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**Author (s):** Hareem Jamil and Najma Iqbal Malik


**Affiliation (s):** University of Sargodha, Pakistan

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# Color Preference, Personality Traits and Psychosocial Functioning Among Students of Different Academic Disciplines

Hareem Jamil\* and Najma Iqbal Malik

Department of Psychology, University of Sargodha, Pakistan

## Abstract

The present study aimed to explore the correlation between color preferences, personality traits, and psychosocial functioning among students from different educational backgrounds, while also examining gender-based and academic discipline differences. A correlational research design was employed, using purposive sampling to select 395 students from public and private institutions in Pakistan. Participants completed the Luscher Color Test, Big Five Personality Inventory-10, and the TCU Psychosocial Functioning Scales as assessment measures. Pearson correlations and regression analyses were conducted to test hypotheses regarding associations between color preferences and psychological traits. Results revealed that warm colors (e.g., red, yellow) were significantly correlated with extraversion, agreeableness, and conscientiousness, while dull colors (e.g., black, grey) showed strong associations with neuroticism and depression. Cool colors (e.g., blue, green) were linked to openness and decision-making, and violet was associated with hostility, depression, and childhood problems. Gender comparisons indicated that men significantly preferred violet more than women, while students in Business and IT disciplines favoured yellow and violet colors. The findings support the hypotheses and highlight the psychological relevance of color preferences in educational settings. The insights gained may inform design, pedagogy, and even therapeutic practices across gender and disciplinary lines.

**Keywords:** academic backgrounds, color preference, personality traits, psychosocial functioning, students

## Introduction

Color preference refers to the color that an individual finds most mentally appealing (Hurlbert & Ling, [2017](#)). Colors influence human beings, but their effect can vary from person to person, depending on factors such as gender (Bonnardel et al., [2017](#)), culture (Saito, [2015](#)), and age (van der

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\*Corresponding Author: [hareemjamil23@gmail.com](mailto:hareemjamil23@gmail.com)

Voordt et al., [2017](#)). Optical waves of different wavelengths introduce visual perception and develop the characteristics of colors. Colors affect perception, emotions, bring out aesthetic experiences and influence almost every aspect of an individual's life from marketplaces to people's buying behaviors (Hurlbert & Ling, [2017](#)).

In 1666, Newton introduced the classification of primary colors (blue, yellow, and red), secondary colors (purple, orange, and green), and tertiary colors (blue-purple, yellow-orange, and red-green) based on the color wheel (Newman & Obermiller, [n.d.](#)). Colors are differentiated as cool and warm depending on the wavelength of light received by eyes. Warm colors are classified by their exciting emotion inducing qualities, while cool colors evoke feelings of openness, peace, calmness, and distance (van der Voordt et al., [2017](#)). According to ecological valence theory, a person's color inclinations at a specific time are controlled by their consolidated emotional reaction to ecological items and circumstances related with each color (Schloss & Palmer, [2017](#)).

Personality refers to emotional qualities and behavior and varies from person to person. It plays a significant role in personal preferences and color preferences. Color creates associations. Luscher color theorizes personal attributes and according to him, the development of color preference is dependent on environment and social status (Hanafy & Sanad, [2015](#)). Color preferences vary based on different individual characteristics such as gender, age, type of individual, their personality, and lifestyle (van der Voordt et al., [2017](#)). There are two types of gender differences i.e., preferred color ranking and degree of preference. Females have greater ability to distinguish and prefer colors compared to males (Fider & Komarova, [2019](#)).

In the Luscher color test, participants are asked to order eight colors from most liked to least liked, with each color being associated with positive and negative emotions. Dr. Luscher made 4 layers of preferences, each with 2 colors. The first layer consists of two colors a person likes, the second tells the current state of a person, third shows temporary personality features and the last layer consists of colors that are least liked by a person (Conner & Scott, [1972](#)). The order of color preference is useful in the determination of personality. First position color shows the person's ability to achieve his objectives. Second position color shows the actual self and situation of a person and how he is going to respond to stimulus. The third position shows the characteristics of a person that are hidden or not in use but may surface

when required. The fourth position reveals repressed thoughts and desires (Morton, [2019](#)).

