

## Effectiveness Psychological program based of Color's to Reducing Psychological Pressures for Women Worker's in Gaza Strip

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### Abstract

*This study investigates the effectiveness of a structured psychological intervention based on color therapy techniques in reducing psychological stress among working women in the Gaza Strip. The research addresses a critical gap in applied mental health interventions within conflict-affected and resource-constrained environments, where working women are exposed to compounded occupational, social, and economic stressors.*

*A quasi-experimental design was employed using a single-group pre–post assessment. The study sample consisted of working women aged 25–35 years employed at a women's health center in Gaza. A structured psychological stress scale, adapted from prior validated instruments, was administered before and after the intervention. The therapeutic program comprised eleven sessions integrating color exposure, guided imagery, relaxation exercises, emotional ventilation, and cognitive self-talk techniques.*

*The findings indicate a statistically and practically significant reduction in overall psychological stress levels following participation in the program. Improvements were observed across multiple stress dimensions, including emotional, social, occupational, and physiological domains. Qualitative evidence from participant narratives further supports the effectiveness of the intervention, highlighting enhanced emotional regulation, increased self-awareness, improved interpersonal communication, and a strengthened sense of psychological balance.*

*The study contributes to the literature by proposing an integrative, low-cost, and culturally adaptable therapeutic model that combines sensory-based interventions with established psychological techniques. It underscores the potential of color-based therapy as a complementary approach in mental health practice, particularly in contexts characterized by chronic stress and limited access to formal psychological services.*

**Keywords:** color therapy, psychological stress, working women, Gaza Strip, intervention program, mental health

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## Introduction

The evoluti the growing presence of psychological stress in modern studies, especially in populations experiencing increased levels of social, work-related, and environmental pressures, is a topic that is gaining much attention. Stress can be defined as the dynamic relationship between an individual's perception of demands from their environment and the amount of resources they have available to cope with these demands. As Cohen (1988) and Schuler (1980), define stress as a multi-faceted concept that has significant impacts on both one's mental health and ability to function. However, while stress is a common experience throughout humanity, there are vast differences in how people experience it based upon different situations. For example, people who live in areas that are in constant state of war and instability are at a greater risk of being negatively impacted by stress than those who do not reside in similar environments.

The experience of women who are employed, however, can be viewed within an even larger context. Women's job-related experiences result from both their work related stressors as well as the social expectations and family responsibilities that they face which results in the often-referenced "role strain" or "role overload." The double burden experienced by many working women is heightened for women in socio-economically challenged areas such as the Gaza strip. The political violence, uncertain economy and lack of social support resources create a constant state of psychological pressure on women (Badri et al. 2012; Hijazi et al. 2014) and women in these locations may experience multiple types of stressors simultaneously, including financial instability, caregiving responsibilities, job-specific pressures and broad based societal limitations.

The impact of long-term psychological stress is known for its far-reaching consequences. The body of research on this subject has been consistent in reporting negative outcomes in terms of anxiety, depression, reduced cognition and quality of life. Stress does not affect an individual's well being alone. It affects how individuals interact with others socially and professionally. Therefore, it is reasonable to say that the collective effect

of stress extends into all aspects of society (Richmond, 2013; Lazarus, 2005).

Stress may also impede a person's ability to use effective coping mechanisms when they are exposed to prolonged periods of conflict. This could potentially increase an individual's risk of experiencing a psychological disorder or reduce his/her resilience over time. Historically, most stress reduction techniques were primarily based on behavioral therapy, medication and educational programs. Behavioral therapy has proven successful in helping people manage stress and other emotional issues. However, the success rate of traditional methods may be influenced by factors such as lack of educated professional staff in areas where funding is limited, stigmatization of seeking mental help in many cultures, high costs of therapy sessions and so forth.

Color therapy is an example of this type of approach. It assumes that colors have a direct effect on human perception, emotion and behavior. Color has been studied by many disciplines including environmental psychology, neuroscience and design studies. Research indicates that color can elicit specific emotions in people, as well as modulate physiological processes such as heart rate, levels of attention (Palmer & Schloss, 2010; lee et al., 2011). For example, warm colors such as red and orange are commonly associated with high levels of stimulation and emotional response, while cool colors like blue and green are associated with relaxation, calmness, crystal clear thinking.

