

EXPLORING THE DETERMINANTS OF PERSONALITY, COLOR PERCEPTION, AND COLOR PREFERENCE AMONG YOUNG ADULTS

Ushna Asad^{*1}, Shamsa Mukhtar²

^{*1,2}Clinical Psychologist and Researcher, Pakistan

¹ushnaasad000@gmail.com, ²shamsachoudhry65@gmail.com

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Corresponding Author: *

Ushna Asad

Abstract

The study focuses on how color perception, preference and personality of an individual associates with each other. Previous studies have shown that colors play a key role in both human and natural contexts, and they facilitate various psychological functions. Moreover, the color psychology literature has established a convincing argument that color is about more than just aesthetics. The study is comprised of qualitative exploration, phase I, and a quantitative approach, phase II, aimed at the detailed investigation of the study variables. Sample (N=400) was selected through convenient sampling from the population of Rawalpindi and Islamabad. The scales used in study II were Big Five Inventory (BFI), Color Emotion Scale (CES) and Color Preference Scale (CPS). And for the qualitative part six open ended questions were asked from the participants. The conventional content analysis of open-ended questions, correlation, t-test et cetera revealed significant results and significant differences in gender.

Introduction

Colors play an essential role in both natural and personal environments (Watten &Fostervold, 2021). Colors have been linked to a variety of psychological functions and have been studied for over a century. Colors have also been linked to emotions, as evidenced by a number of studies from various study traditions. For example, targets with a red color appear to be connected with dominance and bravery, therefore red could be viewed as a signal of aggression and physical dominance in terms of evolution, perhaps linked to underlying hormone levels in men (Watten &Fostervold,2021).

Color is thought to affect performance, activate senses, as well as, produce good or negative behaviors such as avoidance or withdrawal. It has also been discovered that visual stimulation

(color) improves attention span, improves cognitive capacities and refreshes one's view of his/her surroundings. Color can also win an argument in culture differences such as in the United States, individuals may connect orange with prison outfits, while indifferent nations, and the shading is connected to sovereignty. In Southeast Asia, Buddhist priests wear orange robes that represent effortlessness and relinquishing realism. The practice goes back millennia to the hour of Buddha.

1.1 Color Perception

People perceive colors individually. Such as, the color red has both positive and negative associations. It means anger and power at the same time but this can be for two different people such as red is also associated with love. Research

suggests that women tend to choose light colors such as yellow, pink white that defines hostile personality whereas men tend to choose violent colors such as red, blue, grey that define their dominating personality. Every color has a meaning that is perceived by individuals differently (Fetterman, et al., 2014).

1.2 Color Preference

An individual's color preference is determined by his or her preference for some colors over others. The way a person feels in any scenario, how they desire to feel, and even how they recall certain situations all influence their color preferences. Color has long been employed to evoke sensations of warmth and openness. However, how people behave is a different story. Varied color stimuli have various effects on different people. Introverts, unlike extroverts, are focused with their own ideas and emotions; therefore, they choose a social setting that allows them to achieve a medium degree of ideal excitement, according to Eysenck. There is a link between color preferences and personality qualities, according to studies on the effect of color on excitement. More specifically, introverts prefer "calm" colors (like blue) because they minimize excitement, whereas extroverts prefer "exciting" colors (like red) because they raise enthusiasm.

1.3 Colors and Personality

The word 'personality' comes from the Latin root 'persona,' which means mask in English. Individuality is determined by a person's behavior patterns, intellect, emotions, perception, learned values, and life experiences. Also, personality is recognized as a sum of an organism's existing or potential behavior patterns as dictated by environment and heredity (Eysenck, 1941).

Consistently, we create our (environment) surroundings with the colors we like. Lusher (1947) concluded in his test that people who have similar color preferences may have similar personality characteristics, and that people's psychological reactions to basic colors (blue, red, yellow, and green) reflect their basic psychological needs. Birren discovered a relationship between the warm colors associated with energetic and

aroused moods and the cool colors associated with passive and calming moods (Athi Lakshmi. R et al., 2015).

Literature Review

People have a tendency to arrange colors or to demonstrate favored shading out of a few distinct choices. Eysenck underlined the solid argument among males and females in shading decisions and concluded that men and women have different perceptions (Eysenck, 1941). McManus announced a more prominent desire for red among females. Generally, most subjects showed a desire for blue shades and an aversion for yellow shades, in this way exhibiting coherence among animal and human shading style (McManus et al., 1981).

There is a long history of testing for color separation and chromatic affectability contrasts between the genders. Results so far have been conflicting. Where male female contrasts have been distinguished, the impacts have been small. A more recent study explored the presence of the four exceptional or central colors, red, green, blue, and yellow, and tracked down that there is a distinction in the colors and the shades settings between men and women (Murray et al., 2012). One study showed the experiment conducted on male and females, requested people to separate the color from the shading and to rate the classes red, yellow, green, and blue. The results showed that women were more proficient at recognizing unpretentious degrees than were men. With colors that were fundamentally yellow or green, females had the option to recognize minuscule contrasts between colors that seemed to be indistinguishable from men.

Furthermore, when shown light and dull bars glinting on a screen, men were superior to ladies at seeing the bars. Men were better ready to see changes in splendor across space, ability helpful for pursuing a letter on an eye graph or perceiving a face. This impact was expanded as the bars were limited, proposing that men are more delicate to fine subtleties and fast development than ladies.

