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Colour in Illustrations for Art Therapy among Higher Education Students in UiTM Perak

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ABSTRACT

This study investigates the efficacy of colour therapy, specifically warm and cool colours in illustrations, as a stress-reduction tool for higher education students. Employing a quantitative approach, with the inclusion of pre- and post-test POMS questionnaires, the research examined three groups: first-year Bachelor's, first-year diploma, and final-year diploma students. Results revealed a significant decrease in Total Mood Disturbance (TMD) scores post-intervention, indicating reduced stress. Notably, final-year diploma students, with prior colour theory knowledge, showed enhanced responsiveness. The study highlights the therapeutic potential of colour in illustrations, providing insights for artists and educators. It suggests that colour therapy can be a valuable self-help mechanism for managing student stress and improving mental well-being.

Keywords: *Colour therapy, Well-being, POMS Questionnaire, Mental health*

1. INTRODUCTION

Today's higher education students encounter a number of issues that have had an impact on their academic success, well-being, and overall college experience. The typical challenges faced by higher education students are stress related to academic pressure, financial hardship, social adjustment, technology distraction, career, and time management (Ramli, Alavi, Mehrinezhad, & Ahmadi, 2017; Lal, 2014). There are clinical tests and methods that can be used to address stress issues related to studies which includes massage and acupuncture (Duel, 2024). However, according to Riyadi & Budiyani (2023), most teenagers are reluctant on going for clinical tests and prefer staying at home and self-help methods hoping for the anxiety to subside naturally on its own. (Riyadi & Budiyani, 2023)

Art therapy is one of the self-help approaches that could help higher education students release stress from a variety of issues (Ashlock, 2019) and they can do it on their own without having to make an appointment or go to the clinic. Participating in artistic activities as a means of self-expression and relaxation offer a number of mental health-related benefits (Jonauskaite, 2019) and it is commonly used as a therapeutic technique to help people explore their feelings, resolve emotional issues, and increase self-awareness (Houston, 2019)

Numerous advantages for stress reduction can be provided through art therapy, which includes colour therapy. People can communicate their emotions nonverbally through art-making, which helps them understand their feelings and experiences better (Malchiodi, 2013). Specifically, colour therapy uses the psychological effects of colour to stimulate particular feelings. For example, red may stimulate sensations of vitality and alertness, while blue or green are frequently linked to feelings of peace and

tranquillity (Kwallek, 2005). This deliberate use of colour can strengthen the therapeutic benefits of art therapy and give students a useful tool for stress management.

Despite the growing recognition of art therapy as a stress-relief tool, there is a lack of comprehensive studies specifically focusing on the use of colour therapy in illustrations as a therapeutic intervention for stress management among higher education students. Most existing research either explores general art therapy practices or focuses on other forms of creative expression, leaving a gap in understanding how colour therapy, generally warm and cool colour groups through illustrations can be effectively implemented in academic settings to address student stress.

This study focuses on the effects of warm and cool colours in illustration to promote awareness among higher education students regarding its therapeutic values. It can be applied as a self-help mechanism to avoid further mental health-related implications. It can also aid artists and designers in terms of colour selection for creation of illustrations relating to mental health. The research discovered how painting therapy by using warm and cool colours in digital painting affected the emotions of students to treat self-stress.

Overall, this research sought to enhance understanding on the impact of warm and cool colours for illustration in the context of emotion, with implications for the well-being of higher education students. It also provides insights for artists and designers working on mental health-related illustrations.

1.1 Colour Theory for Mental Health

Colour theory for mental health refers to the study and application of colours to influence emotional states and mental well-being. It is based on the principle that different colours can evoke specific psychological and physiological responses (Archetti, 2023). It can be harnessed to promote relaxation, reduce stress, and enhance mood. The basis of colour theory is the colour wheel, a circular representation of colours that illustrates how they relate to each other. The colour wheel (Figure 1) is divided into primary colours, which are red, blue, and yellow. They serve as the foundation for all other colours. These primary colours are mixed to create secondary colours (orange, green, and violet). Each with its unique emotional and psychological effects (Hsu, 2021).