From a theoretical perspective, using color in therapeutic contexts supports person centered models and coping based models of stress which both emphasize how the process of perceiving events, appraising them and regulating their emotional impact will determine how one manages stressful experiences (Lazarus, 2005). When used together with structured psychological techniques such as guided imagery, relaxation exercises, expressing emotions positive self-talk may enhance an individual's ability to process emotional experiences and develop adaptive coping strategies. This integrative approach also provides a low cost, non-invasive way to promote psychosocial well-being in situations where other traditional methods of therapy are not accessible.

Although the above mentioned theoretical and empirical bases represent exciting beginnings, the use of color therapy as part of a structured psychological intervention has remained relatively unexamined as part of the larger body of academic literature. Research has largely centered on specific elements of color perception and/or the aesthetic and environmental effects of color; therefore, while some attention has been paid to how colors may be used in conjunction with other therapeutic strategies, very little research has explored their incorporation into broader psychotherapeutic treatment plans. Additionally, no previous research has assessed the utility of using color-based therapies in order to reduce psychological distress in working women who live in areas experiencing conflict. This is particularly problematic since conflict-affected regions require innovative and culturally appropriate forms of mental health services which can be delivered with minimal resource.

Given the previously described gaps in knowledge and practice, the purpose of the current investigation was to assess whether the delivery of a structured psychological intervention which utilized color therapy would result in reduced levels of psychological stress (including emotional, social, occupational, physical, and financial) in working women living in the Gaza Strip. The quasi-experimental nature of this investigation involved both pre- and post-intervention measures assessing participants' levels of stress. Additional information related to participants' experiences with the intervention were collected through open-ended responses and included in the results section to enhance the researchers' ability to understand fully how each aspect of the intervention impacted participants.

This investigation provides contributions to both theory and practice. As a theoretical contribution, the findings extend current theories and models of managing stress by incorporating color-based interventions as another form of sensory experience that may be used when managing stress. As a practical contribution, this investigation presents an easily accessible and culturally relevant intervention strategy that may be provided in less than ideal community or institutional settings. This investigation also builds upon previous research which examined gendered differences in experiences with stress and develops additional targeted interventions for working women who live in conflict-affected contexts.

Overall, this investigation bridges the gap between theoretical ideas regarding color psychology and applied uses of color therapy as a means for decreasing stress and improving overall psychological functioning in highly stressful environments.

## Literature Review

### *1. Psychological Stress: Conceptualization and Theoretical Foundations*

Psychological Stress is understood within many frameworks as a multi-dimensional & dynamic relationship between the individual & their environment where perceived demands of the environment are beyond what an individual has for coping with these demands (Cohen, 1988). The Transactional Model proposed by Richard S. Lazarus (2005), outlines the primary mechanisms through which cognitive appraisal and coping strategies determine the effects of stress. This model views stress not as a property of the event itself, but as an outcome of the interpretation and response of the individual to external stimuli.

This model can be supplemented by Organizational models that also define stress as a result of a discrepancy between job demand and individual capacity leading to strain on both psychological and physiological levels (Schuler, 1980). These Organizational models have identified specific structures and contexts contributing to stress, such as high workload intensity, ambiguous roles and lack of autonomy. Research studies support the findings from these models showing long term exposure to work related stressors will produce burn out, loss of productivity, and deteriorate the overall mental and physical health (Al-Jubour, 2017; Ghania et al. 2014).

The research also describes how stressful events can be experienced across multiple dimensions: emotionally (e.g., feeling anxious or irritable), physiologically (e.g., experiencing physical symptoms like tiredness or headaches), socially (e.g., strained social connections, lessened perceived social support) and occupationally (e.g., job-related demands, lack of autonomy within a workplace context) (Zahran, 2005; Richmond, 2013; Al-Toum, 2011; Al-Saket, 2014).

### *2. Psychological Stress among Working Women*

Stress among working women is an area of research interest because it is unique in terms of both type and degree. Due to societal expectations for their roles at

home and in their careers, they experience greater than average amounts of multi-factorial and additive stress as professionals. A significant body of literature discusses "role conflict" and its relationship to work/family conflicts. Role conflict is defined as the conflict or contradiction between one's work life and family life. Most often, when we discuss role conflict, we focus on women who have full-time jobs and also take care of families. As such, studies consistently show that these women experience higher levels of mental health related problems including increased psychological strain and reduced quality of life (Blan, 2012; Al-Rudayyan, 2005) compared to men.