One study concluded that color perception by eye tracking method and color preference by survey by survey did not match. Furthermore, psychological

color preference the participants prefer images such as warmth, friendliness and calmness (Song et al., 2021).

Theoretical Framework

Scholars have been fascinated by color for centuries (Sloane, 1991; Gage, 1993). Since Goethe's (1810) Theory of personality, in which he related color categories (e.g., the "plus" colors of yellow, red-yellow, and yellow-red) to emotional responses, there has been theorizing on color and psychological functioning (e.g., warmth, excitement). Goldstein (1942) built on Goethe's ideas, claiming that specific colors (e.g., red, yellow) trigger a series of physiological responses manifested in emotional experience (e.g., negative arousal), cognitive orientation (e.g., outward emphasis), and overt action (e.g., forceful behavior).

Following Goldstein's ideas, Subsequent theorizing has concentrated on wavelength, with the assumption that longer wave length colors feel stimulating or warm, whereas shorter wavelength colors feel soothing or chilly (Nakashian, 1964; Crowley, 1993).

Personality theories have long struggled to determine the exact number of personality qualities that exist. Earlier ideas, such as Gordon Allport's list of 4,000 personality traits, Raymond Cattell's 16 personality components, and Hans Eysenck's three-factor theory, offered a wide range of possible features. Cattell's list was further reduced by Goldberg for five factors of personality, though his work was further expanded by McCrea and Costa, who confirmed the validity of the model known as the big five (Lim, 2020).

Five-Factor model. For the trait-based account of personality in natural language, Lew Goldberg introduced the term 'big five.' Whereas, the term five-factor Model is found in the studies measuring traits with personality questionnaires. Nowadays, these terms are being used interchangeably for the trait perspective of personality. The five-factor model includes five broad factors of personality:

1. **Extraversion.** The ability of individuals to be more talkative, assertive and energetic behavior comes under the concept of extraversion, and opposite to it being inert, passive et cetera would

be known as introversion.

2. **Agreeableness.** The kindness, affectionate and sympathetic nature of an individual comes under this factor.

3. **Conscientiousness.** The traits like organized, thorough, and plan full behavior come under these facets and carelessness comes under its lack of direction and absence of this tendency.

4. **Neuroticism.** It is comprised of traits like tension, moodiness, and anxiety, and the absence of this reflects emotionally stable attributes like self-confidence.

5. **Openness to experience.** (Sometimes called Intellect or Intellect/Imagination). The traits like having wide interests, and being imaginative and insightful come under these facets of the big five model.

Rationale

The present study will bring forth the growing dimension of positive psychology addressing the concept of personality and colors; the way this interaction is being shaped up by the cultural and regional background of the person and understanding of people about colors. As, positive psychology is a developing area that studies human strengths, virtues, and optimal functioning. It aims to comprehend and promote the elements necessary for successful development of people, groups, and societies. The study of how colors might affect personality and behavior is an intriguing aspect of positive psychology. The evidence-based studies are rarely available in the expressed form and in the indigenous context it would be a flourishing avenue to work on for facilitative functioning.

Also, the attributes related to colors are being measured in experimental studies using respective questionnaires having low psychometric standing or no psychometric information at times. It is suggested in previous studies to establish the psychometric properties of such measures with more samples and taking the role of culture into account (Jalil et al., 2013; Lc Ou et al., 2004) so; this would be among the first attempts to develop the psychometric potential of color preference and color perception measures.

Objectives

Study 1

To qualitatively assess the perception of participants about the determinants of personality traits in Pakistani society and how it would shape the color preference among individuals.

Study 2

1. To identify the association between personality traits and color preferences.
2. To find the connection between color perception and color preference of individuals.
3. To explore the role of demographic variables on personality traits, color perception and color preference of individuals.
4. To establish the psychometric properties of color preference and color perception measures.

Research Question

Do specific personality types/traits prefer certain colors?

Hypothesis

1. There will be a relationship between personality trait of individuals and the color perception among young adults.
2. There will be a relationship between personality trait of individuals and the color preference among young adults.
3. Agreeableness will have a positive relationship with cool colors (green, blue and purple).
4. Extraversion will have a positive relationship with warm colors (red, orange and yellow).

Research design

The study design will be carried out under a mixed method approach

Table 3. 1: Frequencies and Percentages of the Demographic Variables

| Demographic variables | f(%) |
|-----------------------|-----------|
| Age | |
| 19-25 | 400(100) |
| Gender | |
| Males | 188(47.0) |

5. Openness will have a positive relationship with neutral colors (black, white and grey).
6. Men will prefer warm and dominating colors than

Method

Procedures

To collect data, all the scales including the qualitative part were attached with the demographic sheet. The questionnaires were then given to the students of different universities and an online form was also made to make the data collection procedure more convenient. Students were asked to voluntarily participate in the research by signing the consent form attached with the demographic sheet. The consent form explained all the information about the purpose of the research, confidentiality issues and the information of the researcher. The administration of one questionnaire took approximately 20 minutes.

