yellow represents

happiness, joy, sunshine and hope in color psychology. The two colors can help college students better improve their mood and maintain optimism. The different colors complement each other, making the campus plant landscape more flexible and colorful, and better serving teachers and students.

The following is a display of the colors of landscape plants at Sichuan Vocational College of Health and Rehabilitation:

Figure 1 the colors of landscape plants; red flowers

Figure 2 the colors of landscape plants; pink flowers

Figure 3 the colors of landscape plants; tree and ground cover type plant

Figure 4 the colors of landscape plants; tree and ground cover type plant

Figure 5 the colors of landscape plants; plant landscape

2.1.1.1 color psychology

The word color is a general term for yellow, orange, red, cyan, blue, green, purple, black and white, and the mixture between all these colors. The various characteristics of color combine to affect our perception system and influence The physical and mental state and development affect people's material life and spiritual life. Human beings feel colors through senses such as sight, hearing, smell, touch, and taste, and engage in artistic creation and artistic appreciation, among which visually received information accounts for about 70% of all information, and color occupies a very important position in visual art. Compared with visual art elements such as shape, light and shade, texture, color is more intuitive, vivid, expressive and visual impact. Color psychology is a subjective reflection of the objective world,

when light of different wavelengths acts on the human visual organs to produce color perception, it will inevitably lead to some emotional psychological activities. In fact, the color physiological and color psychological processes are simultaneously crossed, and they are mutually related. When there is a certain physiological change, there will be a certain psychological activity; when there is a certain psychological activity, there will be a certain physiological change . (Duan Shu. 2006).

Wang Zimengqiu (2018) pointed out in an article on the impact of campus plant colors on the physical and mental health of college students: The number of plants of different colors in the number of plant landscape color blocks should be moderate, and 6 types are more appropriate. The proportion of warm and cold tones in plant landscapes should be focused, the distribution of landscape color blocks should be reasonable, and the distribution of warm and cold tones should be coordinated.

This research shows that when arranging plant landscapes, the heights of trees and shrubs must be coordinated, and two types of color coordination are most suitable in the same plant landscape.

The landscape in the entrance area, cultural education area, and teaching area should be dominated by warm-toned plants, that is, deciduous tree species that change color in autumn, and should be planted with evergreen plants. The plant landscape in the ecological leisure area should be dominated by evergreen plants, with deciduous tree species that change color in autumn. plant.

This research shows that green plants have a significant restorative effect on emotions such as tension, depression, and panic; red plants have a significant restorative effect on emotions such as panic and depression. Both green and yellow plants have a significant effect on reducing heart rate. Therefore, when constructing the campus landscape, a large number of green plants can be planted, along with red and yellow plants, to effectively improve the quality of life of college students.

However, the study did not conduct research on seasonal plant color configuration, so study the seasonal characteristics of plant landscape colors to make up for the shortcomings of related research.

Sun Jianing (2023) pointed out in the article "Research on the Control of Color System of Architectural Buildings in Colleges and Universities Based on the Psychological Effects of Color": Color plays an important role in human visual perception, and the human eye's recognition of architectural colors is higher than its recognition of shapes. The human eye recognizes colors through the colored light reflected on the surface of objects. The nature of its electromagnetic waves has a certain influence on people's perception. In addition, in long-term human activities, colors have also been given certain symbolic meanings, with associative and symbolic effects. At the same time, different colors also have different expressions, representing different emotional meanings. For example, red makes people feel excited, blue makes people feel calm, and orange makes people feel warm.

During his thesis research and investigation, he found that students from different types of colleges and universities have different personality and professional characteristics, and have different psychological needs for color and have certain professional characteristics. Therefore, the architectural color systems of different types of colleges and universities should also have different characteristics. Characteristics.

Summary

This research that the information conveyed through color can meet the emotional needs of users and create a more comfortable and healthy color environment. However, he conducted research from the color system of school buildings. This research focus on the aspect of plant color.

Fang Jialin (2021) stated in his research on the impact of plant colors on human physiological and psychological recovery that by scientifically applying the research conclusions of all plant colors to actual design according to different needs, it will help to create a healthy environment that has the most positive effect on public health. landscape.

This research shows 1) The results of the single flower color experiment show that red and purple flowers are the most pleasant; yellow flowers and red flowers have better stress relieving effects than other flower colors; white flowers and blue flowers have a stronger soothing effect on tension ; Blue and purple flowers are the most effective at restoring concentration and cognitive levels. 2) The experimental results of different contrast color combinations show that the contrast 180 。color combination is the most exciting, and at the same time has the best effect on relieving stress, the contrast 30 。color combination has a stronger effect on relieving tension and restoring cognitive ability; the softer contrast The combination of suits has higher effect on subjects' subjective psychological recovery. 3) The experimental results of different proportions of flower and color combinations show that when the proportion of the two contrasting colors in the color combination is balanced, the physiological release effect on the stress and tension of the subjects is stronger, and the effect on psychological recovery is also better; The effect on the restoration of attention was significant, and the restoration of subjective attention was stronger when the proportion of cool or dark flowers was larger. 4) The experimental results of different color distribution methods showed that each group of pictures had a positive impact on the physiology and psychology of the subjects, and the interaction between the plant color contrast and the color distribution method had a significant impact on the subjective psychological recovery score.

Summary

At present, there are many studies showing that color has a positive effect on human mental health, and there are also many literatures on the direction of plant color, but the research on plant color is limited to the psychological level, and there are few studies on the impact on the quality of life.

2.1.1.2 Attention recovery

Place attachment can increase the psychological restoration of landscape, that is, people's attachment to beautiful landscape can help regain the physical, psychological and social abilities that were lost in the process of adapting to the

external landscape. There are two theories to explain the psychological recovery function of place attachment. One is the attention recovery theory, which emphasizes the role of the environment in promoting the recovery of psychological functions; the second is the psych evolutionary theory, namely the stress reduction theory, which emphasizes the recovery role of the environment. (He Lingrui et al. 2023).

Zhang Xiaoyue (2020) mentioned in the article Urban Park Landscape Design Based on Attention Restoration Theory that research on environmental psychology shows that if people are placed in an environment with positive characteristics, psychologically, the environment can have a positive recovery for the individual Effect. As a relatively high-quality public open space in urban space, urban parks have practical significance in improving their restorative quality on the psychological level.

This research concluded that 1) starting from the positive or negative impact of the specific environment on human attention recovery pointed out in environmental psychology, through the study of relevant theoretical knowledge of the attention recovery theory, combined with the behavior and psychology of the crowd Research, integrate relevant knowledge, analyze five excellent design cases at home and abroad, summarize and summarize the success of expressing restorative effects in the cases, and use them for reference in subsequent case projects, and reversely demonstrate the attention The feasibility of combining force restoration theory with urban parks. 2) In the combination of attention recovery theory and urban parks, the principles of combination of ecology and rehabilitation effects, of form and sensory experience, of color and recovery function, of interest and emotional expression should be followed, and the principles of design should be followed. Realization needs to go through three stages from shallow to deep: Observation-Attention Attraction, Contact-Attention Transfer, Enjoyment-Attention Restoration, through gradual influence to achieve a better effect of attention restoration.

Summary

According to different functions, in the design of different nodes in different areas, the theory of attention restoration is integrated with plant landscape design from multiple perspectives, so as to create an environment that has a positive effect on students' psychology. Through theoretical research and specific case studies, we can better combine the theory of attention recovery with the design of plant landscape, and create a plant landscape with positive recovery effect for students, which can provide some reference for the future development of campus environment. significance.

Wang Shiqi (2020) explored the climate characteristics and campus space characteristics of the cold region to deduce the mechanism of restoring the attention of the campus space environment in the cold region; the purpose of the research is to

change the current situation of the negative impact on the students' psychology and spirit caused by the lack of recovery of the winter environment on the campus in the cold region , Rejuvenate the spiritual function of the campus, and promote the spiritual resources of students to maintain an active and abundant state under the pressure of high-intensity cognitive activities, so as to ensure the smooth progress of advanced cognitive activities, stimulate creative thinking, and achieve healthy physical and mental development. A restorative environmental design system suitable for campus space in cold regions is constructed to achieve the goal of improving the cognitive efficiency of college students and promoting their physical and psychology.

Fu Jingwan (2021) pointed out that the psychology problems of college students can no longer be ignored, mainly manifested as brain fatigue, inattention, longer reaction time, dizziness, etc., and even affect emotional and physical health. College students are often taken for granted as a healthy group, so there are few special restorative environments for college students. As a necessary space for the daily life and study of college students, the university campus should also undertake the restoration effect of a healthy environment.

Zheng Anmin's (2022) research results show that: 1) When there is no speech noise, the virtual audio-visual environment has no significant recovery effect on the objective performance of personnel, but has a good psychological recovery effect on personnel perception; 2) When there is speech noise interference, the virtual audio-visual environment The environment has no significant recovery effect on the objective performance of personnel, and the performance is even lower than before recovery; 3) When there is speech noise interference, the recovery effect of psychological perception is worse than that without speech noise. It shows that in the environment of speech noise interference in an open office, how to take appropriate break measures to restore attention is a problem worth noting. The use of VR to simulate an environment different from that of the office is used to verify the recovery of personnel's attention, and it is proved that experiencing the virtual audio-visual environment during work breaks can meet the requirements of personnel's psychological perception recovery, even if there is voice noise interference.

Summary

Under the pressure of excessive employment and study for a long time, the physical and quality of life of college students will be seriously threatened. However, due to the limitation of teaching indoor space, it is difficult to ensure the recovery effect of intermittent rest in the indoor learning environment for a long time. How to promote the effective restoration of attention in the campus environment through the break between classes is an urgent problem to be solved in this field.

2.1.1.3 Color harmony

It refers to a color combination in which two or more colors are organized together in an orderly, coordinated and harmonious manner, and can make people feel happy and satisfied. Color harmony theory is a science that explores the essence of beauty through the tonality and relationship of colors. The purpose of color harmony theory research is to try to study the universal principles of color matching from the essence of beauty. This has always been a matter of great concern to many color scientists. The study of color harmony theory has extremely high theoretical value and practical significance. Using its ideological methods, viewpoints and laws, one can not only trace the origin of color harmony, but also make conclusions, guide, analyze and judge people's specific color cognition and practical application. Color coordination problems and phenomena encountered in activities. (Zheng Xiaohong. 2013).

Li Yanan (2022) proposed that color, as an important part of the campus landscape of colleges and universities, plays a positive role in shaping the school brand, stimulating the work and life motivation of teachers and students, relieving the physical and mental fatigue of teachers and students, and promoting the cultural construction of the campus.

This research innovatively planned the basic chromatograms and basic tones of campus landscape colors in different seasons, carried out specific design practice explorations on the color relationship between the campus environment and surrounding environment, and various landscape systems within the campus, and formed a set of methods to improve the campus landscape of the school. System scheme of color design quality.

Liu Yanwen (2022) pointed out that 50 large and medium-sized cities in China have carried out color planning in the color evaluation and design strategy research of art blocks in Hefei based on color psychology. Therefore, the domestic urban color theory and practice system is gradually improving, and color planning and design It is turning to the neighborhood as the subject of research. Street color, as an important part of urban color, is the basic unit of urban style.

This research concluded that, based on the current color status, history and culture of Hefei City, combined with public color evaluation, the color planning of Hefei Art Street was determined to be "fresh and artistic, rich in color", and the color pedigree of Hefei Art Street was optimized, and the color design of Hefei Art Street was obtained. The strategies are summarized as strengthening the overall color image, contrasting colors to increase color attractiveness, color harmony and display levels, and color psychological effects to increase attractiveness, and are applied to the color design of the lowest color evaluation area.

Zhang Yingying (2013) researched and proposed the composition and analysis of plant landscape color on urban roads. From a visual perspective, she

summarized the color of plant landscapes into three aspects: physical attributes, composition and material of plant colors, thereby exploring the rules of plant landscape colors. Combining color theory and relevant cases, this paper proposes a visual coordination model and color matching spectrum of urban road plant landscape colors; at the same time, it deeply analyzes the factors affecting the color of urban road plant landscapes from both subject and object aspects, including subject factors based on human behavior rules, and Urban road environmental color is the main objective factor; based on the above three parts of the research, it provides a scientific basis for constructing a theory of urban road plant landscape color control.

The core of her research is the study of principles and methods of color control of urban road plant landscapes, which is used to control and guide the color planning of urban road plant landscapes. Firstly, the general principles of urban road plant landscape color control are proposed, including the principle of actor matching, environmental color coordination principle, historical and cultural association principle, and natural environment coordination principle. Secondly, referring to the research results of urban landscape color planning, the urban road plant landscape color control is constructed. program, thereby forming the entire process of urban road plant landscape color control. He Mengnan (2019) proposed that color design is an essential link in garden landscape design. She used color landscape and related theories as the starting point, starting from the perspective of color, using a method that combines theory and practice, and used the color of urban wetland parks to Landscape is the research object for applied analysis research.

The research started from the concept and attributes of color, further summarized color-related research, and deduced the three basic principles of garden color classification and color application, and conducted it through color psychology, social customs, regional culture, ideological connotation, etc. argument. Finally, on the basis of color research, by analyzing the connotations of plants, buildings, waterscapes, rockeries, paving and other gardening elements in the garden landscape, the relevant color application design theory is summarized, and further color harmony and color contrast techniques are used to analyze the color. Influence and application context in garden making.

Based on her rich research results on basic theoretical knowledge, she conducted detailed research on the color landscape design of the city-ring park. It provides a certain theoretical basis for the color coordination design of plant landscapes.

Lin Feng (2017) studied the application of color landscape in plant landscape design and proposed that people always pursue the beauty of harmony, and the same is true for landscape color. Whether it is multiple colors or a single color, it can only be harmonious and unified with the overall environment of the plant landscape and complement each other. Only when people enjoy the beauty can it be considered a

successful design of the color landscape. In the design of plant landscapes, it is not that the richer and more dazzling the colors used, the better.

Everything should also follow the word "harmony". The style, quantity, connotation and charm of the colors must be unified into a whole. Only in this way , will highlight the artistry of plant landscapes and bring people beautiful visual enjoyment.

Zhang Xueqin (2015) proposed in the study of urban street green space landscape based on color theory that as people's lives become increasingly colorful, more and more street green space landscapes begin to appear around people, decorating everyone's daily life. In various urban street green space landscapes, the application of color elements is an essential and important issue. In the design process, a variety of colors need to be used.

This research pointed out that in many cities and regions in China, when designing street green space landscapes, the design and application of various color elements in street green space landscapes are ignored, or the color design is unreasonable and various colors are used "indiscriminately" , "abuse", etc. Therefore, the street green space landscape design in many cities has monotonous colors or "color pollution", resulting in a low overall design level of urban street green space landscape, which cannot provide people with a good and beautiful environment to enjoy, and is not conducive to improving the overall quality of urban residents. Quality of Life.

Summary

The importance of color harmony is self-evident in the process of landscape plant design. In recent years, color harmony has been applied to various environments, but there are few studies on color harmony of plant landscapes. This study will achieve the purpose of color harmony through the reasonable matching of colors of trees and flowers in different seasons. Improve the fun of campus plant landscape appreciation.

2.1.1.4 Mental stress

Mental stress reduction originates from psychological counseling but is higher than psychological counseling. The purpose of psychological stress reduction is to achieve physical and mental balance of the complainant and harmony in life, work and family. That is, psychological counseling does not help the seeker to solve any specific problems in life, but psychological decompression requires helping the seeker to solve specific problems in life, and to help the seeker show good adaptation in the face of the external world (stimuli and pressure) Sex, there is no intense emotional conflict when facing one's own inner world .(Peng Danling. 2001).