Role Conflict is further complicated by the fact that many working women live in areas where there are additional structural barriers to meeting their responsibilities, i.e. war, poverty etc. This adds to the complexity of the role conflict that may be experienced by working women. For example, studies done in countries experiencing similar social, cultural and economic challenges show how the multiple stresses associated with financial insecurity, lack of institutional support, and responsibility for others contribute to compounding stress (Badri et al., 2012).

The Palestinian context is particularly relevant in this discussion, as women living in Palestine face chronic political instability and conflict. These conditions lead to increased levels of perceived stress, leading to physical and psychological effects such as burnout and chronic emotional distress (Al-Aswad, 2015; Al-Shaer, 2003).

A body of empirical research has established a consistent relationship between higher-than-average stress for employed women, and poorer job performance, poor interpersonal relations, and greater likelihood of experiencing anxiety/depression (Richmond, 2013). Long-term high-stress conditions that do not provide an adequate means of coping can produce unhealthy habits, lower resiliency, and lowered overall quality of life (Sabouh, 2016; Smour, 2015).

### ***3. Coping Mechanisms and Stress Management Approaches***

The primary way that people handle stress has a significant impact on how much of an influence stress will have on the psychological health of those individuals. Researchers can be divided into two categories when it comes to coping with stressors. Problem focused coping is when individuals attempt to either reduce or eliminate the cause of the stress.

Emotionally focused coping is where the individual focuses on managing their own emotional response to the stressor (Lazarus, 2005). There are several research studies that demonstrate the importance of effective coping as being directly related to better mental health. On the other hand, ineffective coping methods like avoidance and denial are associated with higher levels of stress and poor mental health results (Abdel-Mawla, 2013; Al-Hawas, 2016).

Stress management typically includes traditional stress management interventions, including cognitive behavioral therapy. Additionally, many programs also include some type of relaxation technique and/or educational component. Cognitive Behavioral Therapy is designed to help individuals identify and manage negative thoughts. Relaxation techniques provide ways for individuals to relax and therefore manage feelings of anxiety. Educational components of these programs are meant to teach individuals new skills to help them cope with stress and improve their ability to function psychologically. In addition, there is a large body of evidence demonstrating the effectiveness of these types of interventions in reducing stress and improving the psychological functioning of participants (Al-Shayeb, 2017).

A result of this is a growth in interest for other ways to help that can be used by people with less access or that are easier to fit into a different culture. Mindfulness-approaches, expressive therapies and sensory approaches have the potential to engage many psychological and physiological processes and therefore are especially suited to use in community settings. In such settings, issues of accessibility, cost and appropriateness are also important to consider (Al-Madhoun, 2009; Shweikh, 2007).

### ***4. Color Psychology and Its Therapeutic Implications***

The growing field of Color Psychology is one of the newest areas of study examining how the use of color affects humans' perceptions of the world around us, our emotions, and ultimately, our behaviors. Color Psychology Theory proposes that different colors will elicit distinct emotional and cognitive reactions from people. Therefore, using color could be a powerful tool for psychologists in developing effective interventions.

The Ecological Valence Theory was developed by Palmer and Schloss. According to this theory, people's

personal preferences for certain colors arise from their individual associations of those colors with objects and/or places they encounter (Schloss & Palmer, 2010). From this view point, we see that the way people perceive color is very subjective and based on their own unique life experiences.

Research also indicates that the way a person feels emotionally about something can actually effect which color(s) they prefer, and conversely, the color(s) a person prefers can effect how they feel emotionally about something (Lee et al., 2011). Research conducted in the area of Environmental Psychology and Applied Psychology has demonstrated that color can be used to affect a person's level of arousal, their ability to pay attention, and even the degree to which they experience emotions. For example, colors typically perceived as "warm" are thought to increase a person's arousal levels while colors perceived as "cool" are often seen as relaxing (Abdel-Wahab, 2005; Al-Tarawreh, 2015).

Physiologically speaking, researchers have determined that when a person is exposed to various colors there are measurable effects on his or her body's autonomic nervous system such as changes in heart rate and brain wave patterns. These findings support the idea that color may play a significant role in regulating a person's stress levels (Al-Dasouqi, 2005; Al-Duwaihi, 2005). Finally, research has indicated that culturally relevant symbols and meanings attributed to color are important factors contributing to the psychological impact of color. In fact, this is especially true when colors are part of everyday social and religious activities (Hamdan, 2002).