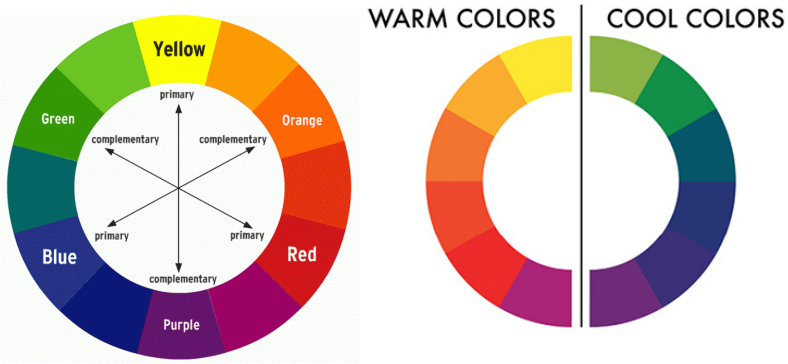

Figure 1: The Colour Wheel (Source: https:/pubs.nmsu.edu)

Tailoring colour therapy to individual preferences can enhance its effectiveness in promoting mental health. Colours are broadly categorized into warm and cool colours based on their perceived effects on human psychology. Warm colours, such as red, orange, and yellow, are often associated with energy, stimulation and alertness. They can evoke feelings of excitement and comfort, depending on the context. On the other hand, cool colours—blue, green, and purple—are generally linked to calmness, serenity, and tranquillity (Table 1). These colours are often used in therapeutic settings to promote relaxation and reduce stress.

Table 1 Warm and Cool Colours

Colour Category	Colours	Effects on Stress/Anxiety
Warm Colours	Red, Orange, Yellow	Energizing, Stimulating, Enhances Alertness
Cool Colours	Blue, Green, Purple	Calming, Serene, Tranquil

(Source: https:/verywellmind.com)

Understanding the psychological impact of colours is crucial for developing effective colour therapy interventions, particularly in contexts like higher education, where students face significant stress. By leveraging the therapeutic potential of warm and cool colours, educators and therapists can create tailored programs to enhance mental well-being and provide students with accessible tools for managing stress.

This introduction sets the stage for exploring how different colours, particularly warm and cool colours, can be used in colour therapy to alleviate stress among students. It provides a foundational understanding of colour theory and its psychological implications, which is essential for designing effective therapeutic interventions.

1.2 The Power in Art Therapy

According to Duel (2022) art therapy takes advantage of the basic human capacity for creativity and self-expression. It enables people to convey their ideas, feelings, and experiences in nonverbal ways, thus overcoming the constraints of traditional talk therapy. This is especially useful for teenagers and young adults who struggle to express their emotions or find it difficult to open up in a conversational situation.

Paintings of the Great Masters (Figure 2) often have a strong theory and understanding on colour. Figure 2 illustrates paintings from 3 great artists. Painted mostly in cool colours, Claude Monet's Water Lilies (1919) depicts a serene and tranquil scene of his French pond. Edvard Munch's The Scream (1893) proposes an age wrecked with stress and anxiety in his painting. Using mostly colours categorized in the warmer side, he exposed the rationale of his painting through stylized interpretation that leaves the audience in a state of stressful uneasiness. On the other hand, George Seurat's piece depicting the scene at La Grande Jatte Island (1884 – 86) portrayed a pleasant scene of relaxation in a park by the water. Through the use of both warm and cool colours, it efficiently depicts the warm sunny day and a cooler shaded area. Another example of clever use of warm and cool colour is the artwork of Thomas Wells Schaller entitled Chesney Bridge Northern Ireland painted in 2014 (Syed Ahmad, 2021).

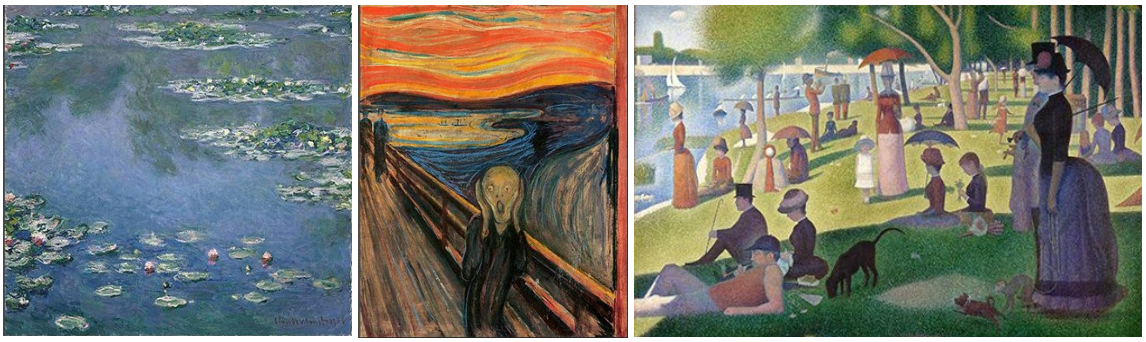

Figure 2: Warm and Cool Colours in Masters' Paintings
(Source: arttheory.com)

