

# Analysis of the Effect of Different Types of Colors on Human Behavior and Emotion

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## ABSTRACT

Color is an important part of everyday life, and people often use color to represent a mood or an emotional characteristic. Studies have shown that it can affect people's emotions. The purpose of this article is to discuss whether color can be used to treat psychiatric problems based on its effect on humans. Therefore, this article compares the related articles and the ideas in the articles through the method of literature review, and discusses the application of color in psychotherapy. The conclusion is that color may be helpful in the treatment of mental illness. However, due to the influence of personal experience and life, different colors have different meanings to different people, so the problem of mental illness cannot be well solved by color therapy.

**Keywords:** Colors, Human behavior, Human emotion, Psychology

## 1. INTRODUCTION

It becomes more common for the teenagers to have mental problems since a large amount of stress of studying and competition. The China national mental health development report (2019-2020) says that the percentage of the teenagers who have mental problem such as depression is 24.6% [1]. However, not all families believe that their children are having mental problems, such as depression. They think their children feel upset and stressed out is just because they are too impressive. Color is one of the most common things in our daily life. Since Color affects human's emotions by different wavelengths. Since people see color through the eyes and we will imagine what we saw before according to this color. For example, blue may help us think of the sky or the sea, so we feel calm and peaceful. It is also related to our conarial and retina. Color works through human vision. The wavelengths of light emitted by different colors are different. When human eyes are exposed to different colors, the association and response of brain nerves are also different. Different colors can affect people's endocrine system through vision, resulting in the increase or decrease of human hormones and the change of people's moods. So, can color help cure the mental problem among teenagers?

There are lots of researches about the colors, this article aims to gathering past papers and find out how different color affect human emotions and discuss can

these color be used in curing mental problems among the teenagers.

## 2. BACKGROUND INFORMATION

Color psychology is a part of psychology that always affect us in our daily life. In 1666, English scientist Sir Isaac Newton discovered that when pure white light passes through a prism, it separates into all of the visible colors. Newton also found that each color is made up of a single wavelength and cannot be separated any further into other colors. [2]. Many years later researchers found something further about the color psychology. Some further experiments show people something about combining different color to get another color. These may sounds very normal for now, but color of light is actually developing step by step. The mystery of light is being explored and the unexplored part is reducing. Light as an important part in our daily life, it shows us the wonderful world.

"Given the prevalence of color, one would expect color psychology to be a well-developed area,"[3] Color psychology is based one the light which show the color in our eyes. However, despite the general lack of research in this area, the concept of color psychology has become a hot topic in marketing, art, design, and other areas. Much of the evidence in this emerging area is anecdotal at best, but researchers and experts have made a few important discoveries and observations

about the psychology of color and the effect it has on moods, feelings, and behaviors. [2]

### **3. ANALYSIS AND DISCUSSION**

The experiment done by Doris Jeanette named How colors affect emotions[4]. It discussed why the color affect human emotion. It says that color and emotion have certain wavelength which both of them are physically exist. Since both of them are exist in the way of wave, they can affect each other. This article include 7 parts about why we feel emotion from color and how.

#### ***3.1. Importance of flow***

The first part is called the Importance of flow. It compares the stop of water with our body. When people stop the natural movement of anything, it creates an environment where mental, emotional, or physical diseases can flourish. It is no surprise that the major aspect of themselves that human has inhibited is their emotions. People have been conditioned to deny and depress their feelings from the moment of birth [4]. From the comparison, it can be understood that people always restrain their emotions either to show reassurance or protect themselves. And every day more research studies document what sensitive people have always known, that emotions directly affect physical and mental states of being. DeSteno and J.Cross (2013) mentioned that it will be healthier to regulate our emotions properly instead of restraining them [5].

As a result, the conclusion is that emotions are literally energy in motion. They are supposed to move, they must flow in order to maintain a healthy physical environment. The writer provides an example of Greek women [5]. The writer thinks that if the Greek women are encouraged to express their emotions instead of being forced to wear black every day, they may feel better instead of always feeling sad, upset, or even feel hopeless. In this case, color has a huge effect on emotion, and looking at a negative color for a long time may cause a serious effect on mental health and even cause a mental problem. Therefore, since the color may cause mental problems, it can fix mental problems and keep people positive emotions.

All the colors can affect people's emotions and it is a long-term effect on the emotion change [6]. It proves that all colors affect the emotion and can help to keep an emotion that is either positive or negative.

#### ***3.2. Emotions are colors***

The second part is about the relationship between color and emotion called emotions are colors. many researchers have elaborated on the relationship between emotion and color in their articles. Compare with the article: How colors affect emotions: the effect of colors

and color combinations on the moods of humans by Leon Miguel G.Gonzales [6] and Cherry (2020) [2] conclude that different colors really have a different effect on human emotions. However, the three articles focus on different perspectives. The opinion of Jeanette (2004) is that Colors and emotions are inseparable because they are the same sort of energy [4]. Physically, people's emotions are composed of colors. People who can see the energy field actually perceive emotions as different colors. The colors these people see are actually puffy and little clouds of colors floating in the air around the person's body. These mists of "colored balls" and "colored clouds" generally hang out like mist in the so-called emotional bodies in the energy field, and these emotional bodies existed about a foot and a half away from people's physical bodies. Cherry (2020) focuses on blue only [2]. Blue is a cold color that usually represents the sky or sea in the mind. So, when people see these colors, they may first think of the sea or sky and have a sense of calm and peace. So, blue is a favorite color of many people. Since blue is a favorite color of many people, it is seen as a non-threatening color. However, blue also makes people feel sad and aloofness.