### **5. Color-Based Interventions in Psychological Practice**

The study of color as a tool within structured psychological interventions has historically been underutilized. Most of the existing literature has centered around the aesthetic and/or perceptual applications of color, and there is limited research regarding how color can be integrated into therapeutic programming. The developing body of literature however supports the notion that incorporating color-based stimulation along with traditional psychological methods will potentially improve treatment outcomes.

Studies examining the use of color-based stimuli combined with relaxation activities, guided imagery, emotional expression, and positive self-talk have shown promise in terms of providing stress reduction and

improved emotional regulation (Abdel-Mawla, 2011; Riyadh, 2017). Studies utilizing these types of interventions capitalize on the sensory and symbolic components of color to provide an experiential modality of engaging cognitive, emotional and physiological processes at one time.

In addition, interventions based on color also present several practical benefits such as being low-cost, non-invasive and easily adaptable across cultures. Therefore, they are well-suited for use in community-based and resource-constrained environments where individuals typically experience barriers to accessing conventional mental health services (Arabasi, 2010; Helo, 2017).

### **6. Research Gap and Study Contribution**

There are three major shortcomings in the available research. First, there are few empirical studies that examine whether color-based stress-reducing interventions reduce stress (i.e., are effective). Second, little is known about how working women in areas like the Gaza Strip experience these types of stress-reducing programs. Finally, too many studies lack an integrated approach to evaluating the success of stress-reducing programs using both qualitative and quantitative methods. In this way, researchers do not have a full picture of what works well, and what does not.

This study fills all of those gaps through its evaluation of a color-based psychological program created exclusively for working women living in a war zone setting. Because it uses a quasi-experimental design and integrates both qualitative and quantitative data in order to assess the success of the program, it is one of the most complete assessments conducted on this type of program to date.

### **Methodology**

#### **1. Research Design**

The researcher used a quasi-experimental (one-group pre-test/post-test) design to assess the effectiveness of this structured psychological intervention using the principles of Color Therapy as an effective method to reduce psychological stress in female workers. Due to time limitations, it was difficult to randomly assign participants into groups; however, the use of the one group design provided a valid approach to determine if there were changes in participant's psychological stress levels as a result of the intervention.

This one group design consisted of assessing each participant's psychological stress level at baseline (pre-intervention), providing them with the Color Therapy Program, then assessing their psychological stress level post-therapy. The use of the one group design enabled the researcher to identify changes in the participant's psychological stress level as a direct result of receiving the Color Therapy Program and provide a statistical basis for determining the effectiveness of the Color Therapy Program.

## **2. Study Setting and Participants**

The intervention was conducted at a Women's Health Center in the Gaza Strip, an 'imported' context which may be further influenced by socio-economic and occupational causes. The target population consisted of working women in employment at the center, thus affected by various forms of potential psychological stress arising from the demands of life and work.

Purposive sampling was used to select respondents who: (a) were female employees at the center; (b) were between 25 and 35 years of age; (c) agreed to participate for the entire duration of the intervention; and (d) had some measure of psychological stress according to assessment.

## **3. Intervention Program**

A structured psychological program for colour therapy, created by the researcher, was utilized as the basis for the intervention. This program integrated cognitive/behavioral strategies with sensory stimulation to improve emotional control and diminish stress levels. The program was composed of 11 sessions that occurred in groups; each session lasted approximately 60-90 minutes. All sessions were implemented during the intervention time frame at the facility. Each session involved discussion of an individual color (visible spectrum) and exploration of its related emotional and psychological characteristics including emotional expression, creativity, self-confidence, social interaction, communication, insight, and spiritual balance.

A variety of therapeutic strategies were employed throughout the intervention, these included guided imagery, relaxation/breathing exercises, emotional expression via drawing, use of positive self-talk, and structured group discussions. These multiple modalities provided an opportunity to engage participants

cognitively, emotionally, and physically allowing for a complete therapeutic experience.

## **4. Instrumentation**

A psychological stress scale, developed by Fayad (2017) and used in other studies, was used to collect data. It is an instrument that can be used to measure different aspects of psychological stress such as Physiological, Emotional, Social, Occupational, and Economic.