Engaging in art-making in a therapeutic setting can have numerous benefits. Art therapy provides a secure and non-judgmental environment in which individuals can explore and process their thoughts and emotions. It promotes self-reflection, assists in the development of coping abilities, and creates feelings of empowerment and self-esteem (Abdul Rahman, 2019). Furthermore, the process-oriented nature of art therapy allows participants to focus on the act of creation rather than the final product,

promoting mindfulness and relaxation (Kaimal et al., 2017). This mindfulness aspect is crucial for students facing academic pressures, as it provides a healthy self-coping mechanism for managing stress and improving overall well-being.

The incorporation of colour therapy into art therapy practices can significantly enhance stress relief outcomes. Colours are visual stimuli that evoke emotions, create connections, and leave a lasting impression on the audience (Abdul Wahab, 2024). Studies have shown that engaging in colouring activities, such as mandala colouring, can reduce cortisol levels (Duel, 2024). Cortisol is a type of steroid hormone produced by the body to manage stress. More cortisol is produced in higher stress levels. Reduction in cortisol production will improve mood states, indicating a decrease in stress and anxiety (Henderson & Milstein, 2003).

Studies have been made in assessing the impact of colour on stress levels and general wellbeing. Powel (2017) found out that different colours affect different learning types, in which kinaesthetic and visual style learners are more receptive to colours, compared to read/ write and auditory learners. Research by Eaton and Tieber (2018) discovered that in a controlled environment, the structure of a colouring activity effects the mood and anxiety of respondents. This was notably true for individuals who had the opportunity to choose their own colour, as compared to those who duplicated the colours of an existing image. The result proved how the ability to choose colours is as important as the colours chosen. Thus, by incorporating colour therapy into art therapy programs, educational institutions can offer students an alternative self-help and holistic approach to the mental health support system.

1.3 Benefits of Colour Therapy

Colour has an incredible psychological impact on people. Different colours can stimulate various emotional responses; for example; blue is normally associated with calm and serenity, red can boost energy, but can also cause discomfort if used excessively, while green is frequently associated with peace of mind and well-being.

In a final relevant study done in 2019 through non-probability convenience sampling on 50 individuals, researchers created anxiety by asking respondents to write about a previous stressful occurrence and then assessed their anxiety levels. The participants were then divided into three groups: one that coloured mandalas, one that coloured a plaid design, and one that drew freely on blank paper. Each group sketched for 20 minutes with just six coloured pencils. Significant stress reductions were observed in the colouring groups, according to the researchers' measurements of anxiety levels taken before and after the drawing exercises. They noticed that the free-drawing respondents seemed to take their time considering what to draw, and some seemed to find the open-ended nature of the drawing task difficult. However, mandala and plaid design colouring proved to be less stressful and more focused. This research supports the currently growing popularity of stress-relieving colouring books among adults (Ashdown, 2018).

Another study employing the Profile of Mood States (POMS) questionnaire was also carried out by Kwallek (2005). The study found that participants in bluish environments reported better mood states than those in reddish environments, suggesting that cool hues may help reduce tension (Kwallek, 2005). POMS is a widely used and validated psychological test developed by McNair (1971) whereby respondents' feelings are described in 65 words or sentences on the questionnaire. For every word or sentence on the test, respondents will describe how they have been feeling during the past seven days, including the day of the test taken.

It is obvious through the tests conducted by previous research that the findings lean more towards how much the warm and cool colours affect mood and stress levels of its respondents. In devising a self-help solution to reduce stress levels in higher education students, these results are taken into consideration.

1.4 Different Colours with Different Effects

According to a columnist from the Moffit Cancer Centre (2018), colours can produce different emotional reactions. Various colours can have distinct psychological, emotional, and bodily effects. Certain colours are energizing, while others are soothing. One can take benefit of their special advantages, including stress relief by applying to the right colours. Some of the common colours and effects are shown in Table 2 below.