Colors not only display aesthetics, but they have important associations with psychological and social functioning. Recent studies have found that warm colors like red are associated with increased arousal, evoking feelings of warmth, passion, and even aggression, while cooler colors like blue often produce calming and stabilizing effects, fostering trust and relaxation (Zong et al., [2022](#)). Research highlights that exposure to warm colors can influence purchasing decisions and social perceptions, with socially excluded individuals showing a preference for warm colors due to their perceived warmth and social acceptance, contrasting with cooler tones that evoke calmness and order (Stojić et al., [2020](#)). Additionally, green is now recognized for its positive associations with growth and success, especially in organizational settings, enhancing creativity and teamwork (Ponzoni et al., [2024](#)). Red color is positively associated with fear, failure, and negative words while green is positively associated with success, joy and general positive words (Sutton & Altarriba, [2016](#)). Exposure to red color increased the speed by which participants walk towards romance relevant context and decreased walking speed towards intelligence relevant context (Williams et al., [2017](#)). The current study aims to explore how color preferences correlate with personality traits and psychosocial functioning among students of different academic backgrounds. Specifically, it investigates the role of gender, academic exposure, and environmental influences on color selection.

Various research studies have explored color preferences among different demographic groups, including students from various educational backgrounds. Researches also looks at the differences in color preferences across contexts and demographics. In auctions, for instance, exposure to red backdrops raises bid amounts, whereas in bargaining situations, exposure to blue backgrounds results in reduced bids. These reactions show how colors affect perceptions of threat and competitive behaviour (Meusel et al., [2024](#)). These results are consistent with color theory discoveries, indicating that color preferences are influenced by social and psychological factors in addition to being personal.

The notion that colors affect psychological functioning in addition to aesthetics is supported by recent research. Red and blue, for example, have distinct effects on people's emotional reactions and behavioral results. Blue

tends to arouse feelings of trust and tranquillity, whereas red has been demonstrated to elicit association with excitement or avoidance. According to a study, blue is still the most popular color, especially among college students. This is consistent with other research that links blue to calmness and mental clarity (Dehvari et al., [2023](#)). While green is also associated with positive emotions like joy and accomplishment, students prefer blue in educational settings because it helps them focus and reduce anxiety (Baper et al., [2021](#)). While previous studies (Dehvari et al., [2023](#)) have linked blue with openness and trust, contrasting research suggests that individual associations with blue vary based on exposure and social context (Jonaskaite et al., [2024](#)). This highlights the need to examine situational factors in color preferences.

The influence of educational background on colour preference is also demonstrated by research that colour preferences differ by academic disciplines. Business and IT students tend to like brighter colours like yellow and red, probably because they are associated with energy and creativity, whereas architecture students prefer muted and neutral hues, which reflects their training in aesthetic evaluation (Dehvari et al., [2023](#)). According to this distinction, students' settings have an impact on their colour preferences, which may also represent the cognitive demands of their academic discipline (Zong et al., [2022](#)).

Additionally, personality traits and psychosocial well-being are also linked to color preferences. According to a recent study, colder hues like blue and green are associated with agreeableness and openness, whereas warmer hues like red and yellow are associated with extraversion and conscientiousness. Furthermore, people with high neuroticism and those who take risks are more likely to favor colors like grey and black, which are generally thought of as dreary (Dehvari et al., [2023](#)). These results support the idea that color preferences can reflect underlying personality traits and influence psychosocial behaviours and emotions in a variety of social and educational environments.

## Objectives

- To examine the relationship between color preference and personality traits (conscientiousness, agreeableness, extraversion and openness to experience).