Dou Xue (2021) concluded in the research on the psychological and physiological effects of aromatic plants on college students 1) After studying the living lilies with different odor intensities, they found that: under the natural concentration range, the odor intensity of living lilies and the subjective pleasure of the human body showed a significant relationship. positive correlation. The results of the subjective scale showed that after the subjects smelled the live lilies, their fatigue and panic were significantly relieved; the objective data showed that after smelling the live lilies, the duration of sniffing and the intensity of the smell had no difference in the psychophysiological effects. Smelling live lilies increases arousal. 2) After studying three materials of the same fragrance type: living gardenia, gardenia perfume and gardenia essential oil, it was found that 64% of the subjects could accurately identify living gardenia, while perfume and essential oil could not be distinguished. That is, the smell of living plants is identifiable. The results of the subjective scale showed that after sniffing the three materials, the fatigue of the subjects was relieved; the objective data showed that after sniffing the three materials, the duration of sniffing and the psychophysiological effects of different materials were different, and the duration and The materials interact with each other. With the increase of the sniffing time, the α wave value shows an increasing trend, that is, they all have a relaxing effect on the human body; among the three materials with the same fragrance type, the living gardenia has the best relaxing effect on the human body, and the gardenia flower has the best relaxing effect on the human body. Essential oils are next, and gardenia perfume is the worst. 3) After comparing the smelling of living lilies and living gardenias, it was found that: the results of the subjective scale showed that there was no significant difference in the subjective emotions of the subjects before and after smelling the two living plants; the results of objective EEG data showed that Smelling live gardenias had a better soothing effect on subjects than sniffing live lilies, and the excitability increased after adding visual conditions.

This research aimed to pay attention to the accumulation and diffusion of odors when applying aromatic plants, and use terrain, wind direction, and various spaces around plants to control the intensity of odors and make rational use of them; Excitement or calming space. This study combines the creation of plant landscape colors with the fragrance of plants to explore mood regulation and psychological stress reduction.

Lou Yaxin (2023) concluded in his research on the impact of physical exercise on life satisfaction of college students that 1) physical exercise, psychological stress, depression and life satisfaction have significant differences in different demographic variables. 2) There is a significant correlation between physical exercise, psychological stress, depression and life satisfaction among college students. 3) Psychological stress plays a partial mediating role between physical exercise and life satisfaction. 4) Depression plays a partial mediating role between physical exercise and life satisfaction. 5) Psychological stress and depression play a chain mediating role between physical exercise and life satisfaction.

Studies have proved that students participating in certain physical exercises can reduce psychological pressure and achieve the effect of psychological stress reduction. By planning the color of plant landscapes, students can actively participate in outdoor activities and physical exercise. The beautiful natural environment has the effect of reducing psychological pressure and restoring positive emotions. important role.

Summary

At present, academic research on psychological stress reduction has a certain foundation. The psychological decompression effect is mainly explored from the general directions of exercise, environment, and smell. There are few studies on psychological decompression from the perspective of plant landscape color. This study has certain reference significance for future research on plant landscape color on psychological decompression.

2.1.1.5 Nuturally Soothes Emotional Ups and Downs

It is through natural plants or plant landscapes to make viewers feel happy and eliminate anxiety and irritability. In the research, the purpose of eliminating students' negative emotions is achieved through the color matching of school plant landscapes.

Wei Xinyu (2022) found in a META analysis of the intervention effect of restorative virtual natural environment on negative emotions that under the same conditions, the virtual natural environment has a more significant intervention effect on individual negative emotions than other virtual environments (MD = -1.69, 95% CI: -2.46 ~ -0.92, p-value<0.001), can alleviate individual negative emotions such as anxiety, tension, anger, etc., further supporting the restorative advantages of the natural environment; the results of subgroup analysis show that Compared with static virtual environments (MD=-0.12, 95% CI:-0.40 ~ 0.15, *P*=0.36, I~2= 1%), emotional recovery is more likely to occur in dynamic virtual environments (MD= - 2.49, 95% CI: -3.50 ~ -1.49, $P < 0.001$, I ~ 2 = 97%), probably because it can provide more realism and a sense of presence and reality in the virtual environment; in addition, included in the literature The heterogeneity between studies is high (I~2=96%), which may come from the material selection, experimental design, measurement tools, subject selection, etc. of the virtual environment, and there is publication bias. Restorative virtual nature also has limitations. It cannot completely simulate all the characteristics of the natural environment, so the restorative properties provided are limited, which also provides directions for future research.

This research shows that the virtual natural environment has a more significant recovery effect on negative emotions than other environments, which fully proves that the natural environment has the effect of soothing emotional ups and downs. This

study will further explore the impact of real plant landscapes on students' emotional ups and downs role in.

Yang Qian (2023) concluded in the study of urban park landscape elements and optimization strategies that affect emotions: 1) Analyzing people's overall satisfaction, emotional distribution, sources, behavioral activities and landscape element preferences under positive emotions, it was found that: people The scores of each park are all above 4, indicating a satisfactory state overall. The landscape and facilities of each park can meet people's needs. People's emotional state in the park is mainly positive emotions, with the proportion of positive emotions above 88%, which is far higher than that of other parks. Higher than negative emotions; in the distribution and tendency sources of emotions, positive emotional evaluations mainly focus on aspects such as high greening rate, beautiful scenery, and convenient transportation, while negative emotional text evaluations focus on aspects

such as obsolete and shortage of supporting service facilities and improper management; landscape elements (Including plants, lawns, buildings, etc.), behavioral activities, weather and climate, park location and transportation, park service facilities, health conditions and other factors affect people's emotions in the park to varying degrees. 2) The questionnaire survey also found that people generally believe that park landscape elements can improve mood. The emotional value of people was obtained using an emotional scale. The mean values of positive emotions were all above 3.0, and the mean values of negative emotions were below 2.0. People in various parks All showed a positive psychological and emotional state; there was a significant difference in the improvement of mood in terms of park use and basic information, and academic qualifications ($p=0.036<0.05$). 3) Conducted a correlation analysis between emotions and landscape elements, and found that each landscape element has a significant impact on emotions; using positive emotions and negative emotions as dependent variables respectively, and each landscape element of the city park as independent variables, a stepwise regression analysis was performed to obtain the impact Several landscape factors with the highest degree of correlation: spatial privacy (regression coefficient value 1.841), water body participation (regression coefficient value 1.623), terrain relief (regression coefficient value 2.234), rich plant landscape levels (regression coefficient value 1.486) The sufficient number of street lights and street lights (regression coefficient value 1.003) has a significant positive impact on positive emotions; the water body has strong participation (regression coefficient value -1.771), strong spatial privacy (regression coefficient value -1.992), and clear guidance system (Regression coefficient value -1.991), undulating terrain (Regression coefficient value -1.635), and adequate rest facilities (Regression coefficient value -1.582) have a significant negative correlation with negative emotions.

Based on this result, she integrated the common features of park research and put forward the optimized design principles of humanization, attraction, participation, and diversity, as well as selecting high-quality positive landscape elements, rationally dividing functional activity spaces, and planning emotionally guided dynamic tours. Line and other urban park optimization design strategies based on emotional influence and emotional guidance.

Wang Jing (2022) concluded in the research on the impact of perceived environmental aesthetic quality on tourists' positive emotions in natural tourist destinations that 1) the impact of perceived environmental aesthetic quality on positive emotions is fully mediated by natural connection and restorative perception; 2) Between the perceived environmental aesthetic quality and positive emotions, natural connection and restorative perception play a complex intermediary role of "simple + chain"; 3) The research reveals the psychological process mechanism of the environmental aesthetic quality of natural tourist destinations affecting tourists' positive emotions, consistent with the hierarchical logic of tourism aesthetic experience.

Studies have proved that the environment of natural tourist destinations can affect the positive emotions of tourists. From the perspective of the interaction between tourists and natural tourist destinations, he explained the process of positive emotions, and proved that the biophilic hypothesis and the theory of attention recovery can play an important role in explaining the "environmental quality". The complementary synergies in the relationship between health benefits and health benefits provide empirical evidence to support the idea of a fusion of the two theories.

Song Yang (2021) found in his research on the impact of different naturalness waterscape pictures on cognition and emotion that 1) different waterscape naturalness levels contain multiple types of waterscapes, and different types of waterscapes have different naturalness evaluations. The naturalness of waterscape pictures is divided into three grades of low, medium, and high naturalness according to the score; 2) Watching low naturalness waterscape pictures performs best in restoring attention and clear thinking, and can make people feel relaxed, calm, distant, and attractive It has a negative effect on cognitive inhibition; it can regulate the general disorder of emotion, and it shows a trend of positive influence on heart rate. 3) Watching pictures of moderately natural waterscapes has outstanding benefits in promoting cognitive refreshment and conversion, which can make people feel relaxed and calm, distant, charming, extended and compatible, and can regulate the overall emotional disorder. 4) Viewing high-natural waterscape pictures has outstanding cognitive distance and extensibility, which can make people feel attractive and compatible; it is better evaluated in terms of relaxation and calm, attention recovery and clear thinking; it can adjust the general emotional disorder, and emotionally It has a maintenance effect on the vitality level, has a positive adjustment to relieve confusion and depression, and has a positive impact on objective emotions,

especially heart rate; 5) Utilize the principle of maximizing advantages, and promote cognitive improvement and natural waterscapes when choosing and creating waterscapes The feature-based and mood-improving categories are mainly based on the characteristics of high-natural waterscapes for reference, and are developed in the form of a combination of various natural-degree waterscapes.

By exploring the health benefits and different advantages of viewing pictures of waterscapes with different degrees of naturalness, he concluded that waterscapes with different cognitive and emotional function requirements are different, which fully proves that watching natural waterscapes has different emotional adjustment and soothing effects.

Summary

Research on emotions through natural environments, parks, waterscapes, etc. shows that emotions have certain fluctuations and ups and downs. This study explores the influence of plant landscape color on students' emotional ups and downs in the context of the theme of emotion.

2.1.2 Quality of life

In 1958, American economist Galbraith first put forward the definition of quality of life (Zhang Lei. 2005). Quality of life has multiple names depending on the specific field it is used in. When applied to the medical field, it is usually called quality of life or quality of life, which can more accurately reflect the subject characteristics of medicine; when applied to sociology It is generally referred to as quality of life. Quality of life is a concept composed of multi-dimensional structures. However, scholars at home and abroad have always had different opinions on the elaboration and definition of quality of life. Currently, definitions of quality of life fall into three categories: subjective, objective, and comprehensive.

The subjectivist group, represented by Galbraith, believes that quality of life should be a comprehensive assessment of an individual ’s good physical and mental fitness, sense of well-being, spiritual satisfaction and enjoyment. Subsequently, the World Health Organization also clearly proposed the definition of quality of life: that is, individuals' own feelings about their own life status, goals, wishes and standards in different cultures and value systems, including multiple dimensions such as physical, psychological, and social functions. (Liu Jing.2005). The objective school, represented by Zhu Guohong (1992), believes that the quality of life reflects the actual living conditions, emphasizing the important role of material conditions on the quality of life. The comprehensive school, represented by Jiang Zhixue (2003) and Zhou Changcheng (2001), believes that the quality of life should be a combination of an individual ’s satisfaction with their own life, their level of happiness and the living conditions provided by society, including their own subjective feelings and objective evaluations Two major aspects. At present, the concept of quality of life has different definitions in various sectors of society, but the

structural division of quality of life is relatively consistent. It is generally believed that quality of life is a multi-dimensional structure concept, which is the physical, psychological and social adaptation felt by individuals or collectives. Comprehensive evaluation of good physical and mental adaptability and satisfaction of aspect indicators (Wang Weihua. 2005).

Summary

At present, scholars from all walks of life have different understandings of quality of life, but what is certain is that quality of life reflects the overall evaluation of individual physical, psychological and social adaptation. Therefore, this study will adopt the World Health Organization's standard, and believes that the quality of life is composed of four dimensions: physical health, psychology, social relations, and environment. Desires and standards of self-feeling.

2.1.2.1 Physical health

Physical fitness refers to factors including body pain, energy levels, sleep and rest, and studies have shown that effective green cover can help voluntarily increase participation in physical activity. Play an important role in students' physical health.

Li Zhonghao (2019) found in the study of college students' physical activity, physical and quality of life status and influencing factors in the post-epidemic era that. 1) In the post-epidemic era, college students mainly engage in low-intensity physical activities, and relatively lack medium- and high-intensity physical activities. 2) The physical health status of college students is "olive shape", the total score of physical health is more passing, and the proportion of excellent and unqualified is relatively small. There are gender differences and grade differences in the total score of physical health, and the score of girls is higher than that of boys, which decreases with the increase of grades. There are no gender and grade differences in body shape indicators; there are gender and grade differences in physical function indicators, and the vital capacity and body mass index of boys is higher than that of girls, and that of sophomores is higher than that of freshmen and juniors; there are gender differences in strength quality, standing long jump, and pull-ups. There are grade differences; there are gender and grade differences in endurance quality, girls are higher than boys, and decrease with grades. 3) In the post-epidemic era, physical activity energy consumption and moderate to high-intensity physical activity time of college students are negatively correlated with BMI index, sedentary time is positively correlated with BMI index, and negatively correlated with lung capacity physical activity index and total physical health score. Moderate to high-intensity physical activity time was positively correlated with lung capacity body mass index and physical fitness total score. Physical activity energy expenditure and moderate to high-intensity physical activity were positively correlated with well-being index and emotional balance, and negatively correlated

with depression, anxiety, and stress; moderate-to-high-intensity physical activity time was positively correlated with positive coping styles and intermediate coping styles, and correlated positively with depression, anxiety, and stress. Negative coping styles were negatively correlated.

Studies have proved that the model of influencing factors of college students' physical activity in the post-epidemic era was established: attitude, motivation, cognition, family support, peer support, school activities, venue facilities, school built environment and policies can affect physical activity.

Shi Jin (2019) found in the analysis of the status quo of college students' healthy lifestyles and group differences: 1) The surveyed college students performed best in terms of physical health, and the worst in quality of life. To improve, we cannot just focus on one dimension. 2) The surveyed college students of different genders have no significant differences in all dimensions, and the surveyed college students from different sources do not have significant differences in the dimensions of physical and intellectual health, but in the dimensions of psychological, social, spiritual and overall health. Significant differences exist. 3) There are significant differences in the physical health and social health of college students surveyed in many colleges and universities 4) There is no significant difference in the various dimensions of healthy lifestyle among the surveyed college students of different grades. 5) College students themselves should pay attention to healthy lifestyles, and at the same time, colleges and universities should arrange relevant courses to improve college students' healthy lifestyles.

According to his research results, it shows that cultivating a healthy lifestyle for college students should be the key content of health education in colleges and universities, among which physical exercise and exercise are the most important.

Zhang Wentao (2022) concluded through a survey that the current proportion of college students developing physical exercise habits is low. Among the internal factors that affect the formation of college students' physical exercise habits, personality factors, good physical health, good awareness of physical exercise, and interest in physical exercise are important factors that affect the formation of college students' physical exercise habits .

Studies have proved out that among the external factors that affect the formation of college students' physical exercise habits, venue equipment, time, parents' physical exercise conditions and peer factors are important factors that affect the formation of college students' physical exercise habits. Therefore, this study subjectively improves college students' willingness to participate in sports through external factors of plant landscape color.

Zhang Xinyi (2023) found that the species diversity and uniformity of the intestinal flora of female college students in the exercise group and the non-exercise group were similar in the effect of exercise on the intestinal flora and sleep

quality of female college students, but the intestinal flora of the exercise group The species richness of the flora was higher than that of the less-moving group; exercise could increase the content of beneficial bacteria (Bacteroidetes, Verrucobacteria, Bifido bacteriaceae, Lactobacillies, Plasmobacteria) and inhibit harmful bacteria (Bacteroides Bacteria, Fusobacterium). 1) The sleep quality of the exercise group was better than that of the less active group. Moderate exercise can improve sleep quality. 2) The abundance of Bacteroides, Verrucobacteria, Bifidobacteriaceae, and Lactobacillus were positively correlated with sleep quality, and the abundance of Bacillus and Fusobacteria were negatively correlated with sleep quality; lack of exercise could lead to Fusobacteria The content of Bacillus and Bacillus increases, and the content of Bacteroidetes, Verrucomicrobia, Bifidobacteriaceae, and Lactobacillales decreases, reducing sleep quality.