It includes 62 statements about different types of stress. They are scored on a Likert Scale. For each item participants select how well they believe the item describes what happens to them. The range of responses available to participants ranged from "Always Applies" through "Never Applies".

## **5. Validity and Reliability**

The scientific adequacy (validity) of the assessment instruments and the intervention program was determined by an expert review panel consisting of experts in both Psychology and Mental Health. This group reviewed the clarity, relevance, and cultural appropriateness of each item from the scales, as well as the content of the program components. Their recommendations resulted in some modifications that further increased the scientific adequacy (rigor), as well as the cultural context applicability (suitability) of each of these instruments.

Reliability is also supported by the internal consistency of this measure. As reported in the first study that developed this instrument, it had a high enough level of reliability (as indicated by appropriate coefficient levels) that it could be used to consistently assess psychological stress with respect to the identified domains.

## **6. Data Collection Procedures**

Stage 1: Data was collected on each participant's psychological stress level at the beginning of this study with the use of the Psychological Stress Scale (PSS) to serve as the baseline for later comparisons.

Stage 2: Participants then went through the Color-Based Therapeutic Program. Each participant had sessions facilitated by me, the researcher, in an open, yet structured and supportively designed space to allow for the maximum amount of participant involvement and participation in the prescribed treatment.

Stage 3: After completion of the program, each participant again completed the PSS. The results of the post-test allowed for an evaluation of whether or not there had been an overall reduction in their psychological stress levels. Additionally, to obtaining quantitative data from the post test, I also gathered some qualitative insight into the effectiveness of my interventions via participant feedback during the sessions; observation of the sessions; and written reflection by the participants about their experiences in the program.

**7. Data Analysis**

Quantitative data were derived from the analysis of data interpretations generated through the aforementioned statistical tests, including comparing pretest-posttest score differences and examining participants and stress levels at a global level. Appropriate statistical tests were utilized to check for significant differences detected between pre and posttest scores.

Qualitative data were explored through thematic analysis. This approach allowed statistical examination and illustration to be complemented by participants’ reflections for greater insight and interpretation.

**8. Ethical Considerations**

**1. Participant Characteristics**

The study sample consisted of working women employed at a Women’s Health Center in the Gaza Strip. All participants fell within the targeted age range of 25 to 35 years and shared relatively similar occupational conditions, which supports the internal consistency of the sample.

**Table 1. Demographic Characteristics of Participants**

Variable	Category	Frequency (n)	Percentage (%)
Age	25–30 years	6	60.0%
	31–35 years	4	40.0%
Marital Status	Married	7	70.0%
	Single	3	30.0%
Work Experience	< 5 years	3	30.0%
	≥ 5 years	7	70.0%

**2. Pretest–Posttest Comparison of Psychological Stress**

The Study was conducted according to the usual ethical norms that apply to studies which involve humans as subjects. Prior to participating in the study, all participants had been completely informed as to the reason for conducting this study; what they would be asked to do during participation in this study; and their rights (including their right to withdraw from participation at any time). A written agreement was signed by each participant, indicating their voluntary agreement to participate.

Throughout the course of this study, confidentiality and anonymity of the participants were observed. Any information collected through this study will only be utilized for academic purposes. An institutional review board approved this study, as required by law.

**Results**

This area reports the findings of this study as it relates to the purpose of the research (to investigate the efficacy of an evidenced based, color-based psychologically grounded intervention in decreasing work related stress on working women) Quantitative data is first presented using the Pretest – Posttest comparison method, followed by Qualitative Data that supports the Quantitative findings, and provide context for the Statistical results.

To assess the effectiveness of the intervention, participants’ psychological stress levels were measured before and after the implementation of the color-based program. The results indicate a clear reduction in stress levels across all measured domains.

**Table 2. Pretest and Posttest Mean Scores of Psychological Stress**

Stress Domain	Pretest Mean	Posttest Mean	Mean Difference	Direction of Change
Physiological	3.82	2.41	-1.41	Decrease
Emotional	4.05	2.36	-1.69	Decrease
Social	3.74	2.28	-1.46	Decrease
Occupational	3.91	2.47	-1.44	Decrease
Economic	4.12	2.95	-1.17	Decrease
Total Score	<b>3.93</b>	<b>2.49</b>	<b>-1.44</b>	<b>Decrease</b>

The findings demonstrate a substantial decrease in mean scores across all domains, indicating that participants experienced lower levels of psychological stress following the intervention.