Sample

A total of 400 participants out of which 208 were females and 192 males, aged between 19-25 years participated in this study. Convenient sampling technique was used for data collection. Participants willingly answered the five open-ended questions asked about the effect of religion, parents, culture, event preferences and social factors have on their color choices and personality. They then completed the BFI, CES and CPS and ranked their color preferences. The data was further analyzed by frequency analysis, correlation analysis, t-test, and reliability analysis.

| | |
|------------------|-----------|
| Females | 212(53.0) |
| Marital status | |
| Single | 379(94.8) |
| Married | 21(5.3) |
| Education level | |
| Undergraduate | 386(96.5) |
| Graduate | 14(3.5) |
| Family structure | |
| Joint | 206(51.5) |
| Nuclear | 194(48.5) |
| Ethnicity | |
| Punjabi | 133(33.3) |
| Sindhi | 32(8.0) |
| Balochi | 40(10.0) |
| Pathan | 57(14.2) |
| Kashmiri | 43(10.8) |
| other | 95(23.8) |
| Religion | |
| Islam | 394(98.5) |
| Other | 6(1.5) |
| Sect | |
| Shia | 71(17.8) |
| Sunni | 286(71.5) |
| Other | 43(10.8) |

Table 1 shows the demographic variables of the sample. Total 400 individuals participated in this study having an age range of 19-25.

The participants were 188 males (47.0%) and 212 females (53.0%). Out of total 400 379 were single (94.8%) and 21 were married (5.3%). 386 undergraduate students participated in this study (96.5%) and 14 graduate students (3.5%) 206 participants live in a joint family system (51.5%) and 194 live in a nuclear family system (48.5%).

Out of 400 individuals 133 are Punjabi (33.3%), 32 are Sindhi (8.0%), 40 of them are balochi (10%), 57 are pathan or pakhtoon (14.2%), 43 are Kashmiri (10.8%) and 95 participants are from other ethnic domains (23.8%). 394 participants were from Islamic religion (98.5%) and the rest 6 participants were from other religion (1.5%). The 394 participants that were from Islamic religion, 71 are Shia (17.8%), 286 of them are from Sunni sect (71.5%). 35 of them

are from the other sect and the rest 6 are from different religion.

Sampling Techniques

Convenient sampling technique was used in this study.

Instruments

The qualitative part includes five open-ended questions; along with three assessments in the study II. The three assessments that were applied in the study are The Big Five Inventory, The Color Preference Scale (CPS) and The Color Emotional Scale (CES).

Big Five Inventory

It has total 44 items including all of its subscales, Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. The items of Openness include 5, 10, 15, 20, 25, 30, 35, 40, 41 and 44.

The items of Conscientiousness include 3, 8, 13, 18, 23, 28, 33, 38 and 43. The items of Extraversion include 1, 6, 11, 16, 21, 26, 31 and 36. The items of Agreeableness include 2, 7, 12, 17, 22, 27, 32, 37 and

42. The items of Neuroticism include 4, 9, 14, 19, 24, 29, 34 and 39. The reverse scored items on BFI scale is 6, 21, 31, 2, 12, 27, 37, 8, 18, 23, 43, 9, 24, 34, 35 and 41.

Color emotion scale

CES has total 110 items that represents the 10 pairs of adjectives against each color and the participants have to pick one option from each pair. Lu Oc et al. (2004) designed this measure and extracted multiple models of color perception like warm-cold, active-passive et cetera. In there the first study they used 10 adjectives against 20 colors (warm-cool, heavy-light, modern- classical, clean-dirty, active-passive, hard-soft, tense-relaxed, fresh-stale, masculine-feminine, like-dislike).

Color preference scale

CPS has total 11 items. This scale is designed by Jalil et al. (2013) on the basis of previous studies considering the Lusher Color test having 8 items. The present measure incorporated 4 more items

having 11 colors and the 12th item as the option to add any other color. This is a Likert-type scale having response options 'I don't like it at all' to 'I like it very much' ranging from 1-5. The high score on each item reflects the greater preference for a specific color.

Ethical consideration

Each participant will be asked to give the consent of whether they are willing to participate in this research or not.

Data Analysis

Confidentiality of participants will be the first priority, unless they give their full consent, participants and the data gathered from them must remain anonymous. Participants will be debriefed about what the research is about.

For qualitative analysis conventional content analysis was employed and line by line coding generated multiple categories combined under five major themes. Frequencies and percentages were computed and were presented in tabular and graphical form for the clarity of findings. For the quantitative data was analyzed by using descriptive statistics, independent samples t test and one way ANOVA on SPSS version 25.

Before analyzing the raw data, missing data was analyzed for the three scales big five inventories, color emotion scale and color preference scale. All the scales were computed before analyzing the data.

Means, standard deviation and frequencies were computed for the scores and the responses from the demographic information. One way ANOVA was applied on variables ethnic identity and sect with the scales.

Results

The results of the qualitative and quantitative data are presented in the form of tables and graphs. The qualitative data was collected through open ended questionnaires given to each participant followed by the quantitative part of the study. Five themes were generated from the qualitative part along with its categories. The frequencies and percentages were computed with the responses of the participants.

Study 1 will focus on the results of the qualitative data which includes table 4.1 that constitutes the themes that were generated from the open ended questions; the categories were further generated from the themes and the frequencies of the categories that tell how personality is developed culturally, religiously, how parental preferences help in choosing colors and describing our personality. Moreover color choices on specific events, what does one perceives from it and what are the other social factors that help in shaping one's personality. Table 4.2 will focus on the color preferences that participants preferred with their frequencies.