Studies suggested establishing an active lifestyle to achieve a higher level of health. In this study, students are actively involved in the creation of plant landscape colors in the external environment.

Xu Xin (2022) proposed that plant active ingredients with a wide range of sources and rich structures in nature have the biological activity of increasing the body's energy reserves, reducing the accumulation of metabolites, and cleaning free radicals, and they have the potential to be economical and diverse in alleviating exercise fatigue. It is an important content of anti-sports fatigue.

Summary

The physical health of college students is crucial to their personal development. Students who actively participate in sports activities and maintain exercise habits for a long time generally have high physical fitness, which directly affects the quality of life of school students. At present, many studies have shown that the coverage of green vegetation has a high correlation with the audience of sports groups.

2.1.2.2 Psychological

Psychological is a state of complete physical, mental and social well-being of a person and not merely the absence of disease or disability (World Health Organization. 2014). It is emphasized that psychological is not just a lack of mental illness, but includes positive emotions, the development of personal potential, and participation in society. The psychological of students contributes to the balance and well-being of individuals in all aspects and contributes to the development of students.

Feng Jingyao (2022) proposed in his research on the relationship between college students' sports participation and psychological:1) Strengthen the health management of students, formulate personalized sports participation programs for

different types of students, and encourage them to actively participate in sports activities. By planning sports exchange activities for students between different departments, we can fully utilize the value and significance of sports. 2) Pay attention to the cultivation of the social development level of college students, integrate the factors that promote the social development of college students into the physical education courses of colleges and universities, and often carry out some collective participation sports activities (such as orienteering) to cultivate the social development level of college students. 3) Pay attention to multi-departmental cooperation, for example, through the cooperation of the Department of Education and the Department of Physical Education, some interesting psychological experiments can be added to the physical education classroom to timely discover and prevent psychological problems of college students. 4) Various forms of sports activities can be organized to increase the participation of college students in sports, such as holding fun games between classes or grades, through various cooperative or competitive games to improve students' sports participation, and then to achieve psychological Increased levels of health and social fitness.

At present, relevant scholars are exploring the promotion methods of college students' psychological from different perspectives and levels. The rich theoretical and empirical research results in the past have proved that there is a significant correlation between sports participation and psychological.

Ma Yansi (2022) studied the psychological status of contemporary college students from the perspective of higher education level stratification. This study has the following five findings. First, the psychological status of college students is generally good, but there are still some students whose psychological status is poor, which deserves attention. Second, there are internal differences in the psychological status of college students under higher education level stratification. The lower the city level of the colleges and universities, the less the psychological distress of college students; the psychological distress level of college students presents a distribution of "high at both ends and low in the middle" in the university level. College students have the lowest level of psychological distress; students majoring in humanities and social sciences have significantly higher levels of psychological distress than students majoring in natural sciences. Third, higher education level stratification will significantly affect students' perception of campus atmosphere. The location of the university and the perception of campus atmosphere show a distribution pattern of "low at both ends and high in the middle"; the level of the university is positively correlated with the perception of campus atmosphere; in terms of university majors, the perception of campus atmosphere in natural science is better. Fourth, the perception of campus atmosphere fully or partially mediates the relationship between university location, university major, and college students ' psychological. The resulting difference in campus atmosphere perception also affects the psychological of college students.

Fifth, it is worth noting that the perceived variable of campus atmosphere does not show a mediating effect between university grades and college students' psychological, but a masking effect. The specific manifestation is that the perception of campus atmosphere significantly expands the difference in psychological status between students in key universities and students in ordinary universities and vocational colleges.

This research confirmed that higher education level stratification affects the psychological inequality of college students through the intermediate mechanism of campus climate.

Summary

College students will encounter various psychological pressures and confusions. In the process of improving themselves and adapting to the needs of society, it is crucial for college students to maintain a healthy and positive mental state. It is easy to fall into mental distress and pain and are in urgent need of psychological help. Therefore, it is necessary to pay attention to the psychological of college students. This study explores the influence of plant landscape color on psychological, and explores how college students can release their emotions correctly, cherish life, and improve the quality of life.

2.1.2.3 Social relationships

Social relationships are often used to describe the interaction, connection and mutual influence between people. Social relationships can include family relationships, friendships, coworker relationships, social networks, community connections, and many other forms of interaction. These relationships can have a profound impact on an individual's psychological, emotional satisfaction, and social support. In this study, the social relationship of students refers to the relationship between students and students, between students and teachers, and it is also the main social relationship in the university campus.

Wang Rong (2016) found in the research on the relationship between college students' natural aesthetics and pro-social orientation: 1) From the perspective of the subject, college students' natural aesthetics positively affects college students' pro-social orientation; the peak experience factor of natural aesthetics is the main factor of college students' pro-social orientation. Predictive variables; the agreeableness and responsibility factors of the big five personality are the main predictors of college students' prosocial orientation; for college students with low openness and agreeableness traits, cultivating their attention to natural beauty is more conducive to the development of their prosocial orientation . 2) From an object perspective, the real-time natural beauty emotions induced by natural beauty stimulation positively affect individual prosocial behavior; the natural beauty emotions induced by different natural beauty stimulations (beautiful, magnificent) have different effects on individual prosocial behavior. The same effect, sublime has a

positive and significant impact on individual prosocial behavior, while graceful has no significant impact on individual prosocial behavior.

Experimental research to reveal that the situational natural beauty emotions induced by natural beauty stimuli have a certain impact on prosocial behavior.

However, he used the natural beauty, that is, the magnificence, gracefulness and neutral urban architecture, as a reference. Since the current theoretical research at home and abroad on the impact of landscape plant color on social relations is still in the sporadic exploration stage, systematic empirical research is in a blank state. Therefore, plant landscape color has important theoretical value and practical significance for the study of social relations.

2.1.2.4 Environment

Environment refers to all material and non-material elements used to describe the surrounding world, including elements created by nature and humans. The environment in this study mainly refers to the natural environment in the physical environment, including educational and non-educational teaching places in universities.

Tan Xiaodan (2020) found in his research on the impact of the built environment on the physical activity of college students that 1) the built environment, exercise intention, and mental toughness were significantly positively correlated with the level of physical activity, and all dimensions of the built environment, exercise intention, and psychological toughness could all be significantly correlated. This positively predicts the physical activity of college students. 2) Exercise intention plays a mediating role between all dimensions of the built environment and physical activity. Specifically, exercise intention plays a partial mediating role between the dimensions of land use accessibility, road connectivity, pedestrian facilities, and public security in the built environment and physical activity, and between the dimensions of street landscape and traffic safety and physical activity. fully mediate between them. 3) Mental toughness plays a mediating role in the second half of the mediating effect, that is, between exercise intention and physical activity. Mental toughness can positively regulate the relationship between exercise intention and physical activity, that is, improving the psychological toughness of college students can effectively Enhanced effects of exercise intention on physical activity.

Studies have found that the built environment can affect the physical activity of college students, and exercise intention plays a mediating role between the built environment and the physical activity of college students, emphasizing the important role of the environment in improving the quality of life of college students participating in exercise.

Wei Yujun (2023) made the following conclusions in the study of the impact of the restorative environment on university campuses on the health of college students: 1) PSD that can be perceived in campus green space includes calmness, space, naturalness, species diversity, vista, shelter, There are 8 types of social and cultural, and the intensity of PSD in each sample plot is different, and each functional area presents a certain regularity. 2) There are significant differences in the perception scores of green space restorative elements among the 14 research plots, among which the Chinese Botanical Garden has the highest total score, and the southern area has the lowest score. Generally speaking, the concentrated green area is relatively high, and the student living area is relatively low. low. 3) There were significant differences in the restoration evaluation scores of the 14 survey plots, among which the restoration evaluation scores of wetland parks were the highest, and the survey points in the southern area were the lowest. 4) In the correlation analysis of PSD and green space restorative elements perception and restorative evaluation, the perception of natural factors and artificial factors and the dimensions of naturalness, space, species diversity, tranquility, and shelter There was a significant positive correlation ($p<0.05$); except for cultural and social dimensions, spatial accessibility showed a certain negative correlation ($p<0.05$). The correlation coefficients of the 8 PSDs and restorative evaluations are ranked from high to low: tranquility (0.389**) > naturalness (0.361**) > species diversity (0.347**) > shelter (0.286**) > Spatiality (0. 156**) > Viewpoint (0.028) > Culturality (0.016) > Sociality (-.239**). (5) According to the restorative impact model of campus green space, it can be obtained that natural factors, artificial factors, and perceptual factors all have a significant positive impact on restorative evaluation, among which perceptual factors have the greatest impact on restorative evaluation, and natural factors have the greatest impact on restorative evaluation. Second, artificiality is the weakest. Restorative evaluation has a significant positive impact on the quality of life of college students, and the path coefficient is 0.332.

Finally, based on the above research and analysis results, put forward suggestions for optimizing the restorative environment of university campus green spaces starting from the four campus functional zones: student living area, teaching work area, cultural and sports activity area and concentrated green area. As the most accessible green space for college students on a daily basis, the university campus environment has a good restorative effect on students' physical and mental recovery and promotion of social interactions. It is an urgent research direction that needs attention in contemporary campus planning and design.

2.1.3 Influence of plant landscape color on quality of life

With the continuous expansion of university enrollment, students will spend most of their time on campus, so it is very important to study the color of school plant landscape to improve the quality of life of college students. It plays a positive role in regulating the physical and psychological of college students.

Gao Na (2013) 1) The research found that different colors give people different feelings, and the colors of different plants will also make people have different intuitive feelings, and at the same time, they will arouse people's different emotions. For various indoor plant colors, the most stimulating color is agreed to be red, followed by yellow, white, blue, and finally green. In terms of indoor plant colors to relieve stress and relax, the most relaxing color is green first, followed by blue, white and yellow, and finally red. 2) According to the research results, green can be widely used in various environments to help people relieve stress. For the application of residential indoor plants, different plants are selected according to the needs of people's different functional spaces, and the colors of plants used in different areas should also meet people's emotional needs.

Studies that it is not advisable to choose very exciting colors in the choice of plant colors in the bedroom. You should choose fresh and elegant colors. Although too rich colors can add a festive atmosphere, they can make people unable to sleep peacefully. At the same time, choose according to the age of the occupants The color of plants, such as the bedroom of the elderly and children, the plant color must not only meet the psychological needs of color, but also consider the impact on the quality of life.

Liu Zongjin (2020) found that there are about 140 species of plants on college campuses in Shandong Province, among which trees and shrubs are the main ones; The campus flowering season is mainly concentrated in spring and summer, and the flower colors are mainly red, yellow and white. Colors are the main colors, white flowers account for 30%, red and yellow flowers account for about 26%, and other flower colors account for 18%. The trunk colors of the plants in the campus are mainly gray and taupe, and the leaf color changes mostly in spring and autumn. The leaf color changes mainly in the two seasons. Among the colored leaf plants, spring leaves account for 30%, autumn leaves account for 70%, and the seasonal changes are obvious; the hard landscape of the campus is mainly dominated by warm colors. The order of the contribution rate of the factors affecting the color quality of the campus plant landscape space: green space ratio (30.23%) > main color ratio (14.59%) > color quantity (11.21%) > layering (9.33%) > contrast (8.34%) %), and the overall contribution rate of the five impact factors is 73.7%. Studies have shown that the green space ratio is best maintained at 39.2%-63.1%; the proportion of a single color or main color is 50%-70%; the number of colors is 4-7 is the most suitable; the sense of hierarchy is strong, and the effect of cool tones is good . (3) College students have different psychological and color needs in different areas of the campus. The five areas with the highest dependence on campus space are L teaching area, Y sports area, G distribution square, D dormitory area and F leisure and entertainment area; campus security The area with the highest demand is the D dormitory area, and the order of the factors affecting the sense of security of the campus landscape space by the color influencing factors is as follows: color matching (37.500%) > warm and cool colors (32.29%) > lightness and darkness (21.875%) >

layering (8.333%); College students have high requirements for the comfort of D dormitory area and Y sports area on campus, and the order of color factors on comfort factors is as follows: color matching (55.048%) > cool and warm colors (11.683%) > lightness (23.510%) > layering (9.760%); In terms of the accessibility of campus landscape space, in addition to traffic factors, the color factors are ranked as color matching (56.429%) > layering (15.536%) > cool and warm colors (14.368%) > lightness and darkness (13.667%); The ranking of college students' emotional ups and downs by campus colors is color matching (46.108%) > warm and cool colors (27.162%) > lightness (17.344%) > layering (9.386%). After the VR emotion activation mechanism, the physiological state changed, which indicated that the VR emotion activation mechanism was effective. Watch the pictures produced by research and analysis to get the best color data (including 6 colors, the main color is green, which accounts for 1/2 of the landscape effect, dotted with yellow, red and other adjacent colors). Compared with the blank control picture, heart rate and blood pressure have different degrees improve.

Studies showed that good campus plant space colors play a positive role in the physical and psychological of college students, and can relieve the negative psychological emotions of college students and prolong their happy emotions.

Figure 6 the influence of plant landscape color on the quality of life of students at Sichuan Vocational College of Health and Rehabilitation in Zigong City, Sichuan Province, China.

2.1.4 Mixed Method Research

This study adopted questionnaire survey method, quantitative research method, and a small amount of qualitative research method. The overall research is a mixed research method.

2.2 Related Research

2.2.1 Research on quality of life

With the continuous exploration of the quality of life by domestic and foreign scholars for many years, a lot of research results have been obtained. The earliest research on the quality of life of college students was analyzed from the perspective of influencing factors: Yang Jianyi (2000) analyzed the quality of life of college students from the following four aspects: economic status, psychological, campus environment, and academic pressure/employment pressure.

Zhang Guozhong (2001) believed that the quality of life of college students should include "self-feeling and objective existence". The quality of life of college students is closely related to the individual's living environment and personality characteristics. It is also found in the same article that anxiety and depression can affect the quality of life of college students, and the increase in the level of anxiety and depression will lead to a decrease in the quality of life. Dong Xiaomei (2003) found that increasing the exercise time of college students, improving self-confidence, harmonious family atmosphere and good peer relationship are all favorable factors for improving the quality of life. Foreign student Simon pointed out that the quality of life of college students is significantly related to factors such as age, gender, physical function, and social and emotional function. Other studies have pointed out that the individual's level of well-being, perceived life satisfaction, physical and mental condition, personality, living environment, family, and interpersonal communication are all predictors of quality of life (Xu Jing. 2015). As scholars continue to conduct in-depth research, the research direction has gradually extended to intervention methods for quality of life. Jiao Lan made a survey and analysis of the quality of life with college students as the research object and concluded that improving the individual's cognitive ability and interpersonal skills, perfecting personality, and rationally positioning self-worth are effective countermeasures to improve the quality of life of college students. Shu Jianping (2004) used extracurricular activities as an intervention method in the study, and the results showed that actively participating in extracurricular sports and club activities can improve students' quality of life, promote friendship among classmates, and obtain physical and psychological satisfaction. Park's study of 584 college students came to the same conclusion: physical activity can directly affect their life satisfaction and quality of life, and found that college students who engaged in high levels of activity had higher quality of life compared with moderate or low levels of activity. A large number of studies have confirmed that physical exercise has a positive impact on the quality of life of college students. By stimulating students' interest in participating in exercise, it can be carried out systematically for a long time, thereby forming a good lifestyle.

2.2.2 Research on the influence of color on quality of life Color is one of the main factors that affects people's quality of life. Various studies have been conducted on this at home and abroad, and rich results have been achieved.

As early as the last century, foreign color experiments showed that: when people are in the state of observing things normally, the color initially attracts 80% of the attention, while the things occupy 20% of the attention. After a while, the focus on shape and color leveled off. Sonnier and Dow's (1985) experiment on physiological control of color shows that people's right brain is in charge of emotions, and the feeling produced by color will act on the right brain, so people's emotions and colors are related to a certain extent. Hemphill (1996) once pointed out that human beings' short-term emotions and psychological feelings will be strongly affected by color and produce corresponding emotional feedback. Abbas (2005) showed through experiments on the influence of different colors of light on human physiological states: when people are exposed to light with different intensities and colors for a period of time, their physiological states will change significantly, and their heart rate will continue to change with the color and intensity of the lights. change. When illuminated with a red light source, the heart rate increases and when illuminated with a blue light source, the heart rate decreases.

