Education

Effectiveness of a yoga program in decreasing anxiety and depression symptoms among women in Gaza strip

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Abstract

This study investigates the effectiveness of a yoga-based therapeutic program in reducing symptoms of anxiety and depression among women in the Gaza Strip, a context characterized by chronic psychosocial stressors and limited access to mental health services. The study employed a quasi-experimental design with a pre–post control group approach. A total of 70 participants were randomly assigned into experimental (n = 35) and control (n = 35) groups. Standardized instruments were utilized, including the Generalized Anxiety Disorder Scale (GAD-7) and the Patient Health Questionnaire (PHQ-9).

The intervention consisted of a structured 12-session yoga program integrating breathing techniques, physical postures, relaxation, and mindfulness-based practices. Data were analyzed using SPSS (Version 26), applying parametric statistical tests, including paired and independent sample t-tests, as well as ANOVA.

The findings revealed statistically significant reductions in anxiety and depression symptoms among the experimental group compared to the control group ($p \leq 0.05$), with large effect sizes ($\eta^2 = 0.81$ for anxiety; $\eta^2 = 0.79$ for depression). Furthermore, follow-up results indicated sustained improvements one month after the intervention. No statistically significant differences were found across demographic variables, suggesting the program's broad applicability.

The study concludes that yoga-based interventions represent a cost-effective, scalable, and culturally adaptable approach for improving mental health outcomes among women in high-stress environments. The findings hold important implications for integrating mind–body interventions into community mental health frameworks, particularly in conflict-affected regions.

Keywords: Yoga-based intervention, Anxiety, Depression, Women's mental health, Gaza Strip, Quasi-experimental design, Mind–body therapy

1. Introduction

Global concerns exist concerning mental health issues; specifically anxiety and depression have had an enormous impact upon the lives of individuals with respect to how they function and the overall quality of their lives. The aforementioned disorders tend to be common among people living in stressful and unstable conditions that contain constant pressures from the environment which can increase psychological vulnerability. Conflict-impacted areas (such as the Gaza Strip) include an increased burden of mental health related problems due to continuing political uncertainty, economic hardships, and lack of psychological service availability.

The women of Gaza experience even greater stress due to the accumulation of multiple sources of stress. These include the stress associated with being responsible for care giving, socio-economic constraints and the cumulative effect of experiencing repeated trauma. While evidence has shown that the effects of traumatic experiences are not limited to an individual's own psychological distress but also are related to the individual's environment and social structure (Qutishat, 2024; Abu-Khattab & Elshaer, 2020) [16, 1], it has been demonstrated that psychological distress is not simply an individual issue but rather one that is influenced by the individual's structural environment and other factors. This contributes to higher rates of anxiety and depression, resulting in the need to develop accessible and culturally relevant interventions designed to address the mental health needs of this population.

The above is based on the response to these problems, an increase in focus has developed for non-pharmacological mind–body interventions that are designed to treat both the psychological and physiological aspects of mental health. One such treatment is yoga. The combination of breathing techniques (pranayama), stretching and movement (asana) and meditation are used by yoga to regulate emotions and decrease physiological stress. From a neuropsychological standpoint, yoga has been associated with better regulation of the autonomic nervous system, greater ability to manage emotion and lower levels of stress related biological markers (Szafraniec *et al*., 2024; Padmavathi *et al*., 2023) [21, 14]. A developing body of empirical research also supports the use of yoga in treating symptoms of anxiety and depression. As an example, Brinsley *et al*. (2020) [4] found that yoga interventions have resulted in significant decreases in symptomatology of depression regardless of population type. Likewise, Shohani *et al*. (2018) [19] and Amiri *et al*. (2018) [3] noted that the participants were able to substantially reduce their levels of anxiety and stress through participation in a structured yoga

program. Evidence also exists indicating that sustained participation in yoga can result in continued improvement in overall quality of life and ability to emotionally regulate (Zadrożna *et al*., 2022) [22].