Study 2 will entirely focus on the quantitative part of the study. Part 2 includes 4 tables; table 4.3 will focus on the reliabilities of the scales and subscales, which include Cronbach's alpha, mean and range. Table 4.5 will mainly focus on the

mean standard deviation and independent samples t test of gender differences between different scales and subscales. Table 4.6 will show the correlation between different scales and subscales. Lastly table 4.7 will show the frequencies and percentages of the color emotion scale perceived by the individuals about a specific color. In the second part, the results of one way AVNOVA, which was performed to examine the differences between the scales and subscales with ethnicity and sect, were insignificant.

Study 1

Frequency And Percentage Of Themes

Themes were generated from the qualitative part of the questionnaire. Further the themes were categorized and then the frequencies and percentages were calculated.

Table 4.1 Themes and categories of culture, religion, parents preferences, event preferences and other social factors that influence personality (N=187)

| Themes | Categories | f(%) |
|---------------------|--|----------|
| culture | Defines, shapes and develops our personality | 49(26%) |
| | Values and norms | 17(9%) |
| | Influence or modify our personality | 12(6.4%) |
| | Significant role/dominant role | 14(7.5%) |
| | Plays no role | 7(3%) |
| religion | Priorities | 15(8%) |
| | Modify behavior | 13(7%) |
| | Influence and shapes our personality | 48(25%) |
| | High self esteem | 10(5.4%) |
| Parents preferences | Matter a lot | 20(10%) |
| | Experiences/knowledge | 44(23%) |
| | Parental Choice/Selection | 47(25%) |
| | Preference for personal choice | 21(11%) |
| Event preferences | Sense of unity | 8(4.3%) |
| | Enthusiasm | 10(5.4%) |
| | Patriotism | 40(21%) |
| | Symbolical | 13(14%) |
| | Don't like it | 17(19%) |

| | | |
|----------------|-----------------------------|---------|
| Social factors | Trauma/past experiences | 5(4%) |
| | friends/peers/relationships | 58(47%) |
| | Social media | 25(20%) |
| | Economic status | 10(8%) |
| | None | 24(19%) |

The themes generated were culture, religion, parental preferences, event preferences and social factors. The results show that the culture helps in defining, shaping and developing our personality (49%).

Religion influences and shapes our personality (55%), parental preferences are based on their knowledge and experiences (33%) but most importantly parental preferences only matter when selecting colors for their children (35%). Event preferences like Independence Day shows patriotism in the people (45%) and there are people who say they don't like the color coordination on such events (19%) and social factors that influence one's personality are mostly peers or relationships (47%). Figure 1 below shows the frequencies of the themes generated from the open-ended questions.

Participant Responses

Theme 1: Culture

One participant says: *"culture plays a very important role in defining the personality because we learned different things from culture such as values and norms"*. Another participant says: *"our culture makes the foundation of our personality. We live our life as of our culture is and traditions we have"*. One says: *"culture plays a vital role personality building. Because everything a person observes throughout his childhood in his culture becomes a part of his personality"*. One participant also claims: *"the culture defines the way I dress up, talk to people and move around doing daily chores"*

Theme 2: Religion

One participant says: *"the religion transforms a personality into what you do and how you do it. Practice being influenced"*. Other said: *"while growing up, our aims and targets are made according to our*

interests and our interests are made through religion". Another participant also said: *"religion is a complete code of life. It gives us defined values and beliefs from which we live our life"*. Another participant says: *"it shapes the way people think about and responds to the world. Religion gives meaning and purposes to life, reinforces unity and stability"*

Theme 3: Parental Preferences

One participant says: *"first of all they like to enforce their opinion on us but then again they know what's best for us"*. One participant says: *"my parents don't choose anything for me they just suggest me in selecting colors, themes and objects etc."* another participant says: *"Parent's choices and preferences in daily life help because they know about good and bad"*

Theme 4: Event Preferences

One participant says *"my opinion is it is very good because by this we can make identity"*. Another participant says *"colors don't represent anything; you can wear any color anytime. Associating colors to any particular event isn't that important"*

Theme 5: Social factors

One participant says *"environment, group life, family, media etc."* Another participant says *"past mistakes"*. One participant also said *"trauma"*.

Frequencies of color preferences

Participants were asked what other color they prefer instead of what was present in the questionnaires. 13 colors were listed down that represented the other colors participants preferred. Table 3 shows the frequencies and percentages of the other preferred colors by the participants

Table 4.2: Color preferences among young adults

| Colors <i>f</i> (%) | |
|---------------------|----------|
| Grey | 9(4.8%) |
| Sky blue | 4(2.1%) |
| Pink | 3(1.6%) |
| Purple | 6(3.2%) |
| teal | 2(1.0%) |
| Aqua | 5(2.7%) |
| Navy blue | 8(4.3%) |
| Fuchsia | 9(4.8%) |
| Parrot green | 2(1.0%) |
| Golden | 6(3.2%) |
| Pastel colors | 10(5.4%) |
| beige | 8(4.32%) |
| Maroon | 15(8.1%) |

Table 3 shows the frequencies and percentages of the other preferred colors; it was clear that maroon color was more preferred by participants (8.1%) as compared to the rest of the colors mentioned above. The second most preferred colors were the pastel colors (5.4%) and the least preferable color was teal (1%). Figure 2 below shows the frequencies of the color preferences mentioned by the participants.

Study 2

Reliability Analysis

Cronbach's Alpha was calculated for the scales big five inventory along with its subscales openness, conscientiousness, extraversion, agreeableness and neuroticism, color emotion scale (CES) and color preference scale (CPS). Table 4 shows the reliability analysis of the scales and subscales.