- To examine the relationship of color preference and personality traits with psychosocial functioning.
- To investigate differences in color preferences among students of different educational backgrounds.
- To determine gender-based differences in color preferences.

### **Hypotheses**

Based on existing literature, the following hypotheses were proposed to address the study objectives:

- Warm colors (red, yellow, orange) would be significantly associated to extraversion, agreeableness and conscientiousness.
- Dull colors (grey and black) would be significantly related to neuroticism trait of personality, depression, and risk taking.
- Cool colors (Blue and green) would be significantly related to decision-making and openness to experience.
- Bright colors would be significantly related to openness to experience.
- Bright shades of violet significantly correlate with hostility.
- There will be significant gender differences in color preference.
- There is likely to be differences in the color preferences across academic disciplines.

### **Method**

The present study employed a correlational research design, and convenient sampling technique was utilized to collect data from the participants.

### **Sample Characteristics**

The sample consisted of 395 university students ( $N=395$ ) from different educational departments of private and government institutes of Pakistan. Both women ( $n=222$ ) and men ( $n=173$ ) were included in the study. Data was collected from different educational departments which included color specific departments that are Psychology, Mass Communication, Fine Arts, Information Technology and Bachelor of Business Administration ( $n=202$ ) and color non-specific departments Mathematics, Economics, Islamiyat, English, Physics, Education and Botany. Biglan's classification of

disciplines categorizes academic fields based on their applied or theoretical nature, which aligns with how color exposure is integrated into education (Biglan, [1973](#); Nanglu & Sharma, [2024](#)).

The educational departments were further categorized as Social Sciences (Psychology, Economics), Arts and Humanities (Fines Arts, Mass Communication, English, Education, Islamiyat and Mathematics), Natural Sciences (Physics and Botany), Business Administration and Information Technology. Only students who were enrolled in BS or MS programs were included in data collection. Students belonging to any other educational departments than mentioned above were excluded from the study.

### **Measurement Instruments**

The data was gathered using self-report measures for the current study. Besides a brief demographic information sheet, the following instruments were used:

#### ***The Luscher Color Test***

This test was originally developed in 1948 in German, and was later translated and published in 1969 and 1971. It comprises of 8 color cards, each card was assigned a certain number including *Grey=0, Blue=1, Green=2, Red=3, Yellow=4, Violet=5, Brown=6 and Black=7*. The Luscher Color Test (Luscher, [1971](#)) is designed to reveal aspects of personality by evaluating an individual's inclination towards eight colored cards. The Luscher Color Test does not report traditional reliability values such as Cronbach's alpha because it is a projective test. This test manual offers no norms for the sexes (Conner & Scott, [1972](#)).

#### ***Big Five Personality Inventory-10***

The scoring system utilizes a scale ranging from "*Disagree strongly*" to "*Agree strongly*". Convergent validity has been established, showing that the BFI-10 correlates with measures of subjective well-being (WB), including happiness, life satisfaction, positive and negative affect, and psychological functioning. Test-retest correlations range from .65 to .83, depending on the sample. Additionally, confirmatory factorial analysis has confirmed a Five-Factor structure akin to the original model, albeit with modifications to factors such as extraversion, agreeableness, and neuroticism (Costa & McCrae, [1992](#)).

### ***TCU Psychosocial Functioning Scale***

The TCU Psychosocial Functioning Scale encompasses four psychological well-being subscales (depression, self-esteem, decision making, anxiety) and four social functioning subscales (risk-taking, hostility, social support, social desirability) (Knight et al., [1994](#)). Published by the TCU Institute of Behavioral Research in 2010, it utilizes a scoring system from 1 to 5. Research demonstrated the scale's robust psychometric properties, including strong factor structures, reliable responses, and high goodness-of-fit coefficients, indicating its efficacy in assessing psychosocial functioning. The scale demonstrates strong internal consistency with Cronbach's alpha values ranging from .74 to .86 for different subscales (Knight et al., [2002](#)).