Table 2 Common Colours and Effects (Source: Moffit Cancer Centre, 2018)

Colour	Effects On Wellbeing
Red	• Exciting and stimulating • Often associated with passion • Can be used to lift downed spirits
Pink	• Soft and tranquil • Inspire a sense of peace and balance
Orange	• Intense and stimulating • Colour that can make you • feel energized
Yellow	• Sunny and cheerful, • Improves mood and counteract stress
Green	• Quiet and restful, • A soothing colour that invites harmony and diffuse anxiety
Blue	• Peaceful and calming • Especially helpful for stress management because it can encourage a sense of calm
Purple	• Shades of purple represent strength, wisdom and peace • Invokes tranquil feeling that helps reduce stress
White	• Pure and fresh • Inspires mental clarity • (On the other hand, dull white can cloud your emotions).
Black	• Elegant colour that can represent power or submission depending on the circumstances • Should be used carefully. can encourage either extreme

2. AIMS OF RESEARCH

This study aims to determine which colours for illustration are most beneficial for stress reduction, providing insights into how these colours can be optimized for therapeutic use. In order to raise awareness of its therapeutic benefits among college students, this study focuses on the impacts of warm and cool colours in illustrations, mainly through class projects. It can be used as a self-help strategy to prevent more consequences related to mental health. Additionally, it can help designers and artists choose colours for graphics that deal with mental health.

3. METHODOLOGY

Employing a quantitative research design, this study comprehensively investigates the impact of warm and cool colours in illustration on stress levels among higher education students. This study utilizes a pre and post-test design, incorporating standardized stress assessment tools to measure changes in stress levels before and after a colour therapy intervention session.

The suitable assessment tool to measure stress and anxiety level in a teaching-and-learning setting is the Profile of Mood States (POMS). POMS is a widely used and validated psychological test developed by McNair (1971) whereby respondents' feelings are described in 65 words or sentences on the questionnaire. In the psychological area, the instrument was used to measure general stress on

patients (Dilorenzo et al., 1999), as well as the quality of life (e.g., Baker et al., 2002) and to evaluate the effects of interventions (e.g., Classen et al., 2001; Hosaka et al., 2001; Grulke et al., 2004). For every word or sentence, respondents will describe how they have been feeling during the past seven days, including the day of the test taken. The list was revised in 1986 (40 questions), but still relevant and concise. For this test, the revised version was used (40 questions).

The intervention for the test was conducted on 30 Diploma students from Semester 1, 30 Diploma students from semester 5 (Final year) and 30 Bachelor's Degree students from Semester 1. All respondents are from Graphic and Digital Media Department, College for Creative Arts, Universiti Teknologi MARA, Perak Branch. The reason for segregation of selected respondents are as follows:

1. The Bachelor's Degree students (*n=30*) were in their first year of Graphic Design. Most of the respondents are from various backgrounds through Malaysian Higher School Certificate (STPM) entry points. Their experience in graphic design, particularly colour theory is not as robust as the other group of respondents. This group will serve as the experimental group.
2. The Diploma students (*n=30*) were from the first semester of Graphic Design. Same as the previous group, these group of students are from various backgrounds through Malaysian Certificate of Education (SPM) entry points. They have minimal exposure on colour theory, only from what they have learnt in secondary schools. This group will serve as the control group.
3. The other group were also from Diploma level (*n=30*). However, they were in their final year. They have gone through 2 years of intense Graphic Design exposure and more adapted to graphic design basics, including colour theory and usage. This group of respondents serve as a comparative experimental group. With a grounded knowledge on colour theory and application, their responses are needed to explore how prior knowledge in colour theory influences the effectiveness of the colour therapy intervention.

To ease analysis and discussion, the groups of respondents were given names in abbreviation, as shown in Table 3. This is to assist in identification and handling of respondents.

Table 3 Categorization of Respondents

Group	Level	Role	Intervention	Test
A	1st year Bachelor's Degree	Experimental	Colour Therapy	POMS Pre & Post
B	1st year Diploma	Control	No Intervention	POMS Pre & Post
C	Final year Diploma	Comparative Experimental	Mindfulness-Based Colouring with Colour Theory Insights	POMS Pre & Post

The interventions are scheduled within the active academic calendar, from week 7 onwards. This is suggested considering the students already have tasks and assignments to do and the stress level is building up by this time. The POMS questionnaire was explained to the respondents before it was distributed in class. This was to ensure that the respondents understand the questions in the questionnaire as well as its purpose and how it relates to their academic experiences. The same questionnaire will gauge the respondents' responses for both the pre and post-test. Verbal consent were also obtained from the students beforehand.

