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The Influence of Plant Landscape Colors on Educational Environments: Effects on College Students' Quality of Life at Sichuan Vocational College of Health and Rehabilitation in Zigong City, China

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ABSTRACT

This study investigates the influence of plant landscape colors on the quality of life of college students at Sichuan Vocational College of Health and Rehabilitation in Zigong City, China. The research employed a mixed-methods approach, integrating quantitative data from 328 student questionnaires with qualitative insights from in-depth interviews to investigate the correlation between satisfaction with literacy plant landscape color and students' physical health, psychological well-being, social relationships, and environmental satisfaction. Statistical investigation utilizing SPSS demonstrated a substantial positive link between the color of literacy plant landscapes and all aspects of quality of life. Linear regression models showed that color psychology, attention restoration, and color harmony are independent predictors of quality of life, notably affecting students' social interactions and environmental perceptions. Qualitative research corroborated these findings, emphasizing the emotional solace and psychological advantages students derive from vibrant, aesthetically pleasing campus green spaces. The findings indicate that augmenting the range and harmony of literacy plant landscape colors can enhance student well-being, facilitate restorative experiences, and cultivate a healthier, more interconnected campus environment. This study provides significant evidence for using color psychology in campus planning to enhance students' physical and emotional well-being.

Key words: Plant Landscape Color, Quality of Life, College Students, Educational Environment, Color Psychology, Health literacy

INTRODUCTION

Since the onset of the COVID-19 epidemic, global public health systems have encountered unparalleled obstacles. The epidemic in China has been characterized as the most swiftly disseminating, extensive, and challenging public health crisis since the establishment of the People's Republic. Its effects have presented physical health risks but have also markedly heightened psychological stress throughout all age demographics. College students, specifically, have encountered a significant increase in mental instability, academic and employment-related worry, and social alienation. The restricted chances for youth to engage with natural areas have exacerbated these difficulties, increasing apprehension around the deteriorating quality of life among university demographics (Assefa et al., 2022; Filip et al., 2022).

Statistics reveal that over 30% of college students in China have challenges in quality of life, with the figures increasing. In 2022, China had more than 46 million students enrolled in higher education, with around 14 million facing similar issues. In Sichuan Province, almost 606,000 college students were impacted, while in Zigong City, around 13,000 of 46,000 students faced substantial quality of life issues. At Sichuan Vocational College of Health and Rehabilitation, the circumstances mirror this national trend, with over 3,000 of its more than 10,000 students experiencing quality-of-life issues. These findings indicate a significant necessity for psychological support and environmental measures to improve students' daily well-being (Zhang et al., 2022; Neale et al., 2021).

Studies indicate that thoughtfully designed campus vegetation may significantly enhance mental well-being, alleviate stress, and foster emotionally supportive surroundings. The hues of plants serve as a potent visual stimulation that affects psychological states and enhances the healing attributes of natural environments (Gill & Feinstein, 1994). As essential components of the educational landscape, university campuses facilitate substantial student involvement and engagement, rendering them optimal venues for environmental interventions to enhance the quality of life (Felce & Perry, 1995). Garden plants enhance campus aesthetics, improve air quality, and promote emotional and psychological well-being via deliberate color arrangement and seasonal diversity (Addington-Hall & Kalra, 2001).

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Although a 900-acre green campus is planned for Sichuan Vocational College of Health and Rehabilitation, constraints in the diversity and seasonal vitality of the plant environment have resulted in visual monotony and diminished student involvement. Due to the concentration of plant colors mostly in spring and fall, together with a predominant dependence on similar shades like red, pink, purple, and white, students are susceptible to visual fatigue, resulting in the underutilization of the landscape's healing potential (Ruth et al., 2021; Girard & Gravagnuolo, 2017). Therefore, this study aims to explore and optimize the color composition of campus literacy plant landscapes to better support students' psychological well-being, increase outdoor participation, and improve overall quality of life.

Research Objectives

- To investigate the influence of plant landscape colors on the quality of life of college students at Sichuan Vocational College of Health and Rehabilitation in Zigong City, China.