Table 4.3: Cronbach's Alpha for the scales for a sample of N=400

| Scale/Subscales | items | <i>a</i> | <i>M</i> | <i>S.D</i> |
|-----------------|-------|----------|----------|------------|
| OP | 10 | 0.66 | 36.0 | 5.99 |
| CON | 9 | 0.47 | 30.1 | 5.03 |
| EXT | 8 | 0.38 | 27.0 | 4.35 |
| AGR | 9 | 0.52 | 30.1 | 5.19 |
| NEU | 8 | 0.42 | 25.6 | 4.70 |
| CES | 110 | 0.62 | 159.8 | 7.91 |
| CPS | 11 | 0.67 | 37.7 | 6.35 |

Note: OP=openness, CON=conscientiousness, EXT=extraversion=agreeable ness, NEU= neuroticism, CES= color emotion scale, CPS = color preference scale,

Table 4.3 shows the reliability analysis for the scales and subscales for the sample (N=400) along with the number of items in each scale and subscale and their mean and standard deviations. The results show the mean value of color emotion scale (CES) is 159.8 (*SD* =7.91) and for color preference scale (CPS) is 37.7 (*SD* =6.35). The

reliabilities of the scales CES and CPS are 0.62 and 0.67 respectively.

Moreover, the reliabilities of the subscales of the big five inventory openness, conscientiousness, extraversion, agreeableness and neuroticism are 0.66, 0.47, 0.38, 0.52 and 0.42 respectively.

One way Anova

In order to find the differences between the ethnic identity and sect regarding Big Five Inventory, Color Emotion Scale and Color Preference Scale; one way ANOVA was computed. The results of one-way ANOVA showed insignificant results.

Big Five, Color Emotion Scale, Color Preferences Scale And Gender Differences

An independent samples t test was conducted in order to compare gender differences with the scales and the subscales differences with the scales and the subscales.

Table 4.4: Mean, Standard Deviation and independent sample t-test values for gender differences (N=400)

| Scales/Subscales | Males | | Females | | t | intervals | | |
|------------------|--------|------|---------|------|---------|-----------|-------|------|
| | M | S.D | M | S.D | | upper | lower | |
| OP | 35.20 | 6.19 | 36.72 | 5.74 | 2.53* | 0.34 | 2.68 | 0.25 |
| CON | 29.32 | 5.05 | 30.86 | 4.91 | 3.09** | 0.56 | 2.52 | 0.30 |
| EXT | 26.52 | 4.50 | 27.58 | 4.17 | 2.45* | 0.21 | 1.92 | 0.24 |
| AGR | 29.98 | 5.40 | 30.25 | 5.00 | 0.53 | 0.74 | 1.29 | 0.49 |
| NEU | 25.16 | 4.83 | 26.00 | 4.56 | 1.78 | 0.04 | 1.76 | 0.17 |
| CES | 159.34 | 7.86 | 160.34 | 7.95 | 1.26 | 0.55 | 2.55 | 0.12 |
| CPS | 36.52 | 6.88 | 38.76 | 5.64 | 3.57*** | 1.01 | 3.47 | 0.35 |

Note: OP=Openness, CON=Conscientiousness, EXT=Extraversion, AGR=Agreeableness, NEU= Neuroticism, CES= Color Emotion Scale, CPS= Color Preference Scale, *p>.05 **p>.01 ***p>.00

The findings of this result show the significant differences in gender. The subscales of BFI also show some significance differences. OP is significantly high in females (36.72) than in males (35.20), whereas CON is also significantly high in females (30.86) than in males (29.32). Females (27.58) also scored higher in EXT subscale than

males (26.52). AGR is also significantly high in females (30.25) than in males (29.98). And lastly females (26.00) also scored high in NEU subscale than males (25.16). Further, females score high on color emotion scale as well as color preference scale than male.

Table 4.5: Correlation between different scales and subscales

| Sr.# | Scales/Subscales | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|------|------------------|-------|-------|-------|-------|-------|-------|-------|
| 1 | OP | _____ | .60** | .56** | .46** | .59** | .04 | .10* |
| 2 | CON | | _____ | .60** | .54** | .49** | .02 | .18** |
| 3 | EXT | | | _____ | .59** | .47** | .03 | .11* |
| 4 | AGR | | | | _____ | .40** | -.06 | .10* |
| 5 | NEU | | | | | _____ | .00 | .12* |
| 6 | CES | | | | | | _____ | -.06 |
| 7 | CPS | | | | | | | _____ |

Note: OP=Openness, CON=Conscientiousness, EXT=Extraversion, AGR=Agreeableness, NEU= Neuroticism, CES= Color Emotion Scale, CPS= Color Preference Scale

It is found that there is a significant correlation of the big five inventory and its subscales. The table also shows that significant correlation of openness with consciousness openness, extroversion, agreeableness, neuroticism but was not significantly correlated with CPS and CES. Moreover, the table also predicts the significant correlation of consciousness with agreeableness, extroversion, neuroticism, and CPS but was not significantly correlated with CES. Extroversion is significantly correlated with neuroticism, agreeableness, but significantly correlated with CPS and CES. There is significant correlation of

agreeableness with neuroticism, but was not significantly correlated with CPS and CES. There is a no significant correlation of neuroticism with CPS and CES. There is no significant correlation of CPS with CES.