The next step was the administration of the questionnaire. As aforementioned, the version of the questionnaire used is the 2nd revision of the POMS questionnaire. This was decided as it is feared that the students might feel distracted or actually stressed out in answering the existing 65 questions of POMS version 1. The deployment of the questionnaire was done during their respective class sessions, and it was completed individually. Upon completion, the responses were then collected and analysed by the researcher as presented in Table 4 below.

Table 4 Steps in Data Collection for POMS Questionnaire Pre and Post-test

Step	Description	Responsibility
1. Preparation	Ensure understanding of purpose and procedure. Obtain informed consent.	Researcher
2. Administration of POMS	Use revised POMS questionnaire (40 questions). Rate feelings over the past week on a five-point scale. Complete independently.	Participants
3. Data Collection	Collect completed questionnaires.	Researcher
4. Data Analysis	Calculate scores for six mood subscales. Compute Total Mood Disturbance (TMD) score.	Researcher

The intervention suggested for this test were done separately according to the stipulated groups (experimental, control and comparative experimental). After the POMS questionnaire were filled out for the pre-test, respondents were each given a colour sheet for them to colour. Group A respondents were given a slightly complex Mandala-style line-drawing like the one in Figure 3 below. They were asked to use a combination of warm (e.g., yellow) and cool colours (e.g., blue) to address both energy and relaxation needs.

Group B respondents from the control group were given a simpler version of colouring sheet to work on, and focus on blue, green and purple to promote relaxation and reduce anxiety. This may help manage initial academic stress (Eaton, 2018). However, respondents from Group C are free to choose their own direction, whether to choose any colouring sheet they can find or create their own line drawings to work on, due to the existing knowledge on colour they had experienced throughout their Diploma years.

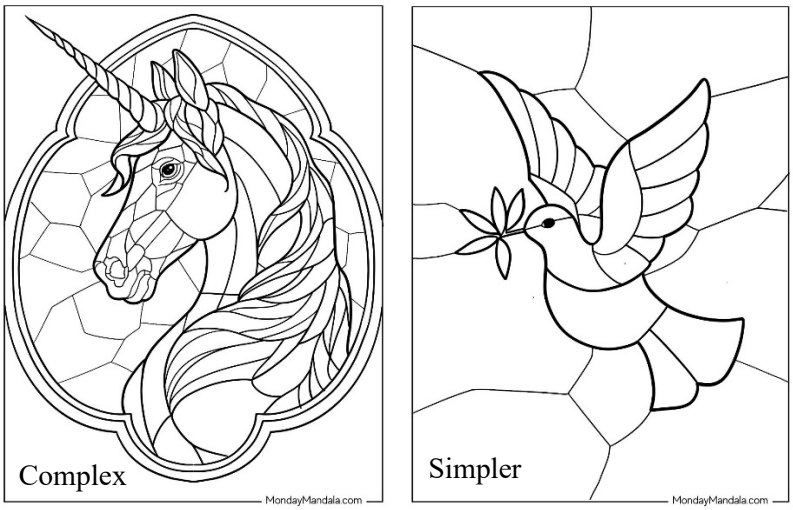

Figure 3: Sample of Mandala-style Line-drawing
(source: mondaymandala.com)

To complete the process, after the colouring session has finished, the POMS questionnaire was once again deployed for post-test purposes. Respondents were again asked to answer the same questions as the pre-test, but the answers should reflect how they feel after the intervention, which was the colouring session. As before, the questionnaire was answered individually and the data were collected and analysed by the researcher.

4. ANALYSIS AND DISCUSSION

This study applied instrument created by McNair (1971) which is the Profile of Mood States (POMS). The list was later revised and reduced to 40 questions in 1986. As aforementioned, this test applied the revised version of the POMS questionnaire which consisted of 40 words/ sentences as variables. From the questionnaire, respondents have answered questions regarding how they felt before and after the intervention session. Each questions have a scale of extremes, from 0 (not at all affected)

to 4 (extremely affected). 6 variables were measured which are Tension, Anger, Fatigue, Depression, Confusion and Vigour. The formula below was used to obtain value for Total Mood Disturbance (TMD).

$$TMD = (Tension + Anger + Fatigue + Depression + Confusion) – Vigour$$

The TMD value for all the groups were later analysed for both before (pre-test) and after (post-test) the intervention. The data was analysed through frequency analysis. Frequency analysis focuses on counting how often each answer appears in your data set. It is a common approach for analysing responses to closed-ended questions in surveys or questionnaires (Turney, 2023).