Marx once said: "The beauty of color is the most popular form of general beauty."(Can Liu. 2006) It means that color can directly and quickly affect people's emotions, and is closely related to our daily life. Color will strongly affect our emotions and feelings. Clarke and Costall (2008) have shown that most people feel that green, purple and blue can bring people a sense of relaxation, coolness, tranquility, comfort and calm. So use this color as the color that can effectively reduce anxiety (Samad Roohi&Aynaz Forouzandeh. 2019). At the same time, red, orange and yellow can bring people a warm and happy feeling. These colors can stimulate people's emotional activities and neutral colors have less emotional content, so the psychological impact is smaller. Color can not only have an effect on people's emotions, but also have a greater impact on the human body's heart rate, blood pressure, body temperature and vision and other related physiology. Elsadek (2017) published the research results of ivy color on emotion and brain activity, showing that when indoor ivy colors are alternately distributed in yellow and green, people will have comfortable and pleasant emotions, and negative emotions are easy to be found in white and green plants. generated in the environment.

Domestic research on the color of garden plants is also deepening. Xiu Meiling (2006) pointed out that different genders have different emotional effects on colors. Men's blood pressure is significantly reduced after viewing green, while women's viewing green, purple and red Physiological conditions did not change significantly. Li Xia (2012) once pointed out that purple and green have stronger effects than white, red and yellow on the relaxation of body functions. Xing Zhenjie (2015) once pointed out that in improving public psychological

indicators, plant color is an important indicator (Yang Jie. 2017). People will be affected by warm colors, and then be happy, excited, and breathe faster; cool colors can make people more peaceful, breathing rhythm becomes slower, and brain waves appear calm and relaxed. Regardless of men or women, everyone generally prefers green plants, which can provide people with more positive and optimistic signals in terms of psychology and physiology. For example, in terms of psychology, from the perspective of relaxation and comfort, purple and green plants are more effective in reducing anxiety than white, red and yellow plants, which can continuously improve emotional quality and relieve body and mind.

2.2.3 Study situation on landscape color

Landscape is the scene presented in a certain area and is a visual effect.By consulting relevant information, we learned that color, as an important part of the campus landscape of colleges and universities, plays a positive role in shaping the school brand, stimulating the work and life motivation of teachers and students, relieving the physical and mental fatigue of teachers and students, and promoting the cultural construction of the campus (Li Yanan. 2022). At present, there have been some studies on the landscape color of gardens, communities, parks, villages, towns, etc. For example, through the investigation and analysis of the overall color and landscape element color of the community environment, it is proposed that the colors should be coordinated and unified, and the colors should be as natural as possible. Color system, color meets psychological and physiological needs, color shows regionality and culture, etc., and specific design methods are proposed for landscape elements according to different functional divisions (Zhou Ye. 2021). For example, through questionnaire survey Different groups of people's feelings and needs for landscape color summarize the existing problems of landscape color (Zheng Henan. 2020).

Around the proposal of the concept of landscape color, scholars from all over the world have conducted more and more in-depth research on the theme of landscape color. Through the study of campus landscape color, effective countermeasures can be provided for the campus landscape color design of colleges and universities, and for China Samples are provided for the study of landscape color on university campuses in Southwest China.

2.2.4 Research on plant landscape color

The direction of foreign plant landscape color research mainly focuses on two important aspects: the classification of plant landscape color and the application of landscape aesthetics based on color harmony theory. (Zheng Yao. 2014). At present, the color classification of garden plants in foreign countries mainly adopts qualitative description language. For example, the Royal Horticultural Society classifies plant colors into: green-orange, purple-yellow, red-purple, red-orange, red-yellow, red-green, red-blue, green-yellow, yellow-orange, Purple-green,

purple-blue and other related color classification standards. In the early 19th century, color charts such as "chromatograms" were mainly used to compare plant chromatograms (Lei Yaxin. 2017). Around the middle of the 20th century, the plant color spectrum, which is crucial to gardeners, was established, and the color design of plants was carried out with the help of this plant color spectrum.

The theory of color harmony is the basis of the applied research on the color aesthetics of garden plants. Research mainly includes Munsell and Shejour color harmony theory. There are many monographs on plant color abroad, such as Caroline Boiset's "Encyclopedia of Gardening Design" by British Caroline Boiset, who talks about color matching and plant configuration in monochromatic gardens, and Penny Swift of the United Kingdom who combines plants and color plates for reference. "Garden Style and Design" (Zheng Yao. 2014). In China, there is also Chen Yingjin's "Western Modern Landscape Planting Design" which specifically introduces the application of plant color planting.

In the study of color landscape, the most successful ones are the Color Planning Center of Japan and famous color landscape researchers such as Jean-Philippe Lenclos,a famous French colorist (Wu Zhidong. 2013). Jean-Philippe Lenclos (1989) Taking hue as the basis of the survey, he successively completed color surveys in 15 regions in France and 13 countries in Europe, and took the lead in proposing "color geography". The Japanese Color Planning Center, which focuses on the study of urban landscape colors, was established on its basis. The "Urban Color Implementation Act" was also enacted in the Japanese Urban Management Regulations. Professor Yin Sijin of Tsinghua University and others have actively participated in the study of urban color. Professor Jianming once made a specific color planning and design scheme for the color of Hangzhou's Binhu Lake.

2.2.5 Research on the influence of plant landscape color on mental health

Through consulting relevant information, we learned that compared with cities or indoors, natural landscapes can make people more active and excited (Anonymous. 2008). In terms of psychological, an important indicator for predicting anxiety is the degree of contact with natural landscapes, and the level of people's anxiety has a positive change with contact with plant landscapes. The plant landscape has a non-negligible effect on physical and quality of life. On the one hand, the existence of plants can improve people's physical and quality of life. On the other hand, the plant landscape colors created by different plant colors will also have an impact on people's overall quality of life state.

Compared with China, there are relatively more studies abroad on the impact of plant landscapes on psychological. Relevant foreign literature shows that viewing plant landscapes in nature can effectively reduce mental stress and increase pleasure. A study in the Netherlands in 2010 showed that in some areas with a high rate of green space, the incidence of quality of life stress and anxiety is

generally low. Data from a Danish experiment involving a survey of more than 11,000 residents showed that residents who live more than one kilometer away from green areas are relatively more stressed. A 2013 White experiment in the UK found that people who were less stressed generally lived around green spaces. Cohencline (2015) research results show that viewing related plant pictures can also cure lower levels of psychological problems and relieve mental stress. (Wang Zimengqiu 2018) Observing photo images and real plant scenery can reduce skin conductance, heart rate and other quality of life indicators, which means that the SBE method by viewing photos is scientific and can reflect psychological and mental conditions (Li Zhe. 2018). At the same time, studies have shown that activities in green areas, regardless of the length of time, can reduce adolescent aggression. Therefore, it is necessary to fully study the color of the campus plant landscape of college students, so that the color of the campus plant landscape can really relieve the psychological pressure of college students. This can better promote the comprehensive development of contemporary college students' psychological. Better solve the psychological problems of some college students through plant landscape colors and create a harmonious and safe campus plant landscape.

2.2.6 Research on Campus Plant Landscape Design

Some studies have mentioned that the landscape in the campus plant landscape can bring people visual and mental relaxation and comfort, and is called the "spiritual place" of the campus. Once the building is built, it will hardly change, but the landscape will create different scenes with changes in weather and seasons, and in different plant landscape, the selection and combination of plants will also be different. On the main landscape axis, tall trees and regular flowers and trees are generally used to emphasize a simple and elegant spatial sequence; In the courtyard space, shrubs and perennial flowers are often used to create a refined and warm atmosphere for students to read, entertain and rest. Modern campus landscape design is no longer simply campus greening, but also a carrier of spiritual civilization and a greenhouse for students' healthy growth (Liu Haochen & Wang Siji. 2022).

2.2.7 Research on Color in Plant Landscape Design

Some studies have pointed out that in the process of landscape plant design, the first thing to pay attention to is the application of color, because different colors have different psychological problems influence on visitors; secondly, certain rules and regulations must be followed when choosing colors. Principle, for example, warm colors such as red and yellow have a romantic feeling, while cool colors such as green and blue reduce the visual experience. Finally, it should be noted

that the color matching of the plant landscape should be determined according to the local climate environment and the aesthetic needs of the visitors, so that it can have a high ornamental value. Color matching In the plant landscape, plants of different colors will have different sensory effects, so when choosing colors, pay

attention to the proportional relationship of each hue, and determine the best color combination based on these factors. Contrast and coordination of colors In the design of plant landscapes, the surrounding environment and climate conditions must be fully considered, so that the entire plant landscape and the surrounding natural environment are integrated, so as to improve the overall artistic sense. For example: the size, shape, height, etc. of green plants will have a certain impact on it; the larger the planting area of red, yellow, blue, and green, the stronger the light irradiation. Therefore, you can increase the amount of red, yellow, blue, and green. The brightness of blue and green is used to enhance the illuminance of light, so as to achieve visual harmony; while large-scale planting will appear darker, but unnatural. If multiple colors are combined, then it can be well expressed. It improves the rhythm of the picture and can better highlight the theme.

Artistic conception is a sublimation and deepening of emotion. It is an artistic image produced by the joint influence of the visitor's psychology and thoughts. In garden landscape design, designers should make full use of the different characteristics of color, so that the color of garden landscape can better express the inner world of the designer, make it have a stronger visual impact, and thus attract more audiences. focus on. For example: in the greening design of some cities in China, a large number of warm colors such as red and yellow are often used to express the solemnity and elegance of the building, and the application of these colors can create a sense of comfort and at the same time. It will also provide visitors with beautiful enjoyment. Therefore, designers should notice that the effect of color on the plant landscape is not only in terms of aesthetics, but also reflects the humanistic feelings of a region through the division and combination of space. Therefore, the role of color in the function of plants It has a vital status and significance. The emotions represented by colors are various, rich, subtle and deep emotional expressions. In the plant landscape, the combination of different colors can produce different effects and influences, such as the symbolic meaning of red, yellow represents enthusiasm, and green represents Quiet, white is a cool color, blue is a cool color, and purple reflects a calm attitude (Junfei Li. 2021).

2.2.8 Effects of Plant Colors on Stress Relief

Building and Sharing, Health for All" is the strategic theme of Healthy China, and health for all includes physical and psychological. Zhang Chenxi pointed out that the current group of college students is basically in a sub-healthy state of life, with a lot of pressure. Therefore, how to effectively alleviate the stress of college students has become an urgent problem to be solved (Zhang Chenxi. 2021). Fang Jialin found that the interaction between plant color contrast and distribution has a significant impact on subjective psychological recovery scores (Fang Jialin. 2021). Adachi studies have found that yellow flowers are pleasant and blue flowers are calming (Adachi M. 2002).

Plant color is the most sensitive part of the viewer's visual perception. In recent years, scholars at home and abroad have mainly discussed the relationship between the two from three aspects: vision, physiology, and quality of life response. Zhang Chang et al. proved that the enhancement of the overall effect of orange plaques will increase the diameter of the pupil and visual fatigue (Zhang Chang. 2021). Li Xia et al found that the visual stimulation of individuals of different colors and plants in the community brought positive quality of life responses to the subjects (Li Xia. 2013). Bringslimark found that viewing greenery played a role in reducing shoulder and back pain (Bringslimark T. 2007) .Chang et al pointed out that states such as staff anxiety were associated with the absence of natural landscapes such as plants, etc (Chang CY. 2005).

Summary

To sum up, quality of life is a comprehensive measure of individual health status from multiple dimensions such as quality of life and social adaptation. The level of quality of life is closely related to physical and quality of life. Health is the foundation of human existence. Only when college students have a healthy body can they embrace a better life and future. Therefore, when their physical health is guaranteed, they also need to pay attention to their quality of life. health problems. Quality of life is not only an important medium for the healthy

development of personal physical and quality of life, but also an important condition for the sustainable development of individuals in the social environment. At present, there are few studies on the color of plant landscape at home and abroad. Therefore, it is necessary to study the impact of landscape plant color on the quality of life, which will help the overall development of students and the creation of campus atmosphere, and will play a certain role in this kind of research.

2.3 Research Conceptual Framework

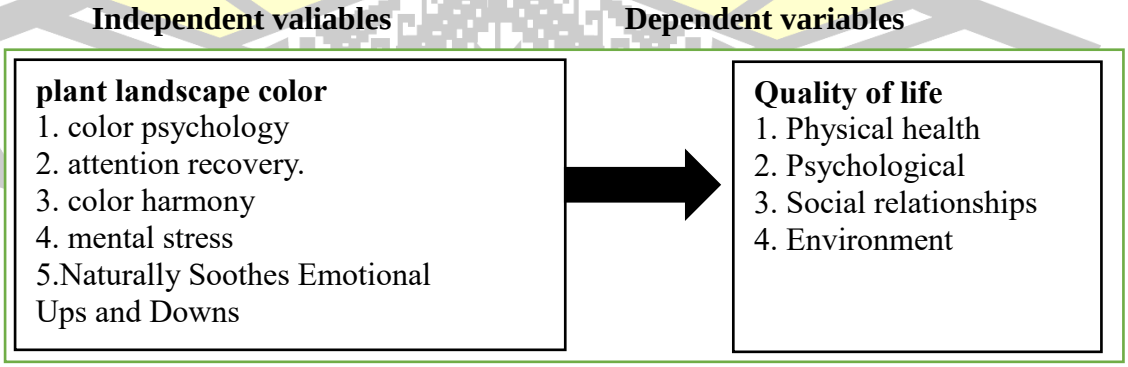
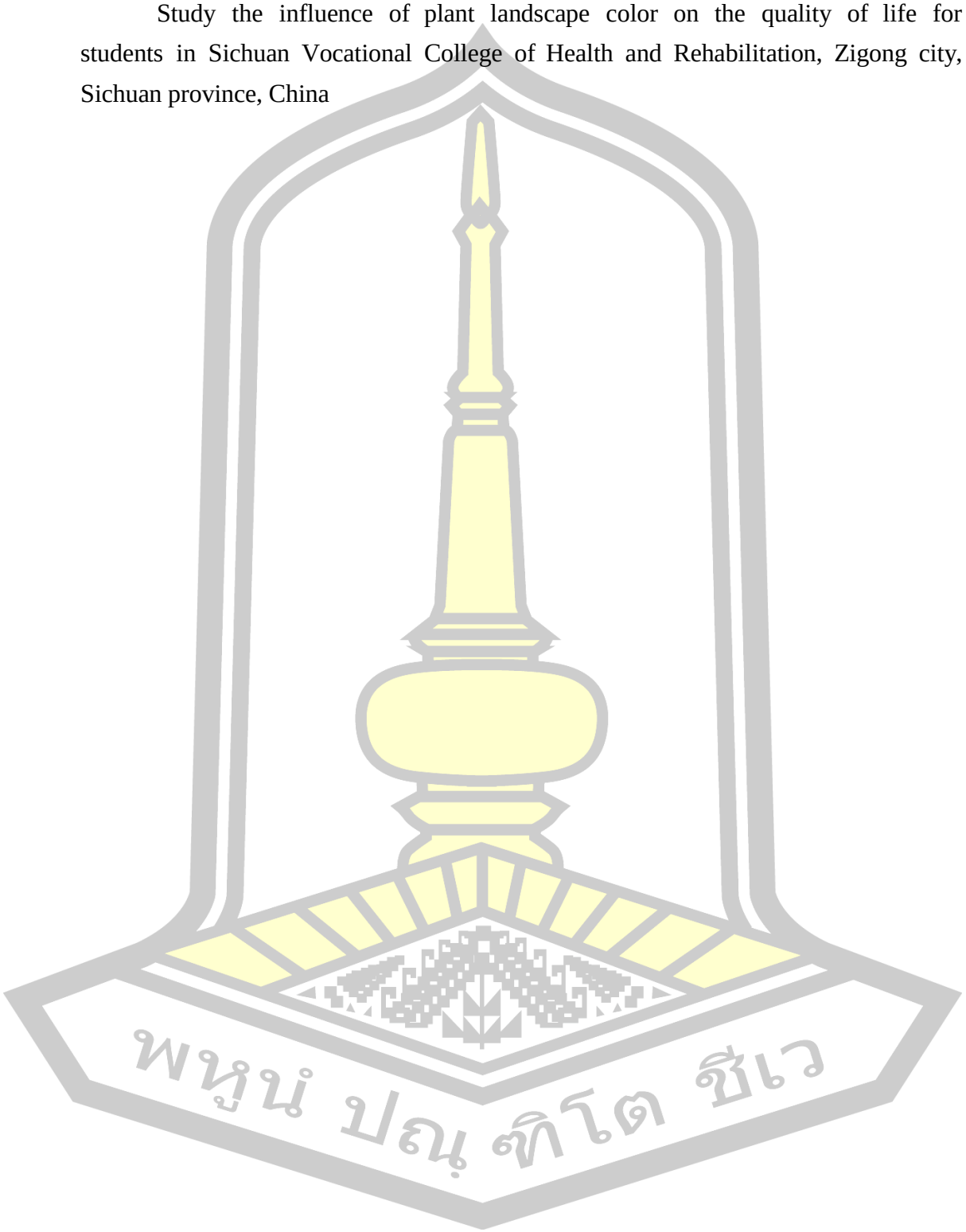


Figure 7 Conceptual Framework

Study the influence of plant landscape color on the quality of life for students in Sichuan Vocational College of Health and Rehabilitation, Zigong city, Sichuan province, China



CHAPTER III
RESEARCH METHODOLOGY

In order to understand the quality of life of college students under the influence of plant landscape color, this article uses a questionnaire survey to obtain first-hand data, and uses these data to analyze the current quality of life of college students, and obtains the degree of impact of the plant landscape color system on the quality of life of college students.