LITERATURE REVIEW

General Knowledge of Plant Landscape Color

The study of plant landscape color indicates a substantial psychological and physiological influence on people, particularly college students. Colors of the natural world, particularly those of flowering plants and leaves, serve more than just aesthetic functions; they impact mood, attention, mental stress, and emotional balance. According to research, different plant hues, such as green, red, yellow, and blue, elicit diverse emotional reactions, with green helping to relieve stress, red and yellow promoting happy feelings, and blue and white encouraging cognitive concentration and emotional relaxing. Color psychology and color harmony are essential components in creating landscapes that are not only visually appealing but also restorative, reducing stress and promoting mental well-being. Furthermore, attention recovery theory and psychoevolutionary theory argue that well-designed environments aid in psychological repair, which is critical in high-stress contexts such as college campuses (Luo et al., 2023; Thake et al., 2017).

Current research confirms that the intentional use of color in plant landscapes, particularly in seasonal change, contrast ratios, and visual rhythm, can promote emotional resilience and increase quality of life. Although Sichuan Vocational College of Health and Rehabilitation has a big campus with planned green spaces, a lack of diversity and seasonal color fluctuation has resulted in visual monotony and diminished restorative benefits. According to studies, richer plant color arrangements improve campus aesthetics, increase outdoor exercise, decrease psychological stress, and help with emotional control. As a result, increasing the diversity, balance, and harmony of plant landscape colors is critical to creating a healthier, more engaging educational environment that meets students' emotional and psychological requirements (Shen et al., 2022).

General Knowledge of Quality of Life

Quality of life, examined across interdisciplinary fields such as medicine, sociology, and psychology, is acknowledged as a multifaceted phenomenon that includes physical health, psychological well-being, social relationships, and environmental contentment. This study used the World Health Organization's extensive definition, emphasizing individuals' assessments of their lives concerning their goals, norms, and cultural context. Research indicates that these four elements are intrinsically connected and influence college students' overall well-being and adaptability, especially in a post-pandemic context characterized by heightened mental stress, lifestyle alterations, and reduced physical activity. Green spaces enhance physical health by fostering movement and improving sleep quality, mental stability, and gut microbiome diversity. Research indicates that incorporating plant landscape color into campus environments might enhance physical engagement and foster healthier student lifestyles (Myers, 1988; West et al., 2011).

Psychological well-being and social relationships are paramount, particularly when college students face escalating academic and societal demands. Positive psychological states are associated with emotional stability, social engagement, and resilience to stress. Research indicates that the campus environment, particularly the aesthetic and emotional qualities of the terrain, significantly influences students' mental health. Likewise, social interaction is enhanced in environments that foster aesthetic pleasure and a connection to nature—elements in which the colors of plant landscapes are significant. Ultimately, students' well-being is significantly influenced by environmental factors, especially access to serene and restorative natural surroundings. Perceptions of naturalness, spatial openness, and biodiversity in campus green spaces were positively correlated with emotional restoration and improved quality of life. Consequently, improving plant landscape design, especially regarding color composition, can foster a healthier, more socially integrated, and emotionally robust student body (Liu et al., 2009; Davis et al., 2005).

Influence of Plant Landscape Color on Quality of Life

Studies have shown that the color of plant landscapes substantially impacts the quality of life of college students by influencing their physical and psychological health. Diverse plant hues elicit distinct emotional reactions—green is often acknowledged for its soothing and stress-reducing properties, whereas red and yellow may incite enthusiasm and vigor. Research indicates that deliberate color choice and organization in campus plant landscapes augment students' mental well-being, alleviate stress, and elevate their general contentment with campus life (Yao et al., 2012). Research indicates that the ratio of green space, color diversity, layering, and harmonic color coordination are essential in influencing students' perceptions of security, comfort, and emotional stability across various campus settings, including dorms, instructional zones, and recreational spaces (Yin et al., 2024). Furthermore, scientific research utilizing VR technology substantiates that appropriate plant color

combinations—predominantly green with accents of red and yellow—can beneficially influence physiological markers such as heart rate and blood pressure. Consequently, thoughtfully crafted campus plant color schemes enhance the environment and students' mental resilience and quality of life (Polat & Akay, 2015).

METHODOLOGY

This study used a mixed-methods research design to investigate the impact of plant landscape colors on the quality of life of college students at the Sichuan Vocational College of Health and Rehabilitation in Zigong City, China. The research attempted to capture the measured impact and students' subjective experiences by combining quantitative and qualitative methodologies, resulting in a more comprehensive knowledge of the phenomena.

Quantitative Component

The quantitative portion of the study consisted of administering a standardized survey questionnaire to a sample of 328 college students. The questionnaire was created to assess two important constructs: satisfaction with campus plant landscape color and perceived quality of life. The World Health Organization's quality of life framework measured four elements of quality of life: physical health, psychological well-being, social connections, and environmental satisfaction. Color psychology, attention recovery, color harmony, mental stress reduction, and emotional regulation were among the qualities measured by the literacy plant landscape color scale.