There is a large body of evidence demonstrating an association between practice of yoga and improved physical and mental well-being. However, there has been very little published research into the use of yoga-based interventions within conflict zones, such as Gaza. Therefore, while most previous studies examining the impact of yoga were carried out in relative stability and may therefore be limited in terms of their applicability to populations living under conditions of chronic instability and trauma, this provides strong justification for further context specific research to assess both the efficacy and feasibility of using such interventions in areas of high risk.

Theoretically, the ability of yoga to improve mental health outcomes can be explained by how it influences both physiological and cognitive/emotion processes. Yoga has the potential to facilitate increased parasympathetic activity thereby potentially improving regulation of the physiological response associated with stress and reduced reactivity to stressors. Additionally, meditation and other aspects of yoga also provide mechanisms that support restructuring cognitions and increasing awareness of emotions, each being key factors in the management of anxiety and depression (Sapolsky, 2001; Clark & Beck, 2010) [17, 6] providing a rationale for understanding yoga as a holistic form of treatment based upon current conceptualizations of mental health.

Therefore, the aim of the current research is to investigate whether or not a structured yogic therapeutic program will be successful in decreasing levels of both anxiety and depressive symptomatology in women from the Gaza strip. More specifically, the current research will attempt to: (1) identify the effect of the intervention upon symptoms of anxiety and depression; (2) determine if there is a long-term impact of the program's effects; and (3) establish how demographic factors contribute to the success of treatments.

This research has significant implications because it can assist in developing culturally appropriate, low-cost and accessible mental health interventions that are suitable for communities affected by war/conflict and with limited resources. This research provides empirical data as to the ability of yoga based interventions to decrease symptoms of depression/anxiety in this type of population. The results from this study have the potential to lead to the integration of mind-body based interventions into community based mental health programmes that enhance the resilience/psychological wellbeing of disadvantaged groups.

2. Literature review

2.1 Anxiety and depression in high-stress and conflict contexts

Anxiety and depression are two of the most common forms of psychological disorder around the world. They have many different factors which cause them, including biology, cognition, and environment. Psychological models today view these psychological disorders as not simply individual pathology but as products of people's experiences with stressors and negative life events over time (Hammen, 2005) [8] and their chronic or repeated exposures to a variety of adverse conditions (Clark & Beck, 2010) [6]. Chronic stressor exposure results in activation of the body's stress response system (Sapolsky, 2001) [17], ultimately leading to dysfunction in the ability to process emotions and increasing the likelihood of experiencing both anxiety and depressive disorders.

The Gaza Strip is an example of a region affected by violent conflict where individuals experience extreme amounts of stress and exposure to unstable living environments and poverty. The level of psychological distress experienced by women in this type of environment can be extremely high due to increased trauma from their experiences and due to unequal access to resources (Abu-Khattab & Elshaer, 2020; Qutishat, 2024) [1, 16]. This finding fits into the larger field of psychosocial research that views anxiety and depression as socially embedded, thus affecting people's internal cognitive processes and externally through the pressure from their environment.

In addition, because many stress related disorders develop into long-lasting or chronic states instead of episodic states in areas like the Gaza strip, they require interventions that address both the acute symptoms and the ongoing emotional regulation needs of those who suffer from them. While traditional therapies provide benefit to clients suffering from anxiety and/or depression, there is a limitation on how accessible these services are in resource-scarce environments. Therefore, other types of interventions are needed that will meet client needs in terms of feasibility and cultural adaptability.

2.2 Theoretical foundations of mind–body interventions

There has been an increase in interest in mind-body interventions from researchers using a combined approach of psychology and clinical studies. This is based on the assumption that there are deep connections between the physical and psychological state of the individual. The idea behind this is that if one changes the body's response or reaction it will also affect how individuals think and feel emotionally (Judith, 1996; Feuerstein, 2014) [10, 7].

Chronic stress creates long-term disruptions within the Autonomic Nervous System (ANS), causing prolonged activation of the Hypothalamic-Pituitary-Adrenal (HPA) axis, leading to high levels of Cortisol and reduced ability for emotional regulation (Sapolsky, 2001) [17]. Yoga, and other mind-body interventions intend to reduce these adverse physiological reactions through parasympathetic activation and returning physiological equilibrium to normal.