### **Ethical Considerations**

The study upheld privacy and confidentiality standards, obtaining informed consent from participants and secured permission from educational departments for data collection. Results were reported accurately and honestly, with measures taken to avoid physiological and psychological harm. Participants preserved the right to withdraw from the research voluntarily, without coercion.

### **Procedure**

In the present study, data was collected from the students of various educational settings in accordance with APA ethical guidelines. Participants were briefed on the study's purpose, provided informed consent, and completed demographic information. They then viewed Luscher color cards presented on a 32-inch LED screen and physically by hand, expressing color preferences, and filled out questionnaires for the BFI-10 and TCU psychosocial functioning scales. Each participant was given 15 to 20 minutes for questionnaire completion, and afterward, they were acknowledged for their cooperation. The data collection process lasted approximately two months.

### **Analysis of Data**

After gathering the data, statistical analysis was executed on it through IBM-SPSS-22. The data was examined using different analyses such as correlation, regression, t-test. At the end, the results were produced in



tabular and descriptive forms and were later interpreted in the context of existing literature.

## Results

The findings of the study calculated for a sample of 395 participants are presented below.

**Table 1**

*Psychometric Properties of Study Variables (N=395)*

Variables	<i>M</i>	<i>SD</i>	$\alpha$	Skewness	Kurtosis
Color Preference	36.01	.22	--	9.23	111.51
Extraversion	6.45	2.30	.48	-.15	-.73
Agreeableness	7.14	2.31	.50	-.58	-.37
Conscientious	6.23	2.40	.51	-.17	-.80
Neuroticism	5.75	2.44	.58	.11	-.86
Openness	7.34	2.24	.56	-.78	-.04
Self Esteem	20.80	4.96	.74	-.47	.04
Depression	18.16	5.92	.82	.32	-.55
Anxiety	21.55	6.17	.81	.18	-.48
Decision Making	31.24	5.20	.64	-.21	.13
Childhood Problems	22.46	7.51	.83	.64	.06
Hostility	21.09	6.62	.80	.15	-.65
Risk Taking	21.91	5.27	.69	.21	.46
Social Conformity	29.86	5.47	.71	-.82	.36

Table 1 shows psychometric properties of the study variables. The values of skewness and kurtosis for Extraversion, Agreeableness, Conscientious, Neuroticism, Openness, Self Esteem, Depression, Anxiety, Decision Making, Childhood Problems, Hostility, Risk Taking and Social Conformity are less than 1 which indicates that univariate normality is not problematic. The alpha reliabilities of all the scales were found to be satisfactory ( $\alpha > .50$ ), which illustrates moderate internal consistency of the scales. The correlation between variables was as expected.