3.1 Research Design

3.2 Research sites

3.3 Population and sample Group

3.4 Sampling

3.5 Settings

3.6 Data collection

3.7 Data Analysis

3.8 Research Variables

3.9 Ethical research

3.1 Research design

This study is survey research and collecting quantitative and qualitative data to study the influence of plant landscape color on students' quality of life.

3.2 Research sites

This study is an investigation of the impact of plant landscape color on the quality of life of students. The sampling range is the students in the school. The research site is carried out in Sichuan Vocational College of Health and Rehabilitation, Zigong City, Sichuan Province, China.

3.3 Population and sample Group

Population

Students at Sichuan Vocational College of Health and Rehabilitation, China 5,000 students.

Sample Size

The sample size estimation was calculated using Daniel's (Daniel et al., 1999) formula as follows:

$$n' = \frac{N Z_{??/2}^{2} P??\hat{}1 - P??‰}{d^2?N - 1? + Z_{??/2}^{2} P??\hat{}1 - P)}$$

n = Sample size

N = Number ofpopulation （N=5,000）

Z = confidence intervals (set as 95%CI , Z= 1.96)

P = proportion of influence ofplant landscape color （P=0.737） d = precision values （d=0.05）

When

$$n = \frac{(5000)(1.96)^2 0.737(1-0.737)}{(0.05)^2(5000-1)+(1.96)^2(0.737)(1-0.737)}$$

n = 294.9~295 The formula to calculate the dropout rate as 10%.

N 1 =n/1 − d

d = dropout rate （d=0.1 ）

n = Number of population (n=295)

N = Sample size

When

N = 295/ 1-0.1

N = 327.77~328

Therefore, the total sample size of students was 328 students.

The research sample was first- and second-year students, and a questionnaire survey was conducted on 328 full-time students aged 19-21.

3.4 Sampling

In this study, the researchers selected samples from each college according to the scale ratio in Table 1 Each college uses stratified sampling method to select students. First, the researchers divided the subjects into two groups by university year (stratum), including freshmen and sophomores. Second, the researchers will developed a sampling frame for each group, which includes a list of all students who can be sampled. Third, the researcher selected from each layer for

the final review of the data, and finally the researchers will complete the data analysis, and the sample size inspection period is 3 months.

Table 1 The proportion to size of sample in each college

College	Number of students	Number of Sample
1. faculty of Rehabilitation Academy	1,800	118
2. faculty ofNursing	2,000	131
3.faculty of clinical	1,200	79
Total	5,000	328

3.5 Settings

This study collects quantitative data from the first and second grades by means of questionnaires. The questionnaires were distributed by members of the research team, and 328 questionnaires were distributed according to the sampling results. The questionnaire revolves around two key points: one is the quality of life, including four aspects of physical health, psychological, social relationships and the environment. The other is the color of landscape plants, including 5 points: color psychology, attention recovery, color harmony, mental stress and natural soothes emotional ups and downs. The survey scale is designed according to these two key points, see appendix scale Table 3.2 and Table 3.3

3.6 Data collection

The research team consisted of 3 members, and the tool used for data collection was Questionnaire Star, a software with powerful features to design questionnaires, collect questionnaires, and perform simple data statistics. The method of implementation was as follows: first, the entries of the collection scale or survey were poured into Questionnaire Star, next, the entries were edited to form a usable questionnaire, and finally, the completed questionnaire was produced with a QR code, which was given to the subjects, who filled it out. The data is collected in two steps.

Step 1: Before distributing the questionnaire, 3 team members were trained to inform them of the informed consent, precautions and handling of emergencies before filling out the questionnaire, and 2 team members

who did not participate in the questionnaire design distributed the questionnaire.

Step 2: For the collected questionnaires, another 1 team member checks the completeness of the questionnaires, and if any problematic questionnaires are found, ask the other 2 members to negotiate and make a final decision.

Validity analysis

The volume fully refers to a large number of research literature and theories and constructs a relatively rigorous theoretical framework. Experts in plant landscape color psychology were invited to evaluate the questionnaire, and the questionnaire was revised and improved several times. These operations ensure the validity of the questionnaire content.

Reliability analysis

In this study, Cronbach's alpha was used to evaluate the reliability of the quality of life and plant landscape color scale, and the analysis was completed using SPSS software.

3.7 Data analysis

In this paper, SPSS was used to analyze the correlation of each variable. The mean and standard deviation and correlation matrix for each study variable. The average value of color psychology, attention recovery, color harmony, mental stress, naturally soothes emotional ups and downs value of college students' quality of life are analyzed. The corresponding analysis is color psychology, attention recovery, color harmony, mental stress, and naturally soothes emotional ups and downs. Smoothing's association with quality of life among college students. In qualitative data analysis, content analysis will be used.

3.7.1 Quantitative data analysis Descriptive statistics

Demographic characteristics of the participants were presented using frequency (e.g. number and percentage) and central tendency (e.g. mean, mode and median) which may depend on the type of measurement scales; nominal, ordinal, interval, and ratio scales (Duffy & Jacobsen, 2001).

3.7.2 Quatitative data analysis

An analysis of the qualitative data was undertaken concurrently with data collection using verbatim transcripts. Transcription was undertaken as soon as possible after interviews and focus groups, and was performed by the researcher. The main steps were based on qualitative content analysis in which open coding was used to develop relevant categories for analysis. The selection of categories or codes was related to the domains of the study. Therefore, the organization of data, selection of specific elements of the data for categories, and the exploration of the content of these categories were reflected common practice in qualitative studies (Burns & Grove,2001; Polit & Hungler, 1995).

3.8 Research Variables

The independent variables are quality of life, including physical health, Psychological, Social relationships, Environment.

The dependent variable is plant landscape color, including, color psychology, attention recovery, color harmony, mental stress, naturally soothes emotional ups and downs.

Regression analysis is a quantitative analysis method that studies the statistical relationship between things. It is widely used in data analysis to help people scientifically predict the influence relationship between research variables. The study used SPSS21 software to establish a linear regression model using a comprehensive model of plant landscape color, using the four dimensions of quality of life as independent variables, and using the five points of plant landscape color as dependent variables. Then, the model is analyzed through the regression equation. To verify the hypothesized relationship between plant landscape color and each sub-dimension on the quality of life of college students. During the validation process, this article will test the tolerance and variance inflation factor (VIF) of each independent variable to determine whether there is a multicollinearity problem.

3.9 Ethical research

This study is based on the questionnaire analysis, this survey is only for my professional academic research, do not do other purposes.Approved by the Ethics Committee for Research Involving Human Subjects. Date 31 January 2024, Approval number 059-588/2024.

CHAPTER IV
RESULTS

Introduction

The research finding was study the influence of plant landscape color on the quality of life of students at Sichuan Vocational College of Health and Rehabilitation in Zigong City, Sichuan Province, China. The sample was completed by students in the first and second grades, with a total of 328 samples . The data was collected, checked for completeness, analyzed, and then presented in the following order:

4. 1 Symbols used to represent the results of data analysis

4.2 Results of data analysis

Part 1 The demographic characteristics and situation of students in Sichuan Vocational College of Health and Rehabilitation

Part 2 The plant landscape colors of college students in Sichuan Vocational College of Health and Rehabilitation

Part 3 The quality of life of students in Sichuan Vocational College of Health and Rehabilitation

Part 4 The influence of plant landscape color on students ' quality of life

4.1 Symbols used to represent the results of data analysis

B = (Beta Coefficient): Regression coefficient, indicating the magnitude of the direct effect of the independent variable on the dependent variable .

Sig = (Significance): Level of significance, commonly represented by the p-value . If Sig < 0.05, it is generally considered that the regression coefficient is statistically significant.

R^2 = (R-squared): Coefficient of determination, representing the proportion of the total variation in the dependent variable that is explained by the independent variables .

VIF = (Variance Inflation Factor): A measure used to detect multicollinearity issues . A VIF value greater than 5 may suggest the presence of multicollinearity.

4.2 Results of data analysis

Part 1 : Describe the demographic characteristics and situation of students in Sichuan Vocational College ofHealth and Rehabilitation.

4.2.1 Demographic Analysis

Table 2 Frequency and percentage of data regarding the general characteristics of students in Sichuan Vocational College of Health and Rehabilitation

Variables	Frequency (n = 328)	Percentage (%)
Gender		
- Male	112	34.20
- Female	216	65.80
Grade		
- First Grade	164	50.00
- Second Grade	164	50.00
Faculty		
- Faculty of Rehabilitation Academy	118	36.00
- Faculty of Nursing	131	39.90
- Faculty of Clinical	79	24. 10

This questionnaire selects the three majors with the largest number of students in the whole school and the landscape of the three colleges is generally the same. 164 people are randomly sampled from the first and second grades, and a total of 328 people are sampled, of which 34% are boys and 65.8% are girls. From the perspective of proportion, the sampling data is consistent with the actual ratio of male and female students in the whole school, representing the integrity. The landscape of the three colleges is consistent

Part 2: Describe the plant landscape colors of college students in Sichuan Vocational College of Health and Rehabilitation.

4.2.2 Current Status Analysis

4.2.2.1 Current Status Analysis of the Plant Landscape Color

Scale Current Status Analysis of the Plant Landscape Color Scale The current status is analyzed in the five parts of the plant landscape color scale, namely Color Psychology, Attention Recovery, Color Harmony, Mental Stress, and Natural Soothing of Emotional Ups and Downs, to compare the impact of different sections on students .

Table 3 Current Status Analysis of the Plant Landscape Color Scale

	Variables (Frequency/Percentage)					Mean	S.D.
	1	2	3	4	5		
Color psychology						3.35	0.54
1. Plant landscape color collocation is comfortable	24/7.3	82/25.0	118/36.0	92/28.0	12/3.7	2.96	0.99
2. Whether the seasonal color changes of plant landscape are obvious	7/2.1	40/12.2	92/28.0	131/39.9	58/17.7	3.59	0.99
3. The effect of plant landscape color space dependence	0/0.0	32/9.8	74/22.6	116/35.4	106/32.3	3.90	0.97
4. Your favorite colors change with time or mood	3/0.9	42/12.8	116/35.4	122/37.2	45/13.7	3.50	0.92
5.Personalityclosely related to favorite color	4/1.2	48/14.6	108/32.9	120/36.6	48/14.6	3.49	0.96
6. Color adjust your life experience	7/2.1	52/15.9	111/33.8	121/36.9	37/11.3	3.39	0.96
7. Color stress you out	62/18.9	79/24.1	108/32.9	63/19.2	16/4.9	2.67	1.13
Attention recovery						3.74	0.52
8. Think attention is important in daily study and work	1/0.3	21/6.4	72/22.0	127/38.7	107/32.6	3.97	0.91
9. Satisfied with your current level of attention	25/7.6	46/14.0	140/42.7	90/27.4	27/8.2	3.15	1.02
10.Your desire to improve your concentration	2/0.6	13/4.0	70/21.3	88/26.8	155/47.3	4.16	0.94
11.Effects of plant landscape color on attention recovery	0/0.0	13/4.0	65/19.8	123/37.5	127/38.7	4.11	0.86

	Variables (Frequency/Percentage)					Mean	S.D.
	1	2	3	4	5		
12.Through the reasonable design of plant landscape colors, attention can be quickly restored	0/0.0	15/4.6	92/28.0	129/39.3	92/28.0	3.91	0.86
13.Plant and landscape color restore your focus	0/0.0	8/2.4	85/25.9	144/43.9	91/27.7	3.97	0.80
14.Plant landscaping help restore your focus	20/6. 1	101/30.8	109/33.2	65/ 19.8	33/ 10. 1	2.97	1.08
Color harmony						2.88	0.55
15.Color harmony of plant landscape	5/ 1.5	29/ 8.8	55/ 16.8	1 13/34.5	126/38.4	3.99	1.02
16.Whether the color of the plant landscape conflicts with the plant	10/3.0	34/ 10.4	129/39.3	133/40.5	22/6.7	3.37	0.87
17.Does the plant landscape color have a sense of atmosphere	52/ 15.9	99/30.2	95/29.0	64/ 19.5	18/5.5	2.69	1.12
18.The seasonal color changes of the plant landscape obvious	72/22.0	109/33.2	91/27.7	42/ 12.8	14/4.3	2.44	1.10
19.Rich are the color levels of plant landscapes	103/31. 4	104/31.7	81/24.7	26/7.9	14/4.3	2.22	1.10
20.The coverage area of plant landscape colors reasonable	62/ 18.9	138/42. 1	90/27.4	29/ 8.8	9/2.7	2.34	0.97
21.The landscape single plant color	48/ 14.6	54/ 16.5	66/20. 1	131/39.9	29/ 8.8	3.12	1.22
Mental stress						3.32	0.51
22.Plant landscape color is conducive to the reduction of psychological stress	18/5.5	69/21.0	106/32.3	102/31. 1	33/ 10. 1	3.19	1.05
23.Plant landscape color has an impact on life satisfaction	1 1/3.4	49/ 14.9	66/20. 1	105/32.0	97/29.6	3.70	1.14
24.The effect of Plant	17/5.2	104/31.7	146/44.5	47/ 14.3	14/4.3	2.81	0.90

	Var iables (Fr equency/Per centage)					Mean	S.D.
	1	2	3	4	5		
Landscape Color on Affinity							
25.Well do you think red plants relieve stress	17/5.2	98/29.9	92/28.0	68/20.7	53/ 16.2	3.13	1.16
26.Well do think yellow can relieve stress you plants your	3/0.9	51/ 15.5	103/31.4	132/40.2	39/ 1 1.9	3.47	0.93
27.Well do you think blue purple plants can relieve your stress	5/ 1.5	21/6.4	45/ 13.7	93/28.4	164/50.0	4.19	1.00
28.Well do you think green plants can relieve your stress	40/ 12.2	106/32.3	95/29.0	51/ 15.5	36/ 1 1.0	2.81	1.17
Natur ally Soothes						3.44	0.52
Emotional Ups and Downs							
29.The effect of color on irritability in plant landscape	42/ 12.8	135/41.2	109/33.2	36/ 1 1.0	6/ 1.8	2.48	0.92
30.The effect of color on calming mood in plant landscape	2/0.6	35/ 10.7	89/27. 1	142/43.3	60/ 18.3	3.68	0.91
31.The effect of plant landscape color on sense of security	37/ 1 1.3	108/32.9	103/31.4	58/ 17.7	22/6.7	2.76	1.08
32.The impact of plant landscape	2/0.6	30/9. 1	65/ 19.8	1 17/35.7	1 14/34.8	3.95	0.98

1=Not at all, 2= Slightly, 3=Moder ately , 4=Very, 5=Extr emely

According to the scale results, the average score for Color psychology is 3.35, for Attention recovery is 3.74, for Color harmony is 2.88, for Mental stress is 3.32, and for Naturally Soothes Emotional Ups and Downs is 3.44. It is concluded that Color harmony has the lowest satisfaction and there is a common situation of complaints . The campus Color harmony is the most direct and unified part of the students' perception of the Plant landscape color scale, and in the later stage, the campus Color harmony can be given a key promotion and construction .