Frequencies and Percentage of Color Emotion Scale

Participants were asked to rank a color for a specific category like warm, cool, heavy, light, etc. Then the percentages were calculated from the total sample of (N =400).

Table 4.6: Frequencies and percentages of color emotion scale

| Categories | Colors | f(%) |
|------------|----------------|------------|
| Warm | Brown | 326(81.5%) |
| Cool | Green | 304(76%) |
| Heavy | Red | 330(82.5%) |
| Light | Yellow | 338(84.5%) |
| Modern | Yellow | 258(64.5%) |
| Classical | Brown | 336(84%) |
| Clean | Black | 350(87%) |
| Dirty | Purple | 172(43%) |
| Active | Yellow | 304(76%) |
| Passive | Brown | 285(71.3%) |
| Hard | Brown | 288(72%) |
| Soft | Pink and white | 300(75%) |
| Tensed | Brown | 294(73.5%) |
| Relaxed | White | 328(82%) |
| Fresh | White | 334(83.5%) |
| Stale | Brown | 294(73.5%) |
| Feminine | Pink | 324(81%) |
| Masculine | Grey | 330(82.5%) |
| Like | Black | 368(92%) |
| Dislike | Brown | 244(61%) |

It was cleared from the results that 81.5% people declared brown color as warm, 76% people claimed that green is a cool color, 82.5% people think red is a heavy color while 84.5% people think yellow is a light color. Yellow is also a modern color declared by 64.5% people and 84% people said brown is a classical color. 87% people

think black is a clean color while 43% people think purple is the dirty color. 76% people claim that yellow is an active color and 71.3% people think brown is a passive color. Moreover 72% people also think brown is a tensed color while 82% people think white is a relaxed color. 83.5% people say white is a fresh color and 73% people

say brown is a stale color. Out of sample of 400 participants 324 individuals (81%) believe pink is a feminine color and 330(82.5%) out of 400 also claimed that grey is a masculine color. 92% people liked black color and 61% people disliked the brown color. Figure 3 below shows the frequencies of the color emotion scale.

Discussions

A mixed method study was conducted to find the role of personality in developing color perception and color preference among young adults. Color preference is the individual's preference of colors over others, what color one individual likes. Color perception is how one individual perceives one color differently from others. The study was completed over 4 weeks' time period. The study was divided into two phases. The first phase of the study was qualitative and the second phase was quantitative. The qualitative part comprised of 6 open ended questions about how culture, religion shapes or develops one's personality, does parental preferences matter in selecting colors or themes, what is their (participants) opinion about the event specific color matching, are there any other social factors that helps individuals to shape their personality and lastly do they (participants) have any favorite color. The second phase of the study is quantitative, which comprises 3 scales. The first scale was big five inventory followed by five of its subscales; openness, conscientiousness, extraversion, agreeableness and neuroticism. Moreover, the quantitative part has another scale Color Emotion Scale (CES). And lastly the Color Preference Scale (CPS).

The sample of the study included 400 individuals with 188 males and 212 females from different universities. For convenience online form was also made to collect data from different universities. Out of 400, 21 individuals were married and 379 were single. 386 students were undergraduates and 14 of them were graduates. 394 participants were from Islamic religion and 6 were from other religion. The age range of all the participants was from 19-25 years. Family structure, ethnic identity and sect were also explored and are mentioned in table 1.

Phase 1. Qualitative study

The first part of the study is qualitative and it comprises of six open ended questions about how culture, religion shapes one's personality, do parental preferences matter while selecting colors and themes, what is your (participants) opinion on event specific color matching, are there any other social factors that helps in shaping personality and lastly what is their (participants) favorite color. Five themes were generated for the first five questions like; culture, religion, parental preference, event preferences and social factors. Further the categories were made for each theme and then frequencies and percentages were calculated as mentioned in table 2. For the last question, 12 colors were listed that were participants favorite colors and then frequencies and percentages were calculated out of 187 sample responses. The frequencies and percentages are mentioned in table 3.

Relationship Of Culture, Religion, Parental Preferences, Event Preferences And Other Social Factors With Personality

Studies have found that personality development is influenced by culture. Current study shows that culture plays a significant role in our lives and also defines shapes and develops our personality. The variety in personality has both universal and cultural components. Culture-specific traits including complexity, tightness, individuality, and collectivism are correlated with certain cultural pathologies. According to the study conducted on impact of culture on personality, individualist cultures place a strong emphasis on children's freedom, whereas collectivist cultures place a stronger emphasis on reliance. (Triandis, 2002).

This study shows that religion modify our behavior and also influence and shapes our personality Moreover studies have shown that religion or spiritual belief has positive relationship with personality. One study concluded that people's feelings, habits, and mental health can all be influenced by their spiritual beliefs in addition to helping them find meaning in life. The results of this study show a positive correlation between basic religious beliefs and virtues that assist people in overcoming life's difficulties and identity crises

(Khojenezhad et al., 2012). Another study showed that other religion students use their senses well and have pleasant attitudes toward other people. These individuals could maintain their emotions on a personal level (Akhtar et al., 2020).

This study shows that parental preferences matter a lot in selecting colors and themes because they are more experienced than us. Another showed that parental preferences in selecting colors vary with the gender of their children. Furthermore, increasing the difference in gender preferences for blue and pink will further dissolve the lines separating men and women (Cohen, 2012).

The current study shows that an event preference like Independence Day shows patriotism and sense of unity among individuals.