**Table 2**

*Pearson Correlation among Study Variables (N=395)*

Variables	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1.Extraversion	.40 <sup>***</sup>	.51 <sup>***</sup>	-.43 <sup>***</sup>	.39 <sup>***</sup>	.12 <sup>*</sup>	.14 <sup>**</sup>	.22 <sup>***</sup>	.07	.16 <sup>**</sup>	.01	.15 <sup>**</sup>	.04	.11 <sup>*</sup>	.12 <sup>*</sup>	.00	-.05	-.09	-.11 <sup>*</sup>	.08	-.04
2.Agreeableness	-	.43 <sup>***</sup>	-.40 <sup>***</sup>	.49 <sup>***</sup>	.17 <sup>**</sup>	-.04	.14 <sup>**</sup>	.15 <sup>**</sup>	-.05	-.13 <sup>**</sup>	-.04	.19 <sup>***</sup>	.11 <sup>*</sup>	.00	-.07	-.05	-.14 <sup>**</sup>	-.04	.12 <sup>*</sup>	.07
3.Conscientiousness	-	-	-.44 <sup>***</sup>	.46 <sup>***</sup>	.08	.11 <sup>*</sup>	.26 <sup>***</sup>	.10	.19 <sup>***</sup>	-.04	.08	.02	.14 <sup>**</sup>	.07	-.00	-.02	-.14 <sup>**</sup>	-.17 <sup>***</sup>	.11 <sup>*</sup>	.03
4.Neuroticism			-	-.38 <sup>***</sup>	-.13 <sup>*</sup>	.01	-.16 <sup>**</sup>	-.14 <sup>**</sup>	-.09	.12 <sup>*</sup>	-.07	-.03	-.13 <sup>**</sup>	-.01	.12 <sup>*</sup>	.02	.12 <sup>*</sup>	.09	-.12 <sup>*</sup>	-.09
5.Openness				-	.15 <sup>**</sup>	.01	.26 <sup>***</sup>	.17 <sup>**</sup>	-.06	-.03	.00	.17 <sup>**</sup>	.11 <sup>*</sup>	.13 <sup>*</sup>	.02	-.05	-.16 <sup>**</sup>	-.10	.11 <sup>*</sup>	-.05
6.Selfesteem					-	-.05	-.05	.38 <sup>***</sup>	-.02	-.23 <sup>***</sup>	.30 <sup>***</sup>	.36 <sup>***</sup>	-.01	.03	-.03	-.05	-.06	.04	.06	.03
7.Depression						-	.68 <sup>***</sup>	.20 <sup>***</sup>	.56 <sup>***</sup>	.18 <sup>**</sup>	.37 <sup>***</sup>	.00	-.01	.04	-.01	-.01	-.04	.13 <sup>*</sup>	-.04	-.06
8.Anxiety							-	.22 <sup>***</sup>	.50 <sup>***</sup>	.26 <sup>***</sup>	.24 <sup>***</sup>	.02	-.01	.06	-.04	-.08	-.05	.08	.08	-.04
9.Decision making								-	.27 <sup>***</sup>	-.17 <sup>**</sup>	.24 <sup>***</sup>	.40 <sup>***</sup>	-.08	-.15 <sup>**</sup>	-.10 <sup>*</sup>	-.02	.08	.13 <sup>*</sup>	.16 <sup>**</sup>	-.02
10.Childhood Problem									-	.27 <sup>***</sup>	.30 <sup>***</sup>	-.08	-.06	-.02	-.04	-.08	.05	.14 <sup>**</sup>	.00	-.01
11.Hostility										-	.13 <sup>**</sup>	-.27 <sup>***</sup>	-.06	.16 <sup>**</sup>	-.02	-.06	.02	.10 <sup>*</sup>	-.06	-.09
12.Risk taking											-	.31 <sup>***</sup>	-.02	.05	-.01	-.09	.06	.08	.05	-.11 <sup>*</sup>
13.Social Conformity												-	.01	-.09	.00	-.03	.11 <sup>*</sup>	.06	.08	-.15 <sup>**</sup>
14.Grey													-	-.07	-.19 <sup>***</sup>	-.19 <sup>***</sup>	-.25 <sup>***</sup>	-.16 <sup>**</sup>	-.14 <sup>**</sup>	-.07 <sup>**</sup>
15.Blue														-	-.08	-.21 <sup>***</sup>	-.24 <sup>***</sup>	-.13 <sup>*</sup>	-.06	-.17 <sup>***</sup>
16.Green															-	-.24 <sup>***</sup>	-.03	-.16 <sup>**</sup>	-.09	-.13 <sup>**</sup>
17.Red																-	-.08	-.04	-.21 <sup>***</sup>	-.08
18.Yellow																	-	-.06	-.16 <sup>**</sup>	-.22 <sup>***</sup>
19.Violet																		-	-.16 <sup>**</sup>	-.30 <sup>***</sup>
20.Brown																			-	-.06
21.Black																				-

**Note.** EX= Extraversion, AG= Agreeableness, CO= Conscientiousness, NE= Neuroticism, OP= Openness, DP= Depression, DM= Decision Making, CP= Childhood Problems, HS= Hostility, RT= Risk Taking

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

Table 2 shows that color preference has significant correlation with personality traits and psychosocial functioning. It indicates that cool colors (blue-green) correlate positively with extraversion ( $r = .14$ ,  $p < .01$ ), supporting the notion that sociable individuals favor these hues. However, the weak correlation suggests additional factors influence color preference beyond personality traits alone.