### 3. Statistical Significance of Differences

To determine whether the observed differences between pretest and posttest scores were statistically significant, paired-sample t-tests were conducted.

**Table 3. Paired Sample t-Test Results**

Variable	t-value	p-value	Significance Level
Physiological	5.12	<0.001	Significant
Emotional	6.03	<0.001	Significant
Social	4.87	<0.001	Significant
Occupational	5.26	<0.001	Significant
Economic	3.94	<0.01	Significant
Total Score	<b>6.45</b>	<b>&lt;0.001</b>	<b>Significant</b>

The results indicate that all differences between pretest and posttest scores are statistically significant, confirming the effectiveness of the intervention in reducing psychological stress across all domains.

### 4. Qualitative Findings

Qualitative data were collected through participant feedback, observational notes, and reflective accounts documented during the intervention sessions. Thematic analysis revealed several recurring patterns that support the quantitative findings.

#### 4.1 Emotional Regulation and Relief

Participants reported noticeable improvements in emotional stability and a reduction in feelings of anxiety, tension, and irritability. Many described a sense of internal calmness and psychological relief, particularly following relaxation and breathing exercises associated with specific colors.

#### **4.2 Increased Self-Awareness and Insight**

The intervention facilitated deeper self-reflection among participants. Through guided imagery and expressive activities such as drawing, participants became more aware of their internal emotional states and stress triggers. This increased awareness contributed to improved coping strategies.

#### **4.3 Improvement in Social Interaction**

Participants indicated enhanced communication skills and improved relationships with colleagues and family members. Activities focusing on interpersonal expression and group dialogue helped participants develop greater confidence in social interactions.

#### **4.4 Positive Behavioral Changes**

Several participants developed relaxing habits using such strategies as relaxation exercises, color-based interventions in everyday life, and positive self-talk, and maintained lower stress levels on their own outside of the intervention.

Results showed strong empirical support for the color-based psychological intervention. Quantitative analyses show statistically significant reductions in psychological stress across the board, and rich qualitative materials reveal the targets of these improvements.

Combining quantitative and qualitative results strengthens the findings as a whole, and helps illustrate the multi-dimensional nature of the participants' psychological experience during the intervention.

### **Discussion**

Beginning with the previous research and theories on interventions that were used to reduce psychological stress for working women; this study evaluated whether the use of an organized color-based psychotherapy approach would be effective as a tool to decrease psychological stress for women who work in the United States, while under extreme socio-economic pressure. In conclusion, the results from the study show a statistical difference in the amount of stress experienced by participants before receiving the intervention compared to after they received it. Additionally, through the results from the qualitative analysis, there was also a positive relationship between the intervention and the development of self-awareness and better emotional regulation skills as well as improved communication and

interpersonal skills and finally better adaptive coping strategies.

#### **1. Interpretation of Findings in Light of Psychological Stress Theories**

These observations show a decrease in participant's reported stress, as would be expected by the Transactional Model of Stress, developed by Richard S. Lazarus, which views the experience of stress as an ongoing interaction between an individual's environment and his or her cognitive evaluation of that environment. Participants' use of primary and secondary appraisal increased through this program; therefore, they were better able to appraise their stressful situations differently, thereby using a variety of effective methods to cope with them. These results fit within what Lazarus stated in Lazarus (2005) when he discussed how the process of cognitive and affective regulatory functions are critical for experiencing less stress.

Improvements in participants' emotional and physical manifestations of stress were further supported by Psychophysiological Models of Stress, which indicate that the most effective programs will include cognitive restructuring components combined with physiologic regulation elements. It is very possible that the combination of relaxation techniques and guided imagery resulted in decreased autonomic arousal in our study participants, as shown in Cohen (1988); and Richmond (2013) demonstrated that programs utilizing integrated cognitive-physiological methods are more effective than those programs using either method separately.

Lastly, these results are supported by research at the local level. Research has indicated that providing individuals who live under extreme stress with structured psychological interventions can significantly help individuals manage stress and improve their ability to adapt to such pressures. Examples of similar research include Abdel-Mawla (2013); Abdel-Mawla used counseling-based programs to demonstrate significant improvement in emotional regulation and reductions in stress in Arab populations. Additionally, Dhamra demonstrated that the addition of Expressive Therapies in conjunction with Cognitive-Behavioral Techniques improved participants' ability to cope with adversity and enhance their overall resilience.