Qualitative Component

A qualitative component was undertaken through in-depth semi-structured interviews with select survey respondents to supplement the results. These interviews focused on students' personal experiences, preferences, and emotional responses to the colors of the school plant environment. The qualitative data gave subtle insights that complemented the understanding of the quantitative results, emphasizing the emotional and psychological associations students had with various plant colors and landscape designs.

Data Analysis

Quantitative data were evaluated with SPSS statistical software, which used descriptive statistics, correlation analysis, and linear regression models to determine the correlations between plant landscape color characteristics and the four aspects of quality of life. The strength and importance of these correlations were assessed to establish the predictive usefulness of plant landscape color in explaining variances in students' quality of life. The qualitative data were thematically evaluated to discover recurrent patterns, attitudes, and experience themes consistent with or extended on the statistical results.

Ethical Approval

This research was reviewed and approved by the Human Ethics Committee, Mahasarakham University (Certificate of Approval No. 059-588/2024, 31 January 2024). All volunteers provided written informed consent before participation.

RESULTS

The quantitative analysis revealed a significant positive correlation between satisfaction with plant landscape color and quality of life. The linear regression model confirmed plant landscape color as an independent predictor of quality of life. The qualitative data enriched these findings, providing anecdotal evidence of the emotional and psychological benefits of exposure to diverse and well-distributed literacy plant landscape colors. The results suggest that a campus landscape characterized by a harmonious blend of colors can contribute to a more vibrant, healthy, and socially connected student community.

Analysis of Plant Landscape Colors

According to the scale, the average score for Color Psychology was 3.35, Attention Recovery was 3.74, Color Harmony was 2.88, Mental Stress was 3.32, and Naturally Soothes Emotional Ups and Downs was 3.44. Thus, Color Harmony has the lowest satisfaction score and was a common cause of complaint. Color harmony was the most directly and consistently perceived component of the campus plant landscape color scale and, in the future, should be given a key role in construction (Table 1).

Analysis of Quality of Life

Based on the scale, the average score for Physical Health was 3.50, Psychological Health was 3.39, Social Relationships was 3.40, and Environment was 3.15. Among the scale sections, students showed the lowest satisfaction with Environment, followed by Psychological Health. This indicates that these domains of the Quality of Life Scale significantly impact overall satisfaction with quality of life (Table 2).

Correlation Analysis of Quality of Life and Plant Landscape Color

A correlation analysis of the four dimensions of the Quality of Life Scale and the five dimensions of the Literacy Plant Landscape Color Scale was performed. All correlation coefficients were more outstanding than zero, indicating 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 in the Plant Landscape Color Scale, the higher the satisfaction in the Quality of Life Scale.

Linear Regression Analysis

Based on the 328 questionnaires, a linear regression analysis was conducted on each variable using SPSS. The five parts

Table 1. Current status analysis of the plant landscape color scale

	Variables (Frequency/Percentage)					Mean	S.D.
	1	2	3	4	5		
1. Plant landscape color collocation is comfortable	24/7.3	82/25.0	1 18/36.0	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	1 16/35.4	106/32.3	3.90	0.97
4. Your favorite colors change with time or mood	3/0.9	42/12.8	1 16/35.4	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	1 1 1/33.8	121/36.9	37/1 1.3	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
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 are 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 is 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 Landscape Color on Affinity	17/5.2	104/31.7	146/44.5	47/14.3	14/4.3	2.81	0.90
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 you think yellow can relieve stress you plant 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
Naturally Soothes Emotional Ups and Downs						3.44	0.52
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 the 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

Table 2. 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	37/1 1.3	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	1 16/35.4	79/24. 1	27/8.2	3.04	1.02
Social relationships						3.40	0.90
6. You satisfied with your relationships	1 1/3.4	48/14.6	1 17/35.7	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
Your living environment healthy	13/4.0	53/16. 1	1 15/35. 1	121/36.9	26/7.9	3.29	0.96
You satisfied with the living conditions on campus	23/7.0	75/22.8	1 18/36.0	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 satisfy

of the Plant Landscape Color Scale—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 Scale—Physical Health, Psychological Health, Social Relationships, and Environment—were set as dependent variables. The analysis was performed to derive regression equations between the independent variables and each dependent variable.