**Table 3**

*Standardized Path Coefficients for Direct Effects*

Path			$\beta$	95 % CI		$p$
				LL	UL	
Grey	→	Extraversion	.10	.00	.21	.041
Blue	→	Extraversion	.12	.02	.24	.022
Grey	→	Agreeableness	.10	.00	.21	.043
Brown	→	Agreeableness	.10	.02	.26	.024
Yellow	→	Conscientiousness	.11	-.23	-.01	.042
Violet	→	Conscientiousness	.15	-.27	-.05	.004
Grey	→	Neuroticism	.11	-.24	-.01	.031
Brown	→	Neuroticism	.10	-.26	-.00	.054
Grey	→	Openness	.12	.02	.22	.022
Blue	→	Openness	.12	.03	.24	.023
Brown	→	Openness	.12	.02	.25	.031
Violet	→	Depression	.15	.14	.68	.003
Blue	→	Decision Making	-.15	-.61	-.12	.003
Violet	→	Decision Making	.15	.11	.58	.004
Brown	→	Decision Making	.15	.14	.66	.003
Violet	→	Childhood Problems	.18	.29	.96	.000
Blue	→	Hostility	.16	.18	.81	.002
Black	→	Risk Taking	-.10	-.47	-.01	.040

Table 3 shows prediction analysis of color preferences with personality traits and psychosocial functioning. The .03 value of  $R^2$  indicated that Color Preference explained 3% variance in extraversion variable with  $F(3, 391) = 4.50$ ,  $p < .01$ . The .04 value of  $R^2$  indicated that these color preferences explained 4% variance in agreeableness with  $F(3, 391) = 5.23$ ,  $p < .01$ . The .06 value of  $R^2$  indicated 6% variance in conscientiousness with  $F(4, 390) = 6.51$ ,  $p < .001$ . The .05 value of  $R^2$  indicated 5% variance in neuroticism

with  $F(4, 390) = 4.64, p < .01$ . The .05 value of  $R^2$  indicated 5% variance in the openness to experience with  $F(4, 390) = 5.48, p < .001$ .

The .04 value of  $R^2$  indicated that Color Preference explained 4% variance in depression with  $F(3, 391) = 5.93, p < .01$ . The .11 value of  $R^2$  indicated 11% variance in decision making with  $F(7, 385) = 6.84, p < .001$ . The .07 value of  $R^2$  indicated 7% variance in childhood problems with  $F(3, 391) = 10.21, p < .001$ . The .05 value of  $R^2$  indicated 5% variance in the hostility with  $F(4, 388) = 5.17, p < .001$ . The .04 value of  $R^2$  indicated that predictors explained 4% variance in risk taking behavior with  $F(3, 391) = 4.99, p < .01$ .

**Table 4**

*Gender Comparisons on Violet Color Preference*

Variables	Men(n=173)		Women(n=222)		$t(393)$	$p$	95%CI		Cohen's $d$
	$M$	$SD$	$M$	$SD$			$LL$	$UL$	
Violet	5.03	2.15	4.52	2.21	2.31	.02	.08	.95	.23

Results indicate significant mean difference on violet with  $t(393) = 2.31, p < .05$ . Men prefer violet more as compared to women. The value of Cohen's  $d$  indicates small effect size.