Part 3 : Describe the quality of life of students in Sichuan Vocational College of Health and Rehabilitation.

4.2.3 Current Status Analysis of the Quality of life scale

The current status is analyzed in the four parts of the quality of life scale, namely Physical Health, Psychological, Social Relationships, and Environment, to compare the impact of different sections on students' quality of life .

Table 4 Current Status Analysis of the Quality of life Scale

	Variables (Frequency/Percentage)					Mean	S.D.
	1	2	3	4	5		
Physical health						3.50	0.74
1. Satisfied are you with your health	1/0.3	30/9.2	92/28.0	159/48.5	46/14.0	3.67	0.84
2. You have enough energy to cope with daily life	6/1.8	55/16.8	127/38.7	103/31.4	37/11.3	3.34	0.95
Psychological						3.39	0.73
3. You find life enjoyable	5/1.5	29/8.8	108/33.0	142/43.3	44/13.4	3.58	0.88
4. You feel your life has meaning	6/1.8	44/13.4	107/32.6	103/31.4	68/20.8	3.56	1.02
5. You have negative feelings, Such as depression, despair, anxiety, depression	15/4.6	91/27.7	116/35.4	79/24.1	27/8.2	3.04	1.02
Social relationships						3.40	0.90
6. You satisfied with your relationships	11/3.4	48/14.6	117/35.7	103/31.4	49/14.9	3.40	1.02
7. You satisfied with the support you get from your friends	10/3.0	47/14.3	120/36.6	99/30.2	52/15.9	3.41	1.02
Environment						3.15	0.84
8.Your living environment healthy	13/4.0	53/16.1	115/35.1	121/36.9	26/7.9	3.29	0.96
9.You satisfied with the living conditions on campus	23/7.0	75/22.8	118/36.0	98/29.9	14/4.3	3.02	0.99

1=Very dissatisfied , 2=Fairly Dissatisfied , 3=Neither satisfied nor dissatisfied , 4= Satisfied , 5=Very satisfied

Based on the results of the scale, the average score for Physical Health is 3.50, for Psychological is 3.39, for Social Relationships is 3.40, and for Environment is 3. 15. Among the scale sections, students show the lowest satisfaction with Environment, followed by Psychological. This indicates that both Environment and Psychological exhibit relatively low satisfaction levels on the Quality of Life scale and significantly impact the overall satisfaction with the Quality of Life .

Part 4: Describe the influence of plant landscape color on students ' quality of life.

4.2.4.1 Correlation Analysis

Table 5 Correlation Analysis of Quality of Life and Plant Landscape Color

	Color psychology	Attention recovery	Color harmony	Mental stress	Naturally Soothes Emotional Ups and Downs	Physical health	Psychological	Social relationships	Environment
Color psychology	1								
Attention recovery	0.507**	1							
Color harmony	0.315**	0.287**	1						
Mental stress	0.451**	0.371**	0.310**	1					
Naturally Soothes Emotional Ups and Downs	0.495**	0.349**	0.273**	0.442**	1				
Physical health	0.425**	0.474**	0.340**	0.340**	0.290**	1			
Psychological	0.365**	0.482**	0.262**	0.281**	0.278**	0.649**	1		
Social relationships	0.444**	0.503**	0.308**	0.297**	0.244**	0.593**	0.699**	1	
Environment	0.534**	0.473**	0.468**	0.351**	0.278**	0.608**	0.550**	0.634**	1

Note. ** significant $p < 0.01$, * significant $p < 0.05$

Through the correlation analysis of the four dimensions of the Quality of Life Scale and the five dimensions of the Plant Landscape Color Scale, all correlation coefficients are marked with an asterisk (* indicates p < 0.05), and all correlation

coefficients are greater than zero, which means that there is a significant positive correlation between all dimensions of the

Quality of Life Scale and the Plant Landscape Color Scale . In other words, the higher the satisfaction with the Plant Landscape Color Scale, the higher the satisfaction with the Quality of Life Scale .

The above results of the correlation analysis provide a basis and assurance for subsequent research on influencing factors .

4.2.4.2 Demographic Differences Comparison

4.2.4.3 Gender Differences

Table 6 Gender Differences Analysis in Plant landscape Color

	Male	Female	T	*P*-value
Attention recovery	3.88±0.45	3.68±0.55	3.290	0.004
Color harmony	2.84±0.64	2.91±0.51	-1.075	0.156
Mental stress	3.49±0.55	3.24±0.48	4.150	0.526
Naturally Soothes Emotional Ups and Downs	3.53±0.62	3.4±0.46	2.324	0.010

significant $P<0.05$

In the analysis of gender differences, it was found that the p-values for the Attention Recovery and Naturally Soothes Emotional Ups and Downs dimensions of the Plant Landscape Color Scale were less than 0.05.

Therefore, gender has a certain impact on the experience levels of these two dimensions, and the later design for these dimensions can reflect the different preferences of males and females

Table 7 Gender Differences Analysis in Quality of Life

	Male	Female	T	*P*-value
Physical health	3.7±0.62	3.3±0.78	3.714	0.088
Psychological	3.55±0.73	3.31±0.73	2.769	0.186
Social relationships	3.54±0.96	3.34±0.86	1.934	0.196
Environment	3.3±0.87	3.07±0.82	2.369	0.753

significant $P<0.05$

In the analysis of gender differences, it was found that the p-value for each dimension of the Quality of Life Scale was greater than 0.05.

Therefore, there was no significant difference by gender in the Quality of Life Scale, indicating that different genders do not have an impact on the results of the scale .

4.2.4.4 Grade Differences

Table 8 Grade Differences Analysis in Quality of life

	First Grade	Second Grade	T	*P*-value
Physical health	3.63 ±0.86	3.38±0.60	3.041	0.001
Psychological	3.41±0.766	3.37±0.72	0.451	0.630
Social relationships	3.4±0.93	3.42±0.88	-0.282	0.084
Environment	3.26±0.94	3.05±0.737	2.254	0.001

significant $P<0.05$

In the analysis of grade differences in the Quality of Life Scale, it was found that the p-values for Physical Health and Environment were less than 0.05, indicating that grade level significantly impacts these two dimensions. Specifically, this is reflected in first-year students expressing greater satisfaction with their physical health status compared to second-year students. Additionally, when it comes to environmental satisfaction, first-year students report a higher level of satisfaction with the environment, while second-year students report a lower level of satisfaction.

Table 9 Grade Differences Analysis in Plant landscape Color

	First Grade	Second Grade	T	*P*-value
Color psychology	3.2369±0.6	3.47±0.474	-3.935	0.001
Attention recovery	3.6935±0.6	3.80±0.43	-1.806	0.038
Color harmony	2.9231±0.63	2.85±0.49	1.259	0.107
Mental stress	3.3±0.58	3.35±0.45	-0.924	0.180
Naturally Soothes Emotional Ups and Downs	3.4±0.6	3.48±0.44	-1.467	0.074

significant $P<0.05$

In the analysis of grade differences within the Plant Landscape Color Scale, it was determined that the p-values for Color Psychology and Attention Recovery were less than 0.05, indicating that grade level has a significant impact on these two dimensions . Specifically, second-year students reported greater satisfaction with Color Psychology compared to first-year students, while second-year students had a higher level of satisfaction with Attention Recovery than first-year students .

4.2.4.5 Linear Regression Analysis

Based on the 328 questionnaires collected, a linear regression analysis was conducted on each variable using SPSS. The five parts of the plant landscape color—color psychology, attention recovery, color harmony, mental stress, and Naturally Soothes Emotional Ups and Downs—were set as independent variables, while the four parts of the quality of life—Physical health, Psychological, Social relationships, and Environment—were set as dependent variables . The analysis was performed to derive the regression equations between the independent variables and each dependent variable .

Table 10 The Influence of Plant Landscape Color on the Physical Health within the Quality of Life

Model		Unstandardized Coefficients		Standardized Coefficients	t	*P*-value	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-0.034	0.314		-0.109	0.913		
	Color psychology	0.234	0.083	0.171	2.841	<0.0001	0.590	1.694
	Attention recovery	0.424	0.078	0.299	5.415	<0.0001	0.703	1.423
	Color harmony	0.223	0.067	0.167	3.322	<0.0001	0.846	1.181
	Mental stress Naturally	0.136	0.080	0.094	1.698	0.091	0.700	1.429
	Soothes Emotional Ups and Downs	0.019	0.080	0.014	0.242	0.809	0.685	1.459
				R^2=0.297				
				F=28.639				
				P-value<0.0001				
				a. Dependent Variable: Physical health				

1.The fit of the regression model is R^2=0.297, which is moderately low, indicating that the independent variables can explain 29.7% of the variation in the dependent variable, meaning that 29.7% of the state of physical health is caused by Color psychology, Attention recovery, Color harmony, Mental stress, and Naturally Soothes Emotional Ups and Downs .

2. There is no multicollinearity among the five independent variables, as all Variance Inflation Factors (VIF) are less than 5.

3. The regression equation is significant, F=28.639, *P*<0.0001, which means that at least one of the five independent variables can significantly affect Physical health.

4. Color psychology can significantly positively affect Physical health (β= 0.234>0, *P*<0.000), Attention recovery can significantly positively affect Physical health (β=0.424>0, *P*<0.000), and Color harmony can significantly positively affect Physical health (β=0.233>0, *P*<0.000), while Mental stress and particularly Naturally Soothes Emotional Ups and Downs do not significantly affect Physical health. Based on the above analysis, the following regression equation is derived: Physical Health =0.234*Color psychology + 0.424*Attention recovery + 0.223*Color harmony - 0.34 "

Table 11 The Influence of Plant Landscape Color on the Psychological within the Quality of Life

Model		Unstandardized Coefficients		Standardized Coefficients	t	*P*-value	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	0.156	0.320		0.489	0.626		
	Color psychology	0.138	0.084	0.102	1.641	0.102	0.590	1.694
	Attention recovery	0.515	0.080	0.367	6.455	<0.0001	0.703	1.423
	Color harmony	0.127	0.068	0.096	1.860	<0.0001	0.846	1.181
	Mental stress Naturally	0.086	0.082	0.046	0.811	<0.0001	0.700	1.429
	Soothes Emotional Ups and Downs	0.074	0.082	0.052	0.905	0.366	0.685	1.459
	R^2=0.256							
	F=23.468							
	P-value<0.0001							
	a. Dependent Variable: Psychological							

1.The fit of the regression model is R^2=0.256, which is moderately low, indicating that the independent variables can explain 25.6% of the variation in the dependent variable . This means that 25.6% of the state of physical health is caused by Color psychology, Attention recovery, Color harmony, Mental stress, and Naturally Soothes Emotional Ups and Downs .

2.There is no multicollinearity among the five independent variables, as all Variance Inflation Factors (VIF) are less than 5.

3.The regression equation is significant, F= 23.468, *P*<0.0001, which means that at least one of the five independent variables significantly affects Psychological.

4. Attention recovery can significantly positively affect Psychological well-being (β=0.515>0, *P*<0.0001), Color harmony can significantly positively affect Psychological well-being (β=0.127>0, *P*<0.0001), and Mental stress can significantly positively affect Psychological well-being (β=0.86>0, P<0.0001).The following regression equation is derived: Psychological = 0. 156 + 0.515*Attention recovery + 0. 127*Color harmony + 0. 86*Mental stress.

Table 12 The Influence of Plant Landscape Color on the Social relationships within the Quality of Life

Model		Unstandardized Coefficients		Standardized Coefficients	t	*P-value*	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-0.697	0.376		-1.852	0.065		
	Color psychology	0.376	0.099	0 .227	3.800	<0.0001	0.590	1.694
	Attention recovery	0.597	0.094	0.349	6.364	<0.0001	0.703	1.423
	Color harmony	0.219	0.081	0.136	2.717	<0.0001	0.846	1.181
	Mental stress	0.076	0.096	0.043	0.789	0.431	0.700	1.429
	Naturally Soothes Emotional Ups and Downs	-0.081	0.096	-0.047	-0.840	0.401	0.685	1.459
		R^2=0.565						
		F=30.257						
		P-value<0.0001						

a. Dependent Variable: Social relationships

1.The fit of the regression model is R^2=0.565, which is quite good, indicating that the independent variables can explain 56.5% of the variation in the dependent variable. This means that 56.5% of the variance in Social relationships is accounted for by Color psychology, Attention recovery, Color harmony, Mental stress, and Naturally Soothes Emotional Ups and Downs.

2. There is no multicollinearity among the five independent variables, as all Variance Inflation Factors (VIF) are less than 5.

3.The regression equation is significant, F=30.257, *P*<0.0001, which means that at least one of the five independent variables has a significant impact on Social relationships.

4.Color psychology can significantly positively affect Social relationships (β= 0.376>0, *P*<0.0001), Attention recovery can significantly positively affect Social relationships (β=0.597>0, *P*<0.0001), and Color harmony can significantly positively affect Social relationships (β=0.219>0, *P*<0.0001). However, Mental stress and Naturally Soothes Emotional Ups and Downs do not significantly affect Social relationships. Based on the above analysis, the following regression equation is derived:

Social relationships = 0.376*Color psychology + 0.597*Attention recovery + 0.219*Color harmony - 0.697

Table 13 The Influence of Plant Landscape Color on the Environment within the Quality of Life

Model	Unstandardized Coefficients		Standardized Coefficients	t	*P*-value	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-1.142	0.325		-3.514	<0.0001		
Color psychology	0.527	0.085	0.339	6.166	<0.0001	0.590	1.694
Attention recovery	0.353	0.081	0.220	4.357	<0.0001	0.703	1.423
Color harmony	0.455	0.069	0.301	6.543	<0.0001	0.846	1.181
Mental stress Naturally	0.091	0.083	0.055	1.096	0.274	0.700	1.429
Soothes Emotional Ups	-0.119	0.083	-0.073	-1.438	<0.0001	0.685	1.459

1

Model	Unstandardized Coefficients		Standardized Coefficients	t	*P*-value	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
and Downs							
			R^2=0.416				
			F=47.541				
			P-value<0.0001				
			a. Dependent Variable: Environment				

1.The fit of the regression model is R^2=0.416, which is relatively good, indicating that the independent variables can explain 41.6% of the variation in the dependent variable . This means that 41.6% of the state of physical health is attributable to Color psychology, Attention recovery, Color harmony, Mental stress, and Naturally Soothes Emotional Ups and Downs .

2.There is no multicollinearity among the five independent variables, as all Variance Inflation Factors (VIF) are less than 5.

3.The regression equation is significant, F=47.541, *P*<0.0001, which means that at least one of the five independent variables significantly affects Environment.