A painting that is painted with nearly all blue makes people feel uncomfortable and depressed. This article also mentioned that blue is usually used to decorate offices since it makes people productive. The opinion of Leon Miguel G.Gonzales is that color is a visual experience when combining different colors together [6]. It is like combining the attraction of red and the joy of the yellow, the orange will make people tend to lose time and forget problems, and only feel happy and enjoy. So, the three articles combine of colors and the representative of wavelength, to show that color can affects emotion and helps people to solve emotional problems in daily life.

#### ***3.3. Vibrant moment***

The third part is called the vibrant moment. It discusses colors, sounds, and emotions are all vibrations, they can be physically felt in the body. The body is like a tuning fork, picking up the frequency of the colors and emotions inside and outside of people. Even if are not aware of them, people are still affected by the energy which physically appears in the body, just like sounds. However, colors are part of the human being, like all emotions, so people cannot lose any one of them. People can maintain positive emotions most of the time, but negative emotions are also unavoidable. Therefore, different emotions are generated at different times, and different colors are required at different times. Staying in a room with only one color for a long time may also trigger other psychological problems. From the perspective of art, the arts will contain multiple colors, and these different colors make it beautiful and express

rich emotions. Therefore, people also need a variety of colors to enrich their lives.

### **3.4. How to judge color**

The fourth part claims value judgment which is the method to judge the color. Different colors have different wavelengths in visual experience and give different feelings. Red is the color of action, the root chakra. Some people think that red is the color that only attracts others' attention, so people who wear red only want to attract others' attention. However, it is a stereotype of red. Red is the intensity of energy that is connected to the deepest and strongest desires. Another extreme example is in the Seeing red, disgust reactions to gruesome photographs in color (but not in black and white) increase convictions. Salerno (2017) compares the photo of the murder case printed in black and white with printed colorfully with an effective mechanism[8]. The participants randomly get the photo in either black and white or colorful. The result shows that colorful photos are more terrible which makes people have deeper and stronger emotions of scaring and anger. From these examples, it can be known that color plays an important role to deepen our emotions. If people only see black and white color then, may be so boring to observe the world with only little emotion.

### **3.5. Different color with different emotion**

The fifth part is called color information, which is about the information that different colors have different feelings for people. In the reagent, red light has the longest wavelength and violet light has the shortest wavelength. In my opinion, it also depends on the density of light. Many articles mention the meaning of each color, for example, white represents purity, blue represents peace, and yellow represents joy. However, people need to remember that the meaning of what is happening is also constantly shifting. Physical vibrations and emotional vibrations are of course real, but the interruptions of what they mean at any point in time can be down right wrong. So be careful not to use other people's definitions and place them on your own emotions or colors. This opinion is quite the opposite of many other psychologists. Gilbert, Fridlund & Lucchina (2016) describe another method that can explain the information that each color has [9]. The researchers conducted an experiment in which 194 participants were required to touch a screen for color matching. The machine then forms 20 words about emotion based on the color. During the matching process, the researchers found that their matches were influenced by age and gender. This experiment N was used to observe the connection between food, drink and color. At the same time, this experiment also proved that color and mood are closely related, but may be affected by age.

Therefore, information about color is uncertain and many factors affect it.

### **3.6. Factors**

The sixth part is to describe the means of earth color which is about different colors may have different meanings in different situations. The author's point is that the density of the color and the location of the color also affect the information about the color. For example, dark red and light red gives different information too. Also, the amount of red in different locations and the degree to which is covered by red affects the thoughts that viewers have. During the creation of arts, it is also mentioned that to create art works which make the audience feel comfortable, they use color in different percentages to create a beautiful art work. It shows that the different locations and different color matches also create different feelings and emotions for other people [11].

### **3.7. Sounds**

The seventh part is sound, which seems not related to the topic of color, but actually, sounds and color are related. In the author's opinion, the sound is also a strong vibration. As sound and color are both wavelengths, sounds also affect emotions. In working memory model, it divided the process of memorize into three parts, phonological loop, visuospatial sketchpad, and central executive.

Cornad and Hull (1964) finish an experiment and claim the working memory model shows that the the phonological similarity effect has an effect on memorizing [13]. In this experiment, the two groups of participants one is required to see a list of letters sounds similar, the other one is required to see a list of letters sounds differently. After seeing the letters, they are required to recall all the letters. The result shows that the phonologically similar letters makes participants feeling confused easier than the not similar ones. It shows that although the participants see the letters, they still use sounds to remember to letters.

It can still be related to the color and sounds. Like when seeing a color, people might think them as a sound and produce emotion about it.

## **4. CONCLUSION**

In conclusion, color does have an effect on people's mood, it can help with some mental issues and cheer up patients when they feel dressed and upset. Emotions need to be expressed, not restrained. Color affects people in many ways, including psychology, decision-making, and thinking. There seems to be color everywhere. To answer the question that the author asked in the introduction, if use color in a correct way,

it can be used to cheer up and help regulate emotions. Some colors in the room to use as a background can also help participants feel better. However, because different people feel different even when they see the same color, based on their different past experiences and ages, psychologists do not know which color is more suitable for patients to help them with psychological problems. Therefore, color may be less suitable for the treatment of mental problems.

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