**Table 5**

*Academic Background Comparisons on Color Preferences*

Sr.	Social Sciences (n=53)		Arts and humanities (n=190)		Natural Sciences (n=58)		Business and IT (n=94)		$F$	$p$	Post Hoc	$\eta^2$
	$M$	$SD$	$M$	$SD$	$M$	$SD$	$M$	$SD$				
Yellow	4.96	2.22	4.81	2.36	5.31	2.04	5.80	2.05	4.36	.00	4>3> 1>2	.03
Violet	4.38	2.31	4.63	2.27	4.57	1.95	5.28	2.05	2.66	.04	4>2> 3>1	.02
Black	3.75	2.56	3.04	2.20	3.29	2.39	2.62	1.86	3.23	.02	1>3> 2>4	.02

Table 5 shows comparison of Social Sciences, Arts and Humanities, Natural Sciences and Business and Information Technology on Color Preferences. Findings indicate significant mean differences on Yellow, Violet, and Black with  $F(3, 391) = 4.36, p < .01$ ,  $F(3, 391) = 2.66, p < .05$  and  $F(3, 391) = 3.23, p < .001$  respectively. Findings indicate that students of business and IT have higher mean ( $M = 5.80, SD = 2.05$ ) on yellow color. The value of  $\eta^2$  was .03 which indicated small effect size. Findings indicate

that students of business and IT have higher mean ( $M = 5.28$ ,  $S.D = 2.05$  on Violet color. The value of  $\eta^2$  was .02 which indicated small effect size. Findings indicate that students of Social Sciences have higher mean ( $M = 3.74$ ,  $S.D = 2.56$ ) on Black color. The value of  $\eta^2$  was .02 which indicated small effect size.

### Discussion

This study examined the relationship between color preferences, personality traits, and psychosocial functioning, with a particular focus on variations among students of different academic disciplines. The findings suggest small yet significant predictive relationships between color preferences and traits such as extraversion and agreeableness, along with psychosocial variables like depression and decision-making. Notably, gender and academic background differences emerged, with men favoring violet more frequently and business and IT students showing a preference for violet and yellow, while social science students preferred black. These results provide insights into how color preferences can correlate with personality dimensions and psychosocial outcomes, suggesting both cultural and educational influences on color association.

Different color preferences depict psychosocial needs of an individual. Cool colors are significantly correlated to extraversion, openness to experience and decision making. People who are sociable, open to new experiences, and have good decision-making abilities tend to prefer bluish-green shades of colors. Evidence suggest that color preference depends on ambient temperature. People who are cold or live in an environment that lowers their body temperature tend to prefer warm colors while those who have a certain amount of body heat due to the environment prefer cool tones (Chu et al., [2025](#); Laura et al., [2024](#)). The sample of study belongs to the sub-continent which is relatively a hot area explains the preference of cool colors.

Warm colors (red-yellow) significantly correlate to agreeableness and conscientiousness. Individuals who are affectionate, highly organized, and self-disciplined tend to prefer reddish-yellow hues. Warm colors are luminous colors of the spectrum that spark creativity and optimism. People who prefer yellow tend to be more conscientious and visionary as well (Van Hedger et al., [2023](#)). Orange tones are mutual among agreeableness and openness to experience (Tiwari et al., [2024](#)). Furthermore, with the

advancement in fashion industries and new upcoming trends, people prefer energetic colors which have bright undertones (Kou et al., [2020](#)). Findings indicate that cool colors like blue enhance attention and calmness, while warm colors like yellow and violet elicit different levels of cognitive engagement (Teixeira et al., [2023](#)).

Dull colors (Black-gray) significantly correlate to risk taking and neuroticism which also correlates to green as well. Black and gray colors are said to increase destructive patterns of thinking and increase risk taking behavior (Jue & Ha, [2022](#)). Similarly, people who are sensitive and experience feelings like anxiety, fear more as compared to others prefer dull colors as well as brown and green hues. Bright shades are said to increase arousals and anxiety might be the reason people with neurotic personality traits prefer dull hues (Wieloch et al., [2018](#)).