The fit of the regression model was R^2= 0.297 for Physical Health, which is moderately low. This indicates that the independent variables (Color Psychology, Attention Recovery, Color Harmony, Mental Stress, and Naturally Soothes Emotional Ups and Downs) explained 29.7% of the variation in this dependent variable (Table 3).

The fit of the regression model was R^2= 0.256 for Psychological Health, which is moderately low. This indicates that the independent variables could explain 25.6% of the variation in this dependent variable (Table 4).

The fit of the regression model was R^2= 0.565 for Social Relationships, which is quite good. This indicates that the independent variables could explain 56.5% of the variation in this dependent variable (Table 5).

The fit of the regression model was R^2= 0.416 for Environment, which is relatively good. This indicates that the independent variables explained 41.6% of the variation in this dependent variable (Table 6).

Student Perceptions of Plant Landscape Color

Interviews with students from Sichuan Vocational College of Health and Rehabilitation indicated a consensus that the existing color pattern of the campus plant landscape necessitates enhancement, especially in high-traffic areas like teaching buildings and dorms. The primary discontent pertained to color harmony, which students perceived as lacking balance and contextual relevance. Sophomores indicated heightened tension and diminished happiness in color psychology and mental stress alleviation, attributed to intensified academic and career pressures, whereas freshmen, still acclimating to school life, had marginally more favorable perspectives. Overall, attention recovery garnered the most satisfaction; nevertheless, students recommended the inclusion of supportive facilities, such as outdoor sports areas or tranquil places, to improve focus and relaxation. Furthermore, gender disparities were observed, with female students attributing greater significance to emotional comfort elements, underscoring the necessity of acknowledging varied preferences in forthcoming landscape design.

Concerning the quality of life, students reported diminished pleasure with the school environment, especially among sophomores who noted aesthetic weariness from extended exposure to the uniform landscape. Conversely, satisfaction with physical health was greater among freshmen, who exhibited higher levels of activity and participation in extracurricular pursuits. Students universally indicated difficulties in psychological well-being stemming from increasing academic and social expectations. This disparity in perception highlights the evolution of students' engagement with the physical campus environment over time, reflecting diverse emotional requirements at various phases of university life.

In examining the influence of literacy plant landscape color on quality of life, students recognized many significant advantages. These encompassed emotional management, augmented learning efficiency, heightened social engagement, and better environmental sensing. Numerous believed green and natural hues alleviated psychological tension and enhanced their mood. Vibrantly colored landscapes promoted outdoor activities, enhancing both physical and emotional well-being. Students observed that plants' vivid and diverse colors stimulated creativity, especially among individuals in

Table 3. The influence of plant landscape color on physical health within the quality of life

Model	Unstandardized Coefficients		Standardized Coefficients	t	*P*-value	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(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

R^2, Coefficient of Determination; F, statistic; *P*, *P*-value

Table 4. 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
(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

R^2, Coefficient of Determination; F, statistic; *P*, *P*-value

Table 5. Influence of plant landscape color on social relationships within the quality of life

Model	Unstandardized Coefficients		Standardized Coefficients	t	*P*-value	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-0.697	0.376		-1.852	0.065		
Color psychology	0.376	0.099	0 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 Naturally	0.076	0.096	0.043	0.789	0.431	0.700	1.429
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

R^2, Coefficient of Determination; F, statistic; *P*, *P*-value

creative or design-oriented disciplines, and enriched their aesthetic and cultural experiences. Moreover, well-curated, vibrant plant landscapes were reported to enhance ecological consciousness and foster a deeper connection to nature.

Table 6. 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 and Downs	-0.119	0.083	-0.073	-1.438	<0.0001	0.685	1.459
			R^2=0.416				
			F=47.541				
			P-value <0.0001				

a. Dependent Variable: Environment

R^2, Coefficient of Determination; F, statistic; *P*, *P*-value

These findings underscore the diverse impact of literacy plant landscape color on students' quality of life and emphasize the necessity for deliberate, student-focused campus landscape design.

DISCUSSION

This study found a strong positive correlation between students' happiness with literacy plant landscape color and their overall quality of life. The correlation and regression analyses show that plant landscape color is more than just an aesthetic component of campus design; it is a significant environmental factor that influences physical health, psychological well-being, social relationships, and environmental satisfaction (Kaufman & Lohr, 2002; Zheng et al., 2024). These findings demonstrate the possibility of deliberately employing landscape color in campus planning to improve student well-being.