Social factors like peers they are the most important aspect of our lives. They surround us from childhood till old age. The present study shows that other social factors that help in shaping one's personality are peers, social media, trauma, etc. One study concluded that effects of peer relationships can improve knowledge of how people develop personalities (Reitz et al., 2014). Another social factor trauma can also help shape one's personality. Study showed that negative life events are linked to childhood maltreatment, and part of the connection between childhood abuse and negative life events is mediated by openness to experience (Boyette et al., 2016).. One study concluded that childhood trauma is associated with poor levels of social support and personality problems (Wang et al., 2018).

Phase 2: Quantitative Study

The second phase of the study includes three scales. Big Five Inventory along with five of its subscales Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism. Big Five Inventory has total 44 items with some reversible scores. The second scale used in this study was Color Emotion Scale (CES), it comprises of 110 items followed by 20 pairs of adjectives. 11 colors were listed and the participants were asked to compare the colors with the emotions presented in 20 pairs of adjectives like warm or cool, heavy or light etc. lastly the scale used in this part of study was Color

Preference Scale (CPS) this scale comprises 11 items and it is a Likert type scale where participants were to rank colors from 1 to 5. 11 colored boxes were presented and the participants were asked to rank each color from 1 to 5 where 1 means "no I don't like it at all" and 5 means "I like it very much".

Reliability measures of scales and subscales

The reliability statistics were computed and are mentioned in table 4. BFI overall showed a desirable range of reliability as compared to the other two scales CES and CPS. The reliabilities of scales CES and CPS were explored first time and showed undesirable range because the nature of Color Emotion Scale participants were asked to rate every color with the 10 adjectives that were observed in pairs of 20 adjectives. The psychometric properties particularly the structure of the scale still needs to be established.

And the reliability of Color Preference Scales needs to be explored more because the participants were asked to rate a color according to their preferences.

Relationship between Variables

BFI showed a positive relation with the subscales openness, conscientiousness, agreeableness and extraversion. It showed negative relation with the subscale neuroticism. One study concluded that people with high levels of neuroticism are more likely to experience unfavorable life experiences and are more likely to react emotionally to those events, in part due to how they handle stress (Lahey, 2009).

Furthermore CPS and CES are also not significantly correlated because the reliabilities of these scales are low and were explored first time. Correlation analysis is mentioned in table 6. This study shows that extraversion has a positive relation with warm colors like pink, red. Moreover openness also has a positive relation with dull colors that men usually prefer like grey, black, and white. Further this study shows that big five personality traits have positive relation with color perception of individuals.

Exploration of Gender Differences

Females scored higher on scales and subscales of Big Five Inventory as compared to males. This is because female openly talk about everything and males don't and females are significantly more agreeable than males (Rubinstein, 2005). Similarly females scored high in the other two scales CPS and CES. One study concluded that every gender has different color preferences and they perceive colors differently (Rasheed, 2015). T test table is mentioned in table 5.

Frequencies and Percentage of Color Emotion Scale

Color emotion scale includes 11 colors that were listed and participants rated each color with the adjectives given to them as their options. The sample of 400 participants rated this scale with the adjectives and perceived if they think yellow is warm or cool, heavy or light and son on. The frequencies and percentages table is mentioned in table 7. Present study show that brown is the most disliked color whereas black is most liked color. Cherry (2020) concluded in her article that brown is associated with negative emotions such as

sadness or loneliness and black color is associated with attraction, power and strength. Moreover, this study shows that pink is feminine color while grey is masculine and both pink and white are soft colors. Michael (2018) wrote in his article that pink is related with romantic emotions and women are emotional than men. Grey is considered in masculine colors, and it is associated with strong, silent and handsome personalities (Kross, 2018).

On the whole, the current exploration identified the key determinants of personality type in the Pakistani society and the way, it influences the color perception and preference of individuals for instance the parental influence has emerged as a strong aspect to define the color choices of the individuals as reported by the participants. Further, the quantitative exploration has elaborated the scope of findings by providing the evidence for association between personality types and color choices with noteworthy demographic influence like gender-based color preference and perception of the respondents.