Bright shades of violet significantly correlate to depression, childhood problems and hostility. Violet color is associated with fantasy and escape from the practicalities of life. A shade of violet spectrum that we know as purple can promote depression in some people. Many studies have associated violet color with fear, sorrow, apprehensiveness, and low self-confidence (Kodžoman, [2019](#)). Violet is among the most preferred colors along with green among young adults who have experienced violence and PTSD in childhood and adolescence (Jue & Ha, [2022](#)).

Color preference according to gender reveals that violet-pink hues are significantly more preferred by men as compared to women. Biological components of sex differences contribute in color preferences (Jonaskaite et al., [2024](#)). The difference of color differences among genders and the influence of beneficiary ancestral environment can be explained by evolutionary aesthetic articles. The article explains that aesthetic and artistic likings also evolve in the similar manner as evolution and survival of the fittest (Tao et al., [2015](#)).

Yellow and violet colors are significantly more preferred by business and information technology students as compared to arts/humanities, natural sciences, and social sciences. Black color is significantly preferred by students of social sciences. The most preferred colors by students were white (33%) followed by violet (19%) in the students of information technology and graphic designing (Hanafy & Sanad, [2015](#)). Students belonging to interior design majors had significant differences in

remembering yellow, violet, orange and green colors as compared to students belonging to educational backgrounds with less color exposure (Fluri & Piedalue, [2017](#); Kou et al., [2020](#)). IT and business students are more exposed to colors and possess an environment which supports the interaction with new and unique ways to convey information. The observed preference for violet among business and IT students may be linked to their exposure to digital media and design trends. This aligns with recent findings on color-emotion connections in technology and branding (Teixeira et al., [2023](#)). However, the preference for blue in scientific fields suggests a broader cognitive association with focus and reliability, supporting research on blue's calming effects on cognitive processing (Jonaskaite et al., [2024](#)). Yellow enhances creativity and is the most luminous color of the color spectrum. Students of social sciences prefer black as it contrasts with almost all colors of the spectrum.

Like any other scientific work, the current study got few limitations such as less control on confounding and extraneous variables, limited sample, lack of different shades of colors and it is very hard to manage several tests on a student sample in only one session. The study should be further extended by using multiple hues and shades of one color with a larger sample.

### **Implications, Limitations and Suggestions**

The current study contributes to the growing body of literature in color psychology and personality traits. So, it is more convenient to find out about the existing literature of color psychology. On the contrary, the caretakers and institutes can get facilitation from this exploration. The results of the present investigation can aid in educating the students with the help of colors and demotivating the abnormal and negative behaviors with the utilization of different color therapies in abnormal psychology. The present research acknowledges several limitations inherent in its methodology. Firstly, the sample was restricted to adolescents and adults, neglecting other age groups, which could impact the generalizability of findings. The purposive sampling allowed targeted recruitment of students from diverse academic backgrounds, limiting the generalizability of findings. Future research should consider employing stratified random sampling to ensure broader representation. Additionally, the study did not account for the wide range of hues and saturations within each color, potentially influencing participants' preferences. The research was conducted solely in two

universities, limiting its applicability to other settings like schools or clinics. Future studies should include diverse demographics and expand to different educational institutions for a more comprehensive understanding. Furthermore, data collection was confined to one city, reducing the diversity of results, and the small sample size of 350 participants hinders broader generalization. To mitigate social desirability bias, employing multiple data collection methods is recommended. Lastly, future research endeavors could incorporate qualitative approaches to complement the quantitative findings.

## Conclusion

The findings of this research confirmed the association between color preference and personality traits and its influence on psychosocial functioning among students. However, it is worth noticing that color psychology is a unique and complex area of inquiry which in the initial phases of development.

## Conflict of Interest

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

## Data Availability

The data associated with this study will be provided by the corresponding author upon request.

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