4.Color psychology can significantly positively affect Environment (β= 0.527>0, *P*<0.0001), Attention recovery can significantly positively affect Environment (β=0.353>0, *P* <0.0001), Color harmony can significantly

positively affect Environment (β=0.455>0, *P*<0.0001), and Naturally Soothes Emotional Ups and Downs can significantly positively affect Environment (β=-0.1 19>0, *P*<0.0001), while Mental stress does not significantly affect

Environment. Based on the above analysis, the following regression equation is derived:

Environment = 0.527*Color psychology+0 .353*Attention recovery+ 0.455*Color harmony-0 . 119*Naturally Soothes Emotional Ups and Downs- 1. 142

Final Summary of Survey Results

1.This questionnaire surveyed a total of 328 students, with a higher proportion of female students; and the students were from the first and second grades, which meets the requirement of the survey target being current students .

2.The reliability and validity of this questionnaire are in good condition, with all subscales and dimensions of reliability above 0.8 and all greater than the coefficient values after item deletion, indicating that the data obtained through the Plant Landscape Color Scale and Quality of Life Scale can truly and reliably reflect the satisfaction of students .

3.The questionnaire survey results show that students' satisfaction with the Color Harmony and Mental Stress dimensions in the Plant Landscape Color Scale is not ideal, and their satisfaction with the Psychological Health and Environment dimensions in the Quality of Life Scale is also not ideal.

They are between general and dissatisfied, and more inclined to be dissatisfied. Therefore, improving the harmony of plant landscape colors is very important for the quality of life, further illustrating the necessity of this survey.

4.Through comparison of differences among different types of students, it was found that there are differences between genders in the

Attention Recovery and Naturally Soothes Emotional Ups and Downs dimensions of the Plant Landscape Color Scale with $p<0.05$, indicating that gender has a certain impact on the experience level of these two dimensions . In the Quality of Life Scale analysis, Physical Health and Environment with $p<0.05$, and Color Psychology and Attention Recovery of the Plant Landscape Color Scale with $p<0.05$ have a significant impact in all grades on these four dimensions . In later studies on the influencing factors of satisfaction with the Plant Landscape Color Scale, demographic variables such as gender and age can be used as control variables . Similarly, age can be used as a control variable in studies on the influencing factors of satisfaction with the Quality of Life Scale .

5.Correlation analysis revealed that there is a significant positive correlation between students' satisfaction with the Plant Landscape Color Scale and Quality of Life Satisfaction, meaning the higher the satisfaction with Plant Landscape Color, the higher the satisfaction with Quality of Life . Conversely, if satisfaction with Plant Landscape Color is low, satisfaction with Quality of Life is also low . It is worth noting that the positive correlation between Plant Landscape Color and Quality of Life does not necessarily mean that Plant Landscape Color can significantly affect satisfaction with Quality of Life; conclusions about satisfaction must be drawn through linear regression .

6.Through multiple linear regression analysis, it was ultimately determined that Plant Landscape Color is an independent influencing factor of Quality of Life satisfaction and has a positive impact, meaning that the higher the satisfaction with Plant Landscape Color, the higher the satisfaction with Quality of Life . This implies that if schools want to improve students' quality of life, they must start with Plant Landscape Color .

4.2.4.6 Student Interviews and Result Analysis

In accordance with the research requirements, to gain a more detailed and comprehensive understanding of the content and extent of the impact of plant landscape color on students' quality of life, the author conducted interviews with six students from the Sichuan Health and Rehabilitation Vocational College (Table 16), and analyzed the records of these interviews . The interviews primarily focused on three aspects: plant landscape color, quality of life, and the impact of plant landscape color on students' quality of life . Plant Landscape Color

The first topic the author inquired about was related to plant landscape color . "Are you satisfied with the plant landscape color at your school? Please rate your satisfaction with the following five aspects: color psychology, attention recovery, color harmony, mental stress, and Naturally Soothes Emotional Ups and Downs . "

All six students, in their responses, unanimously believed that the school's color harmony needs improvement, especially in areas with high traffic such as around teaching buildings and student dormitories, where the atmosphere could be more tailored to the needs of the application scenarios. Satisfaction with color psychology and mental stress was also low, particularly among sophomores compared to freshmen . The main reason is that sophomores are about to face a variety of pressures such as graduation, employment, and life, which are more comprehensive and stressful compared to the pressures faced by freshmen, who mainly deal with academic stress .

However, both groups expressed a need for better stress management, with students hoping that plant landscape color could enhance color psychology and alleviate mental stress . The most satisfaction was expressed with attention recovery, but suggestions were made to increase facilities that aid in attention recovery to improve concentration, such as adding outdoor simple sports facilities and landscape features near the plant landscapes . There was a difference in satisfaction levels between male and female students regarding the dimensions of Attention recovery and Naturally Soothes Emotional Ups and Downs, suggesting that future designs could reflect differences based on the preferences of male and female students .

Quality of Life

The author asked, "Are you satisfied with the Quality of Life at your school? Please rate your satisfaction with the following four aspects: Physical Health, Psychological, Social Relationships, and Environment. "

All six students, when responding, believed that the satisfaction with Environment was relatively low and hoped for improvements, especially the sophomores who felt a greater urgency compared to the freshmen. This is because, after a year of campus life, the Environment has caused a certain degree of aesthetic and visual fatigue for the sophomores, leading to decreasing

satisfaction. In contrast, for Physical Health, the situation is the opposite. Freshmen are more satisfied with their Physical Health than sophomores, mainly because they find everything in the new campus fresh and exciting, and are particularly eager to participate in various clubs and sports activities . On the other hand, sophomores, being weary from academic and employment pressures, naturally have lower satisfaction.

The Impact of Plant Landscape Color on Students' Quality of Life The author inquired about "the impact of plant landscape color on students' quality of life . "

The responses from the six students can be summarized into several key points: Emotional Regulation: Students indicated that the colors of the plant landscape can significantly influence emotions . Green and other natural colors can bring a sense of calm and relaxation, helping to alleviate the stress of studying and daily life . A rich variety of plant colors can stimulate positive emotions and improve mood, thus having a positive impact on mental health.

Improved Learning Efficiency: The colors of plants in the natural environment can enhance concentration, which is beneficial for improving learning efficiency. College students studying in a harmoniously colored natural environment may have better memory and comprehension skills .

Social Interaction: Beautiful plant landscapes can attract students to gather, promoting social activities . A campus environment with rich colors can increase interactions among students, fostering friendships and teamwork. Health Promotion: The colors of plant landscapes are related to the reflection of natural light, providing visual comfort, reducing eye fatigue, and having a positive effect on eye protection . Plant landscapes are also associated with an increase in outdoor activities, such as walking and exercising, which contribute to improving physical health and quality of life .

Environmental Perception: Harmonious plant landscape colors can enhance college students' overall perception of the campus environment, increasing their sense of belonging and satisfaction, thereby improving the overall quality of life .

Creativity Inspiration: The diversity of plant landscape colors can inspire students' creativity and imagination . For example, students majoring in medical aesthetics might draw inspiration from natural colors .

Psychological Stress Relief: Students expressed that when facing pressures such as academics, interpersonal relationships, and future planning, the colors of the plant landscape can serve as a psychological comfort, helping them better cope with stress .

Cultural and Aesthetic Experience: Students indicated that the colors of plant landscapes are not only a form of natural beauty but also a reflection of

culture and aesthetics . Through the layout and design of plant colors, campus culture and aesthetic concepts can be expressed, enhancing students' aesthetic experience .

Ecological Awareness Enhancement: Students stated that a rich variety of plant landscapes can enhance their perception and respect for the natural environment, increasing their awareness of ecological protection and a sense of responsibility for sustainable development.

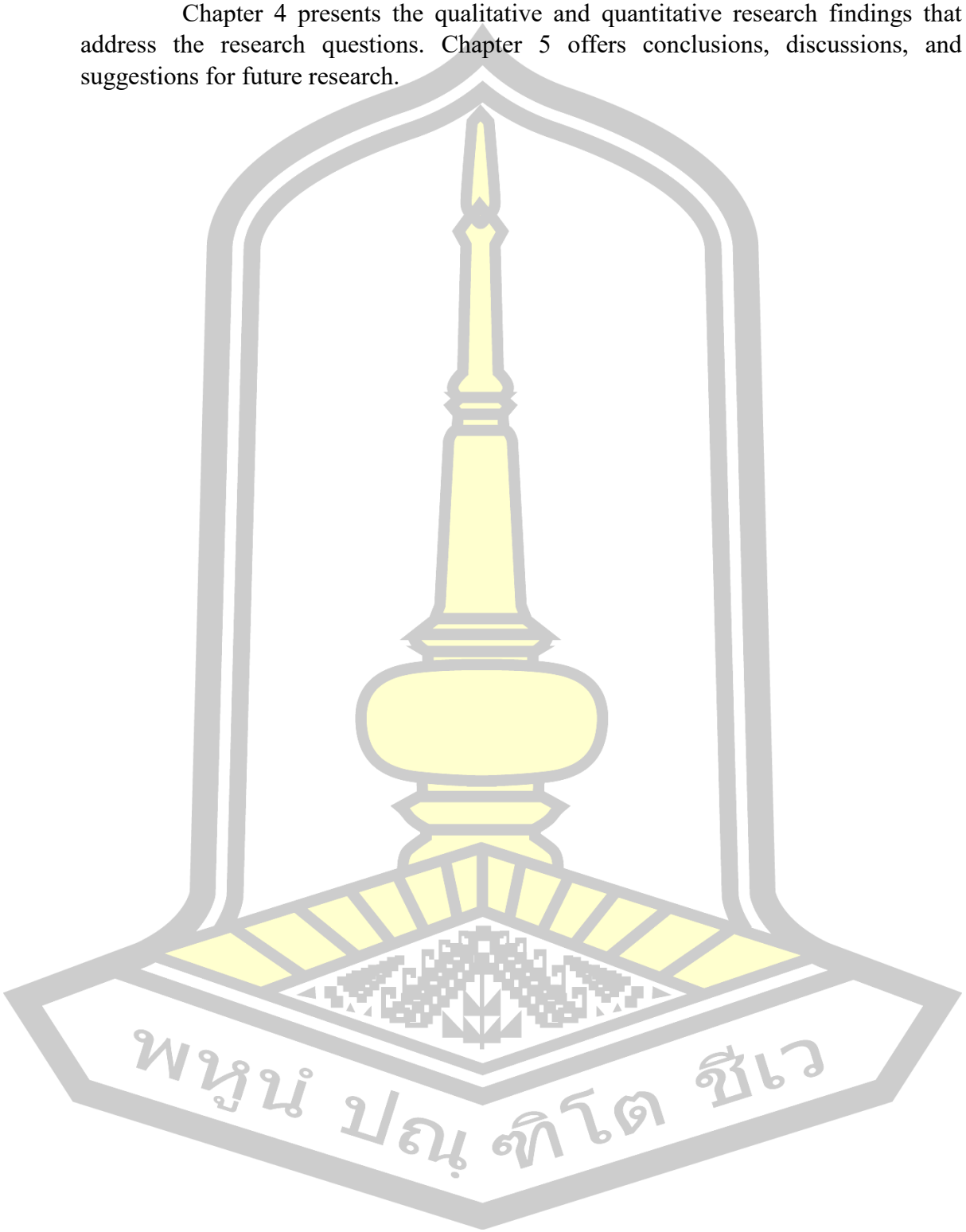
Considering these factors, the rational design and maintenance of plant landscape colors can provide college students with a more harmonious, beautiful, and healthy learning and living environment, thereby improving their overall quality of life .

Through the analysis of these aspects, it is evident that plant landscape colors have a direct and profound impact on the quality of life of college students and are an essential factor in the construction of campus environments that should not be overlooked.

Table 14 Basic Information of Interviewees

NO.	Gender	Age	Grade	Faculty
1	Female	21	First Year	faculty of Rehabilitation Academy
2	Male	19	First Year	faculty ofNursing
3	Female	20	First Year	faculty of clinical
4	Male	19	Second Year	faculty of Rehabilitation Academy
5	Male	20	Second Year	faculty ofNursing
6	Female	19	Second Year	faculty of clinical

Chapter 4 presents the qualitative and quantitative research findings that address the research questions. Chapter 5 offers conclusions, discussions, and suggestions for future research.



CHAPTER V
CONCLUSION DISCUSSION AND RECOMMENDATION

Introduction

Study the influence of plant landscape color on the quality of life of students at Sichuan Vocational College of Health and Rehabilitation in Zigong City, Sichuan Province, China. could be summarized as follows:

5.1 Discussion of the results

5.2 Recommendations

5.3 Suggestions for further studies

5.1 Discussion of the results

The survey indicates that Plant landscape color is a factor affecting the satisfaction of Quality of life, and it has a positive influence, meaning that the higher the satisfaction with Plant landscape color, the higher the satisfaction with Quality of life. This is consistent with a study published in 2023 on the control of university building color systems based on the psychological effects of color, which suggested that information conveyed through color can meet the emotional needs of users, thereby creating a more comfortable and healthy environment. Another META analysis published in 2022 on the emotional intervention effect of restorative virtual natural environments on quality of life found that virtual natural environments have a more significant restorative effect on negative emotions compared to other environments, and psychology is also an important factor in constituting quality of life, fully demonstrating the role of the natural environment in affecting quality of life. Additionally, a study published in 2020 on the impact of the built environment on college students' quality of life found that the built environment, exercise intention, and psychological resilience are significantly and positively correlated with the level of quality of life, emphasizing the important role of the environment in college students' quality of life, which is also consistent with the research results. In the study of color, Gao Na (2013) found that different colors give people different feelings, and the colors of different plants can also produce different intuitive feelings, while also arousing different emotions in people. Liu Zongjin (2020) found that after the VR emotional activation mechanism, physiological states change, indicating that the VR emotional activation mechanism is effective. Watching pictures made from the best color data obtained by research analysis (including six colors, with the main color green accounting for half of the landscape effect, and embellished with yellow, red, and other adjacent colors) compared with the blank control pictures, heart rate and blood pressure have improved to varying degrees. He pointed out that a good campus plant space color has a positive effect on the physical and mental health of college

students, can soothe the psychological negative emotions of college students and extend the happy emotions, which is also consistent with the students' color preference results in the survey, and is more inclined to green, red, and yellow. Although the content of previous research is not completely consistent, the research on color psychology and the impact of natural environments still accounts for a certain proportion, but there is still relatively little research in China on the relationship between plant landscape color and students' quality of life. The above content all indicates that there is a need to continue to explore and verify and try this research issue. This study uses the data of freshmen and sophomore students, and carries out research on this issue under the premise of controlling the influence of personal characteristics, enriching the theoretical system related to college students' quality of life and plant landscape color, and also enlightening the research on the field of students' quality of life in other schools.

5.2 Recommendations

Based on the findings of this study, the following suggestions are made for the creation of plant landscape colors:

1) Campus four seasons plant leaf color can be divided into green 6 color system: green, gray-green, orange-green, gray-red, pink, and purple. Among these, green and gray-green are the most frequently used colors, while purple, pink, and orange-green appear least frequently. The entrance area's plant landscape is mainly dominated by gray-red; the teaching area's plant landscape is primarily pink and gray-green; the leisure and dormitory areas' plant landscapes are mainly green and gray-green.

2) College students' preferences for color plant landscapes, from highest to lowest, are yellow and green combinations, followed by red and green combinations. This indicates that in future campus environmental construction, there should be an increase in yellow-green and red-green color schemes. The main color tone of the plant landscape should be prominent, with at least one primary color making up more than 30% of the total area. In the entrance and teaching areas, the landscape should be dominated by warm-toned plants, complemented by evergreen plantings. In the leisure and dormitory areas, the plant landscape colors should be primarily evergreen.

3) Green plants have a significant restorative effect on emotions such as attention recovery, tension, depression, and panic; red plants have a significant restorative effect on emotions like panic and depression. Yellow plants have a significant effect on reducing heart rate. Therefore, when constructing campus landscapes, a large number of green plants can be planted, complemented by red and yellow plants. Considering that first-year students have lower satisfaction with attention recovery, especially male students, the proportion of green plants can be increased in the activity areas of first-year students, while also adding some

sports-related plant features that attract male students. This aims to effectively improve college students' psychological health and quality of life.