4.1 Pre-test

Dataset from the groups were retrieved, tabulated and synthesized. The key findings from the Pre-Test indicates a high Total Mood Disturbance (TMD) score (McNair, 1971). The average TMD score across all respondents is 62.5 (Group A: 60.6, Group B: 63.3 and Group C: 63.7) indicating significant mood disturbances. This is expected in a population experiencing stress before engaging in the Art Theory Intervention.

Among the 6 variables, Tension and Fatigue recorded the highest average scores, suggesting that the respondents were experiencing physical and emotional stress. Vigour, which represents positive mood and energy, showed consistently low values, further contributing to the high TMD scores. Also noticeable were a combination of high Confusion, Depression and Anger levels reflect a heightened emotional strain among the group. The pre-test data demonstrates a population under noticeable stress and emotional disturbance, evidenced by the elevated TMD values. The pattern of scores aligns with the hypothesis that respondents entering the Art Theory Intervention are likely experiencing elevated stress levels.

4.2 Post-test

The scheduled intervention as aforementioned were performed on the groups. After the intervention sessions were completed, the POMS questionnaire was again distributed. Dataset from the groups were again obtained. The key findings from the Post-Test indicated the average TMD score dropped from 62.5 (pre-test) to 18.6 (post-test), reflecting a noticeable improvement in mood states across the respondents.

There were consistent reductions in Tension, Anger, Fatigue, Depression, and Confusion scores compared to the pre-test earlier. Moreover, vigour scores increased significantly, indicating enhanced energy and positivity after the intervention. Hence, by comparing the scores for Pre-test and Post-test of the intervention session, it is discovered that the Colour Theory Intervention had reduced emotional strain and boosted the respondents' overall mood states. The results are visualized in Figure 4 below.

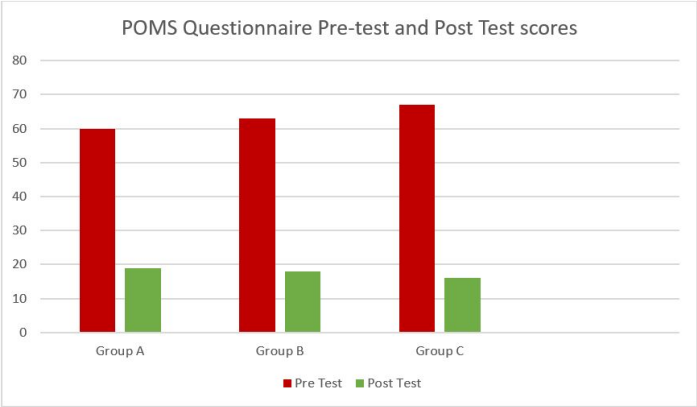

Figure 4: POMS Questionnaire Pre-test and Post-test scores

4. Discussion

From the analysis, it was discovered that the drop in average stress scores from 62.5 (pre-intervention) to 18.6 (post-intervention) following a colour theory-based stress relief intervention suggests a significant positive impact. The Colour-in –Context theory (Elliot & Maier, 2017) suggests that colours evoke specific emotional and physiological responses. In this context, the intervention likely utilized calming hues like blues, greens, and soft pastels, known to reduce anxiety and promote relaxation.

An interesting finding to note was how Group C's prior knowledge of colour and illustration, obtained from previous semesters, might influence their response to a colour theory-based stress relief intervention. Group C, possessing a foundational understanding of colour principles and illustrative techniques, likely approached the intervention with a heightened level of awareness. Respondents wouldn't just passively experience the colours; they'd actively analyse and interpret them through their learned framework. This prior knowledge leads to the following:

- Enhanced Understanding: The ability to recognize specific colour palettes and their intended emotional impact more readily. Able to grasp the connection between hues and psychological responses more deeply.
- Active Engagement: Respondents might engage in more conscious colour visualization, drawing upon their knowledge of colour mixing and layering to create mental images.
- Personalized Application: The respondents were capable of tailoring the intervention to their individual needs, utilizing specific colour combinations or illustrative techniques that they've found particularly effective in the past.
- Faster Results: Due to their previous knowledge, respondents may be able to utilize the colour therapy much quicker, and therefore show more drastic results.