Among the five characteristics of the plant landscape color scale, Attention Recovery obtained the highest satisfaction score, implying that students found colorful natural surroundings beneficial in regaining concentration and mental clarity (Sadek et al., 2013). On the other hand, Color Harmony obtained the lowest satisfaction score, showing that color disharmonies are a prevalent source of unhappiness. This emphasizes an important component of landscape design: color distribution, mixing, and interaction all influence user experience (Wang et al., 2021; Yin et al., 2024). An unbalanced or chaotic color combination can cause visual tension or discomfort, whereas a harmonious palette can induce relaxation and emotional equilibrium (Sheng et al., 2024).

According to the Quality of Life Scale, students were the least satisfied with their surroundings, followed by psychological health. These two regions were shown to be highly influenced by plant landscape color, implying that a well-designed natural environment might play an essential role in resolving these issues (Jang et al., 2019). The environment, as a domain of quality of life, comprises variables such as safety, comfort, and sensory experience—all of which are directly impacted by visual cues like color. As a result, constructing physically appealing and psychologically restorative green areas can help students improve their impressions of their surroundings and hence their overall quality of life (Yusli et al., 2021).

The regression analysis provides additional support for these conclusions. Although the intensity of the effect varied across dimensions, the findings indicate that plant landscape color can explain a significant fraction of the variation in students' pleasure, particularly in terms of social ties and environmental quality (Payne et al., 2020). This shows that natural surroundings with purposeful color usage might enhance individual well-being, social engagement, community connectedness, and a sense of belonging (Guo et al., 2023). The availability of vibrant, appealing outdoor areas may inspire students to spend more time outside, participate in group activities, and form meaningful peer relationships—all essential for a healthy campus culture (Hipp et al., 2016).

Furthermore, the emotional and psychological advantages of color exposure were replicated in qualitative responses. Students said touching colorful, well-maintained plant landscapes calmed them down, reduced tension, and improved their mood. These reactions highlight the importance of multi-sensory experiences in educational contexts and the necessity of building landscapes beyond usefulness to promote emotional well-being (Gulwadi et al., 2019).

The predilection for certain hues, such as green, red, and yellow, provides valuable information for future landscape development. Green, which is commonly connected with nature and peace, was the most popular hue, followed by red and yellow, which are frequently associated with vigor, enthusiasm, and optimism (Akpınar, 2021). These preferences indicate that color schemes dominated by green with strategically chosen accent colors might have a beneficial emotional influence. However, misuse or inappropriate color combinations might nullify these benefits, emphasizing the significance of expert landscape design based on psychological concepts (Holt et al., 2019).

Although this study focuses on a specific group of freshmen and sophomores, the consequences are far broader. Universities in various places can benefit from studying the influence of landscape color in creating student experiences (Staats et al., 2016). While environmental and cultural conditions may influence color choices and perception, the fundamental link between nature, perception, and well-being is likely universal. As a result, this study establishes a basis for institutions to evaluate literacy plant landscape color as an important factor in boosting student health and pleasure (Lu & Fu, 2019).

Despite its achievements, the report acknowledges shortcomings. The study's dependence on self-reported data adds possible bias, and its cross-sectional design restricts causal inferences. Future studies might look at longitudinal data to see how prolonged exposure to specific landscape hues impacts well-being over time. Experimental research might also examine specific color arrangements to discover the best combinations for psychological and physiological advantages (Elliot & Maier, 2014).

CONCLUSION

This research examined the influence of literacy plant landscape colors on the quality of life of college students at Sichuan Vocational College of Health and Rehabilitation in Zigong City, China. The findings indicated that the color of literacy plant landscapes significantly improves students' physical health, psychological well-being, social interactions, and environmental contentment. Among the examined variables, color harmony and attention recovery were notably significant, indicating that using plant colors can provide restorative, engaging, and emotionally balanced educational settings. Students preferred green, red, and yellow shades, signifying these colors' emotional and psychological impact when skillfully employed in campus landscape design.

The findings contribute to a growing body of evidence emphasizing the importance of natural and aesthetic elements in educational settings. This study provides valuable insights for future planning and growth in China's vocational institutions, where the relationship between environment and student well-being has been inadequately addressed. By utilizing color psychology and landscape harmony concepts, universities may develop greener, more human-centric campuses that foster academic achievement and personal development. Additional study is advised to investigate these effects longitudinally and among varied student demographics, confirming the enduring advantages of color-enhanced settings in higher education.

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