#### **2. The Role of Color in Psychological Regulation**

The results clearly show how color functions as a dynamic element in regulating mental experience. The study demonstrates how controlled exposure to color stimuli may also lead to both increased emotional expression and increased cognitive engagement and modulated sensory input. These results were found to be consistent with Palmer's Ecological Valence Theory. Palmer suggested that emotional responses to color are formed through associative learning (Palmer & Schloss, 2010).

The participants' qualitative data showed that each participant had a different response to a particular color based upon their individual emotional state at the time of assessment. Participants reported being calmed or made confident when they were exposed to certain colors. Additionally, participants stated that certain colors provided them with greater clarity of thought and understanding of themselves. Such findings are in line with previous research indicating that color has the ability to effect an individual's emotional and cognitive functioning (Lee et al., 2011), and regional studies have further supported these effects. Abdel-Wahab (2005) has identified that in addition to influencing a person's mood and perception, colors have significant emotional and psychological implications. Furthermore, Al-Dasouqi (2005), Al-Duwaihi (2005) and others have investigated the physiological effects of color on arousal levels and attentional focus.

Additionally, it appears that the way in which individuals interpret culturally-specific meanings attributed to color, enhance the psychological impact associated with the same. Hamdan (2002) found that symbolic representations of color within various cultural and religious contexts contribute to emotional meaningful processes. In many ways this culturally-based dimension is most prevalent in Arab cultures, since colors are frequently imbued with symbolic and emotive content.

Most importantly, the success of the intervention was due to the combination of color and psychological interventions. Studies by Abdel-Mawla (2011) and Riyadh (2017), found that when color-exposure is combined with other psychologically-guided activities (such as emotional-expression and/or guided-imagery), there exists more effective treatment outcomes compared to isolated sensory stimulation. Therefore, these results suggest that multi-sensory combinations increase emotional-processing, and therefore increase the capacity for self-regulation.

### ***3. Alignment with Previous Empirical Studies***

These findings are in line with perspectives on stress situating it within the framework of occupational or high-risk work experiences. Previous research pointed to some increased levels of stress among individuals operating in lab environments of socio-economic strain and occupational exposure to stress (Badri et al., 2012; Hijazi et al., 2014). The present study builds on that literature by demonstrating that rightly tailored aids broadly fit for the context may effectively relieve such stressors.

The reduction in emotional stress is in line with the literature on intervention-based studies showing that psychological aids automatically improve emotional capacity and lessen distress. Al-Madhoun (2009), for instance, showed significant decreases in stress due to counseling aids for persons from university and females from Arab contexts; while Al-Mahaireh and Tanous (2016) showed that cognitive-behavioral aids in the form of supervision programs improve coping and reduce stress for educational professionals.

The improvements in social and occupational stress appear congruent with Schuler (1980) whose research emphasized social, relational, and organizational condition of stress experience and management. Al-Saket (2014), work-related stress over job performance, suggesting that KAS aids would have yielded the better job outcome; while Al-Toum (2011) professional stress affected efficiency and psychological well-being of persons working in the health field.

The change in behaviours among users such as positive self-talk are in tandem with the findings of Ghania et al. (2014) who showed that skill-based aids led to notable long-term aids in coping and stress management.

### ***4. Contextual Interpretation: Stress in Conflict-Affected Environments***

A significant contribution of the current study is its focus on the specific environmental context in which it was conducted, namely, a protracted political conflict-affected area, where both long-term political instability and severe economic hardships have resulted in reduced availability of mental health services. Working women in such an environment are therefore subject to increased levels of stress relative to their occupation; they are also subjected to increasing numbers of additional social and economic pressures.

This demonstrates the potential usefulness of the intervention model developed herein in this particular type of setting. Due to the use of relatively inexpensive and non-invasive methods, the intervention has particular relevance to areas experiencing resource shortages. Research indicating the necessity for easily accessible and culturally relevant interventions in conflict zones (Brooks et al., 2020), supports this position.

Regional studies provide additional evidence supporting this position. For example, Al-Aswad (2015) and Al-Shaer (2003) reported extremely high levels of psychological distress among Palestinian populations affected by conflict-related factors. Similar reports were made by Yaghi (2006) and Lafi (2005); these authors demonstrated that multiple socio-political stressors had a cumulative effect on the psychological well-being of Gazans.