The intervention involved activities like colour visualization, exposure to colour-rich environments, and creating art using calming palettes. Psychologically, colours are able to shift focus away from stress variables, fostering a more positive and peaceful mind set. According to Duel (2024), physiologically, colours can lower heart rate and blood pressure, creating a sense of tranquillity and a more relaxed mental state (Duel, 2024).

The substantial decrease in stress scores indicates the effectiveness of these techniques in the specific groups. The students, likely experiencing academic pressure, found relief through the colour-focused intervention. The clarity and simplicity of colour theory might have made the intervention easily accessible and applicable, contributing to its success. The results suggest that colour-based stress relief can be a powerful tool for managing student stress, offering a simple yet effective way to promote well-being.

5. CONCLUSION

This study utilized the Profile of Mood States (POMS) questionnaire to assess the impact of a colour theory-based stress relief intervention on mood states. The results showed a significant reduction in Total Mood Disturbance (TMD) scores from pre-test to post-test, indicating a substantial improvement in mood states among participants. The intervention effectively decreased stress-related variables such as Tension, Anger, Fatigue, Depression, and Confusion, while increasing Vigour, which represents positive mood and energy. These findings support the effectiveness of colour-based interventions in reducing emotional strain and enhancing overall mood states.

The study also highlighted the potential benefits of prior knowledge in colour theory and illustration, as participants with such background demonstrated enhanced understanding, active engagement, and personalized application of the intervention. This suggests that tailored interventions can yield more pronounced results when participants have a foundational understanding of the underlying principles.

Findings from this research will be used to further study the impact of colours for psychology. For instance, longitudinal studies can be conducted to assess the sustainability of the positive effects observed post-intervention. This would help determine whether the benefits of colour-based stress relief interventions persist over time. Cross-cultural studies can also be carried out in order to validate the effectiveness of colour-based interventions across different populations. This would help ensure that the interventions are universally applicable and effective. Finally, other studies could explore the potential of integrating colour theory-based interventions with other stress management techniques, such as mindfulness or cognitive-behavioural therapy, to enhance their effectiveness.

By pursuing these recommendations, future research can further refine and expand the use of colour theory in stress management, potentially leading to more effective and accessible interventions for managing stress and promoting well-being.

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AUTHOR CONTRIBUTIONS

All of the authors play an active role and contributed to the body of research in completing this study.

REFERENCES

Abdul Rahman, N. A. (2019). Irrational Re-Interpretation through Series of Emotional Portraiture Inspired by Works of Christina Otero and Clara Lieu. *Idealogy Journal of Arts and Social Science*, 3-10.

Abdul Wahab, N. C. (2024). Unveiling Design Gaps: An Examination of Eid Envelope Design Elements in Malaysian Banks. *Idealogy Journal Vol.9, No.2.*, 147-155.

Ashdown, B. B. (2018). HOW DOES COLOURING INFLUENCE MOOD, STRESS, AND MINDFULNESS? *Journal of Integrated Social Sciences*, 1-21.

Ashlock, L. M.-P.-M. (2019). The Effectiveness of Structured Colouring Activities for Anxiety Reduction. *Art Therapy*, 195-201.

Duel, D. (NA January, 2024). *Blume Behavioural Health.* Retrieved from Art Therapy for Teens: https://blumebh.com/therapy/art/

Eaton, J. T. (2018). The effects of colouring on anxiety, mood, and perseverance. . *Art Therapy, 34(1)*, 42-46.

Houston, E. (NA NA, 2019). *What is Mindful Colouring*. Retrieved from Positice Psychology: https://positivepsychology.com/mindfulness-colouring-art/

Jonauskaite, D. A.-G. (2019). What colour do feel? *Colour Research & Application, 44(2)*, 272-284.

Powel, A. A. (2017). Effect of colouring on students' stress levels. *American Journal of Recreation Therapy*, 9-16.

Riyadi, M., & Budiyani, K. (2023). Art Therapy Drawing Method for College Students with Academic Stress. *Future Psychology Interaction of Human Behaviour, Culture and Technology*, 1-8.

Syed Ahmad, S. O. (2021). Rumah Kutai Perak in Watercolour Painting. *Idealogy Journal, vol.6, No. 2*, 67-77.

Turney, S. (21 June, 2023). *Frequency Distribution | Tables, Types & Examples.* Retrieved from Scribbr: https://www.scribbr.com/statistics/frequency-distributions/