Figures

Figure 1

Figure 4.1: Frequencies of the Themes Generated

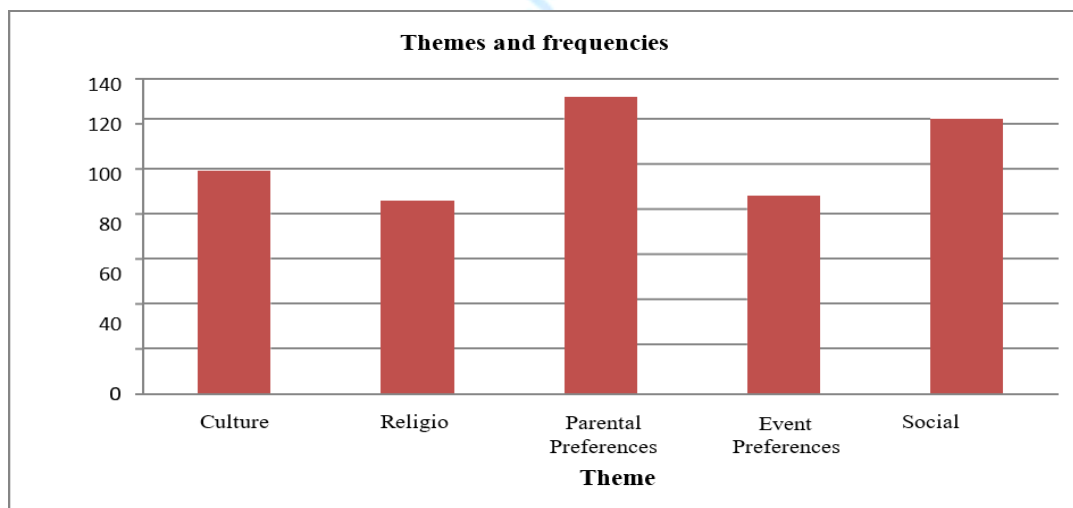


Figure 2

Figure 4.2: Frequencies of the color preferences by the participants

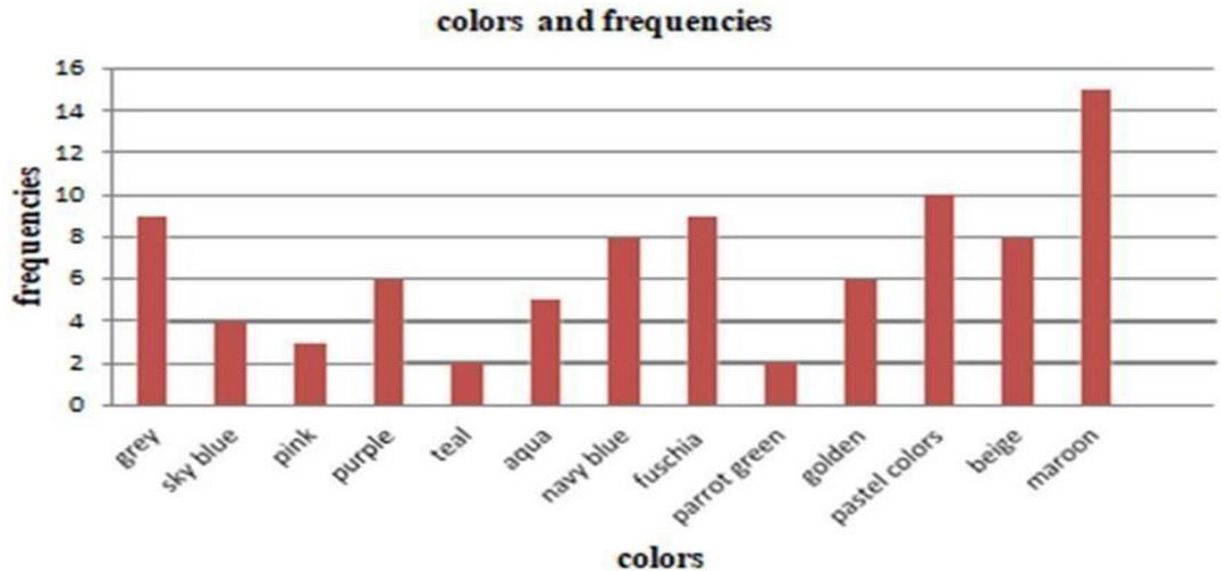
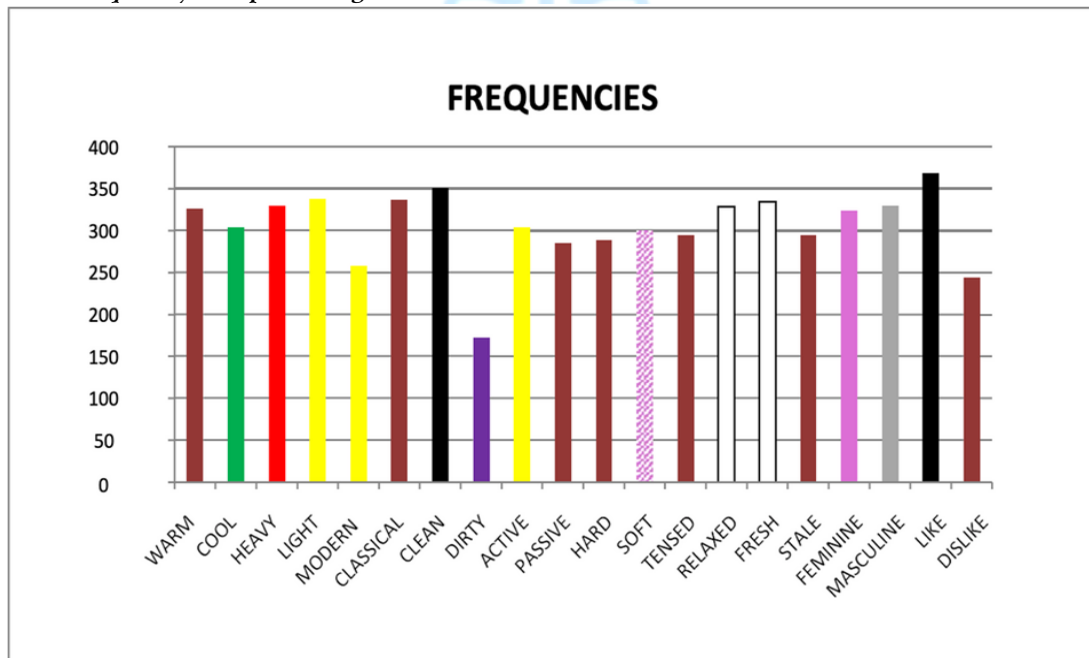


Figure 3

Figure 4.3: Frequency and percentages of color emotions scale



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