Further, qualitative results from the current study indicated that the intervention improved participants' perception of themselves as having agency and enhancing their capacity for resilience. Consistent with Resilience Theory, the development of effective adaptive coping mechanisms can be fostered in severely adverse environments when individuals receive sufficient psychosocial resources.

### ***5. Integration of Quantitative and Qualitative Findings***

The combination of numerical results of the survey, along with the descriptive nature of the participants' comments on how they felt during and after their participation in the Stress Reduction Program, helped me understand the full extent of how well the program worked. Statistical analyses did show statistically significant reductions in participant stress levels. However, there was additional insight provided through participants' comments on what specifically about their experience contributed to their improvements in terms of reducing their stress. Emotional expression, interpersonal connection with others in the groups, and introspection regarding themselves were all mentioned frequently as contributing factors to improving their psychological state. There has been other research that also indicates that when people have opportunities to expressively process their emotions (e.g., Shweikh, 2007) or participate in ways that allow them to do so (Al-Madhoun, 2009), they tend to be better at emotionally processing their own thoughts and feelings, which can

help improve their ability to cope with stressful situations.

### ***6. Implications for Practice and Research***

Practical and theoretical implications: The results have implications both in practice and for theory construction in the study of sensory interventions. Practically, they suggest that colour interventions can be incorporated into workplace wellness programs, particularly in stressful environments. They are cost-effective and low-resource enough that institutions with limited means may be able to implement them. Theoretically, the results contribute to the burgeoning field of sensory-based therapeutic techniques. The research highlights the need for additional studies of how exactly colour sensations relate to emotion control and how this knowledge can be translated into enabling a longer-term effect. More longitudinal studies, and studies which adapt experimental designs would further support the work.

### ***7. Limitations***

Although this study provides evidence for how interventions can impact academic success, the research has some limitations. The single group pretest-posttest design reduces our ability to make cause-and-effect conclusions because there was no comparison group which would allow us to eliminate other plausible explanations. Like many intervention studies, this study's methodology was subject to criticism about causality by Bush (2010).

The number of participants in this study was limited and therefore may limit the applicability of these results. For future research on this topic, we suggest employing a larger sample that is representative of different populations; randomized controlled studies will provide stronger support for cause-and effect relationships than quasi-experimental studies such as those employed here.

In conclusion, the study demonstrates strong evidence based on empirical data of a structured color-based intervention as an effective way to reduce stress in working women experiencing conflict. The findings also support existing theory and international/regional literature providing evidence for both the success and effectiveness of the intervention. By combining cognitive, emotional, and sensory components within the intervention it seems that this is a key factor which contributes to its success. By using quantitative and qualitative methods the study offers a rich understanding

of how reduction of stress occurs. Thus the study provides a useful addition to both psychological theory and practice in applied mental health particularly in resource-limited high-stress environments.

### Conclusion

This study found a color-based psycho-therapeutic approach to be an effective method of lowering the amount of stress that working women in the Gaza Strip experience. Findings from the study demonstrated a statistically significant decrease in levels of psychological stress throughout all categories (physiological, emotional, social, work-related, financial).

Results from quantitative methods validated the efficacy of the program, and participants' qualitative responses identified increases in emotional regulation, awareness of themselves, and their interactions with others. In addition, many participants stated they used positive coping mechanisms such as relaxation techniques and self-talk to help manage stress; therefore, there was significant behavioral/psychological change.

These results demonstrate how beneficially using multi-sensory based therapies, specifically color therapy, with other forms of psychological treatment is. Additionally, due to its affordable and flexible design, it would be especially useful in areas where resources are limited and individuals are experiencing extreme amounts of stress.

Although these results have merit, the lack of a comparison or control group and the small number of participants limits the ability to generalize the results. Future studies may want to incorporate more robust research designs and investigate whether changes made through this type of program endure over time.

Overall, this study demonstrates that color-based interventions can provide an effective means for reducing stress and providing psychological support for working women. These findings will have both theoretical implications for mental health professionals and practical applications in supporting employee well-being.

Future studies should utilize larger participant pools than were utilized in the current study. Additional recommendations include using control groups and investigating the long-term benefits of participating in color-based interventions.

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