4) Considering the differences in physical health and environmental satisfaction in the quality of life among different grades, it is proposed to strengthen physical exercise for second-year students. Firstly, aerobic exercise courses can be added to the physical education curriculum to improve physical fitness. Secondly, second-year students are actively encouraged to engage in outdoor recreational sports in the campus plant environment, with the establishment of recreational sports activities for second-year students and a reward system to enhance their enthusiasm for outdoor activities.

This study, after proposing viewpoints, went through two months of preliminary preparation and three months of questionnaire collection to obtain authentic data from current students. Conclusions were drawn through quantitative and qualitative analysis. To a certain extent, it has enriched the theoretical system of the field concerning college students' quality of life and plant landscape colors, and it also provides insights for research in plant landscape color fields in other schools.

5.3 Suggestions for further studies

The theoretical foundations, research models, and methods used in this study are all based on rigorous analysis of past scholars' literature and represent mature content. However, due to limitations in time, resources, objective conditions, and personal experience, especially the differential impact of plant landscape color on the quality of life of students in different campuses was not addressed; this could be the subject of future specialized research.

For the topic studied in this paper, in future research, researchers can first increase the sample size from different schools to conduct comparative studies. Secondly, they can explore the assessment methods for students' quality of life and further investigate whether the impact of plant landscape color on students' quality of life will change after controlling for the aforementioned factors, which may lead to more rigorous and definitive conclusions. These are all areas that can be further explored in future research.

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APPENDIX

Questionnaires

The influence ofplant landscape color on the quality of life for students in Sichuan Vocational College of Health and Rehabilitation

Table 15 Scale of lants landsca e color p p

		Not at all	Slightly	Moderately	Very	Extremely
Color psychology	Plant landscape color collocation is comfortable	1	2	3	4	5
	Whether the seasonal color changes of plant landscape are obvious	1	2	3	4	5
	The effect of plant landscape color space dependence	1	2	3	4	5
	Do your favorite colors change with time or mood?	1	2	3	4	5
	Is personality closely related to favorite color?	1	2	3	4	5
	Can color adjust your life experience?	1	2	3	4	5
	Does color stress you out?	1	2	3	4	5
Attention recovery	Do you think attention is important in daily study and work?	1	2	3	4	5
	Are you satisfied with your current level of attention?	1	2	3	4	5
	Your desire to improve your concentration	1	2	3	4	5
	Effects of plant landscape color on attention recovery	1	2	3	4	5
	Through the reasonable design of plant landscape colors, attention can be quickly restored	1	2	3	4	5
	Can plant and landscape color restore your focus?	1	2	3	4	5
	Can plant landscaping help restore your focus?	1	2	3	4	5
Color harmony	Color harmony ofplant landscape	1	2	3	4	5
	Whether the color of the plant landscape conflicts with the plant	1	2	3	4	5
	Does the plant landscape color have a sense of atmosphere	1	2	3	4	5
	Are the seasonal color changes	1	2	3	4	5

		Not at all	Slightly	Moderately	Very	Extremely
	of the plant landscape obvious?					
	How rich are the color levels of plant landscapes?	1	2	3	4	5
	Is the coverage area of plant landscape colors reasonable?	1	2	3	4	5
	Is the plant landscape color single?	1	2	3	4	5
Mental stress	Plant landscape color is conducive to the reduction of psychological stress	1	2	3	4	5
	Plant landscape color has an impact on life satisfaction	1	2	3	4	5
	The effect of Plant Landscape Color on Affinity	1	2	3	4	5
	How well do you think red plants relieve stress	1	2	3	4	5
	How well do you think yellow plants can relieve your stress	1	2	3	4	5
	How well do you think blue purple plants can relieve your stress	1	2	3	4	5
	How well do you think green plants can relieve your stress?	1	2	3	4	5
Naturally Soothes Emotional Ups and Downs	The effect of color on irritability in plant landscape	1	2	3	4	5
	The effect of color on calming mood in plant landscape	1	2	3	4	5
	The effect of plant landscape color on sense of security	1	2	3	4	5
	The impact of plant landscape color on excitement	1	2	3	4	5
	The influence of plant landscape color on the sense of stability	1	2	3	4	5
	The impact of plant landscape color on mood	1	2	3	4	5
	The impact of plant landscape color on soothing emotions	1	2	3	4	5

Questionnaire Quality of Life

Post-pandemic era research on the influence of plant landscape color on the quality of life for students in Sichuan Vocational College of Health and Rehabilitation

Instructions:

This assessment asks how you feel about your quality of life, health, and other areas ofyour life. Please answer all the questions. If you are unsure about which response to give to a question, please choose the one that appears most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last two weeks.

Do you get the kind of support from others that you need?				
Not at all 1	Slightly 2	Moderately 3	Very 4	Completely 5

You would circle the number 4 if in the last two weeks you got a great deal of support from others.

If you did not get any of the support from others that you needed in the last two weeks you would circle 1.

Thank you for your help.

Please read the question, assess your feelings, for the last two weeks, and circle the number on the scale for each question that gives the best answer for you.

Table 16 Scale of Quality of Life

		Very dissatisfied	**Fairly Dissatisfied**	**Neither satisfied nor dissatisfied**	**Satisfied**	**Very satisfied**
Physical health	How satisfied are you with your health?	1	2	3	4	5
		Not at all	Slightly	Somewhat	To a great extent	Completely
	Do you have enough energy to cope with daily life?	1	2	3	4	5
		Not at all	A Small amount	A Moderate amount	A great deal	An Extreme amount
Psychological	Do you find life enjoyable?	1	2	3	4	5
	Do you feel your life has meaning?	1	2	3	4	5
		Not at all	Slightly	Somewhat	To a great extent	Completely
	Do you have negative feelings? Such as depression, despair, anxiety, depression	1	2	3	4	5
		Very Dissatisfied	Fairly Dissatisfied	Neither Satified nor Dissatisfied	Satisfied	Very satisfied
Social relationships	Are you satisfied with your relationships?	1	2	3	4	5
	Are you satisfied with the support you get from your friends?	1	2	3	4	5
		Not at all	Slightly	Moderately	Very	Extremely
Environment	Is your living environment healthy?	1	2	3	4	5
		Very Dissatisfied	Fairly Dissatisfied	Neither Satified nor Dissatisfied	Satisfied	Very satisfied
	Are you satisfied with the living conditions on campus?	1	2	3	4	5

The expert who edited questionaires

1. Professor Xu huimin
2. Professor Lin Zhiying
3. Professor Peng Shilong

Sichuan Vocational College of Health and Rehabilitation, Zigong city, Sichuan province, China

Figure 8 Questionnaire star data collection

Figure 9 Questionnaire interview

Certificate of Approval

MAHASARAKHAM UNIVERSITY ETHICS COMMITTEE FOR RESEARCH INVOLVING HUMAN SUBJECTS

Certificate of Approval

Approval number: 059-588/2024

Title : The Influence of plant landscape color on the quality of life for students.

Principal Investigator : Langyue Zhu
Responsible Department : Faculty of Public Health
Research site : Sichuan Vocational College of Health and Rehabilitation, Zigong city, Sichuan province, China

Review Method : Expedited Review

Date of Manufacture : 31 January 2024 **expire : 30 January 2025**

This research application has been reviewed and approved by the Ethics Committee for Research Involving Human Subjects, Mahasarakham University, Thailand. Approval is dependent on local ethical approval having been received. Any subsequent changes to the consent form must be re-submitted to the Committee.

.....

(Associate Professor Vorapoj Promasatayaprot)
Vice Chairman

Approval is granted subject to the following conditions: (see back of this Certificate)

588/64

ECMSU01-06.03

Informed Consent Form
(For Participants aged 18 years and older)

Name-Surname (Mr./Mrs./Ms.).....Age.....(years)
Address: House No. .....Village No.....Sub-district.....
District.....Province.....

I read the research subject information sheet and obtain the description of this study by Ms. Langyue Zhu about the voluntary of "The influence of plant landscape color on the quality of life for students in Sichuan Vocational College of Health and Rehabilitation, Zigong city, Sichuan province, China". This information includes the rationale and purpose of the study and lists all the procedures I will have to take, outlining the benefits I will receive from the study and the possible risks of participating in the study.Moreover, I have also received an explanation and response from the research project leader already.

As well as an assurance from the researcher that my data will be kept confidential, will not be anonymous, and the results will presented in an overview or summary to academic benefit

" The participation in this study, I participate voluntarily" and I am free to withdraw at any time, without giving a reason and without cost, and no affect to my learning, now or in the future.

I have read and I understand the provided information from research subject information sheet and informed consent form. I voluntarily agree to take part in this study and give my signature already.

Sign..... Participant
(.....)
Date.....

Sign..... Witness (In case of reading the explanation to the volunteers)
(.....)
Date.....

Sign..... Investigator/ person taking the consent
(.....)
Date.....

ECMSU01-05.03 Update 2021

Research Subject Information Sheet for Questionnaire

(For Participants aged 18 years and older)

Dear, All Participants

My name is Ms. Langyue Zhu, the doctoral degree student of Master of Public Health program, Faculty of Public Health, Mahasarakham University. I am conducting the research entitle: " The influence of plant landscape color on the quality of life for students in Sichuan Vocational College of Health and Rehabilitation, Zigong city, Sichuan province, China" . The research objective consist of 4 items such as 1) Describe the demographic characteristics and situation of students in Sichuan Vocational College of Health and Rehabilitation, 2) Describe the plant landscape colors of college students in Sichuan Vocational College of Health and Rehabilitation, 3) Describe the quality of life of students in Sichuan Vocational College of Health and Rehabilitation, 4) Describe the impact of plant landscape color on students' quality of life.The benefits you will receive from this research such as 1) Evaluate the effect of plant landscape color at the current stage, 2) Provide suggestions on the impact of landscape plant color on the quality of life, 3) Provide the basis for landscape plant color transformation for Sichuan Vocational College of Health and Rehabilitation.

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decided to participate in this research, I would like you to answer the questionnaire of the situation and contexts of the SIMI implementing. When you are finished answer all of Item, please send it back to the researcher team. Please take time to answer the questionnaire carefully or ask the researcher if there is anything that is not clear or if you have any question.

If you feel uncomfortable or undesired with some questions, you have the right to refuse to answer questions. Also, you have the right to withdraw from this program at any time without prior notice. In additional, the refusal or withdrawal from this project will involve no affect your learning, now or in the future.

The data will be kept and not publicly disclosed on an individual person. All data will be identified only by a code, with personal details kept in a locked file or secure computer with access only by the immediate research team. The results will only present in terms of overall and these data will be destroyed at the end of the study. In this research, you do not receive compensation and will not be charged anything.

If you have any questions about the research, or if you would like more information, please contact Ms. Langyue Zhu, Faculty of Public Health, Mahasarakham University. E-mail : 48774516@qq.com

If you are not treated as described or want to know your rights while participating in this research. You can contact the Review Ethics Broads of Mahasarakham University, Division of research facilitation and dissemination, Mahasarakham University. Tel. 043-754416 (internal number 1755)

Best Regards,

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Researcher

APPENDIX

Questionnaires

Draft questionnaire

The influence of plant landscape color on the quality of life for students in Sichuan Vocational College of Health and Rehabilitation

Table 2 Scale of plants landscape color

		Not at all	Slightly	Moderately	Very	Extremely
Color psychology	Plant landscape color collocation is comfortable	1	2	3	4	5
	Whether the seasonal color changes of plant landscape are obvious	1	2	3	4	5
	The effect of plant landscape color space dependence	1	2	3	4	5
	Do your favorite colors change with time or mood?	1	2	3	4	5
	Is personality closely related to favorite color?	1	2	3	4	5
	Can color adjust your life experience?	1	2	3	4	5
	Does color stress you out?	1	2	3	4	5
Attention recovery	Do you think attention is important in daily study and work?	1	2	3	4	5
	Are you satisfied with your current level of attention?	1	2	3	4	5
	Your desire to improve your concentration	1	2	3	4	5
	Effects of plant landscape color on attention recovery	1	2	3	4	5
	Through the reasonable design of plant landscape colors, attention can be quickly restored	1	2	3	4	5
	Can plant and landscape color restore your focus?	1	2	3	4	5
	Can plant landscaping help restore your focus?	1	2	3	4	5
Color harmony	Color harmony of plant landscape	1	2	3	4	5
	Whether the color of the plant landscape conflicts with the plant	1	2	3	4	5

	Does the plant landscape color have a sense of atmosphere	1	2	3	4	5
	Are the seasonal color changes of the plant landscape obvious?	1	2	3	4	5
	How rich are the color levels of plant landscapes?	1	2	3	4	5
	Is the coverage area of plant landscape colors reasonable?	1	2	3	4	5
	Is the plant landscape color single?	1	2	3	4	5
Mental stress	Plant landscape color is conducive to the reduction of psychological stress	1	2	3	4	5
	Plant landscape color has an impact on life satisfaction	1	2	3	4	5
	The effect of Plant Landscape Color on Affinity	1	2	3	4	5
	How well do you think red plants relieve stress	1	2	3	4	5
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	The effect of plant landscape color on sense of security	1	2	3	4	5
	The impact of plant landscape color on excitement	1	2	3	4	5
	The influence of plant landscape color on the sense of stability	1	2	3	4	5
	The impact of plant landscape color on mood	1	2	3	4	5
	The impact of plant landscape color on soothing emotions	1	2	3	4	5

Draft Questionnaire Quality of Life

Post-pandemic era research on the influence of plant landscape color on the quality of life for students in Sichuan Vocational College of

Health and Rehabilitation

Instructions:

This assessment asks how you feel about your quality of life, health, and other areas of your life. Please answer all the questions. If you are unsure about which response to give to a question, please choose the one that appears most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the last two weeks.

Do you get the kind of support from others that you need?				
Not at all 1	Slightly 2	Moderately 3	Very 4	Completely 5

You would circle the number 4 if in the last two weeks you got a great deal of support from others.

If you did not get any of the support from others that you needed in the last two weeks you would circle 1.

Thank you for your help.

Please read the question, assess your feelings, for the last two weeks, and circle the number on the scale for each question that gives the best answer for you.

Table 3 Scale of Quality of Life

		Very dissatisfied	**Fairly Dissatisfied**	**Neither satisfied nor dissatisfied**	**Satisfied**	**Very satisfied**
Physical health	How satisfied are you with your health?	1	2	3	4	5
		Not at all	Slightly	Somewhat	To a great extent	Completely
	Do you have enough energy to cope with daily life?	1	2	3	4	5
		Not at all	A Small amount	A Moderate amount	A great deal	An Extreme amount
Psychological	Do you find life enjoyable?	1	2	3	4	5
	Do you feel your life has meaning?	1	2	3	4	5
		Not at all	Slightly	Somewhat	To a great extent	Completely
	Do you have negative feelings? Such as depression, despair, anxiety, depression	1	2	3	4	5
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	Are you satisfied with the support you get from your friends?	1	2	3	4	5
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Environment	Is your living environment healthy?	1	2	3	4	5
		Very Dissatisfied	Fairly Dissatisfied	Neither Satified nor Dissatisfied	Satisfied	Very satisfied
	Are you satisfied with the living conditions on campus?	1	2	3	4	5

BIOGRAPHY

NAME	Ms.Langyue Zhu
DATE OF BIRTH	01/12/1987
PLACE OF BIRTH	Sichuan Province-China
ADDRESS	Unit 2, Building 16, Ruihe Shengjing Community, Ziliujing District, Zigong City, Zigong City, Sichuan Province, China
POSITION	Teacher
PLACE OF WORK	No. 3, Deming Road, Xiantan Community, Xianshi Town, Yantan District, Zigong City, Sichuan Province, ChinaEducation
EDUCATION	2010 Bachelor degree from Sichuan Conservatory of Music 2024 Master degree of Public Health, Faculty of Public Health, Mahasarakham University, Thailand.
Research output	Zhou Mijuan, Zhao Yilian, Yuan Yanlin & Zhu Langyue. (2022). Application of hybrid teaching model in higher vocational rehabilitation assessment technology courses under the background of information technology. Modern Vocational Education (21), 73-75. doi :CNKI:SUN:XDZJ.0.2022-21-025.