Cognitive models of Anxiety and Depression propose that maladaptive thoughts and schemata contribute to ongoing psychological distress (Clark & Beck, 2010) [6]. Through developing awareness of oneself and incorporating mindfulness into practice, Yoga provides the means to accomplish cognitive restructuring which promotes better management of emotions and thus addresses both the cognitive and physiological components of Mental Health Disorders.

This dual-process framework combining physiological regulation with cognitive-emotional modulation provides a strong theoretical basis for the use of yoga as a therapeutic intervention in managing anxiety and depression.

2.3 Yoga as a therapeutic intervention

The practice of Yoga has moved from being an ancient spiritual tradition to a current and established form of therapy in modern mental health research. Yoga is a comprehensive body/mind therapeutic technique that combines physical asanas, pranayama (breathing techniques), and meditation in order to create an integrative approach for maintaining psychological wellness (Büssing *et al*., 2012; Iyengar, 1966) [5, 9].

Recent quantitative studies continue to demonstrate yoga's effectiveness in decreasing symptoms associated with both anxiety and depression. A recent systematic review and meta-analysis by Brinsley *et al*. (2020) [4] concluded that yoga produces significant decreases in symptoms of depression regardless of whether participants were considered clinically depressed or not. Additionally, Shohani *et al*. (2018) [19] reported that yoga produces reductions in stress, anxiety, and depression specifically among women. Finally, Amiri *et al*. (2018) [3] supported the use of yoga as a beneficial method of improving mental health through structured intervention.

Further studies have shown how the biological responses to yoga are involved with the mental health effects. Examples include the work by Padmavathi *et al*. (2023) [14], who discussed how yoga can help manage stress and thus possibly reduce or even eliminate depressive disorders; as well as the study conducted by Szafraniec *et al*. (2024) [21], who concluded that practicing yoga regularly will improve one's ability to adapt through their autonomic nervous system and enhance overall quality of life; and lastly the study by Zadrożna *et al*. (2022) [22] showed evidence that yoga could be used for extended periods of time to maintain both neurological and psychological equilibrium. Beyond just providing relief from symptoms, there is also a positive correlation between yoga and enhanced abilities for an individual to emotionally regulate themselves and develop a greater level of resilience. The results of Petukhova (2022) [15] showed that a woman practicing yoga was able to increase her capacity for emotional regulation. Thus, yoga does provide individuals with tools to help them deal with chronic issues such as anxiety and depression on a more permanent basis.

2.4 Research gaps and study contribution

Although substantial research supports that yoga can be an effective method for enhancing various aspects of mental health, several limitations exist within the current literature. The first limitation lies with the fact that most existing research has been performed in relatively stable (or at least consistent) environments. This makes it difficult to generalize the findings to those who are in states of continuous instability and/or conflict. A second limitation exists in terms of a lack of research focusing on the specific population of women living in conflict-affected areas. Women experience higher levels of psychological distress than men due to gendered sociocultural and environmental conditions.

Additionally, although some research has shown the effectiveness of yoga interventions in terms of short-term results, few studies have explored whether these positive changes occur beyond the initial period of participation. Furthermore, little research has investigated how demographic characteristics impact treatment outcomes in stressful environments.

This study aims to address these gaps through examining the effectiveness of a structured yoga-based therapeutic program for women in the Gaza Strip. The Gaza Strip has a long history of psychosocial stress. As such, the study provides a context-specific location to examine the efficacy of a yoga-based program. Moreover, the study employs a quasi-experimental design and measures participants after a follow-up interval, thus providing evidence of both the immediate and longer term effects of yoga interventions. Finally, this study examines the relationship between participant demographics and their experiences with the program. Thus, the study offers a more nuanced assessment of intervention effectiveness for different subpopulations.

Ultimately, this study contributes to the development of Integrative Mental Health by demonstrating that yoga-based programs may be used as an effective form of therapy in resource-poor conflict affected locations; and therefore serve as an accessible, scalable and culturally adaptable therapeutic strategy.

3. Methodology

3.1 Research design

Pretest-posttest control group with a follow up on outcomes were used as a quasi-experimental design for this research because it is better suited for examining psychological treatments in practical environments when full randomization may not occur.

Experimental Group participants were provided a yoga-based treatment plan while Control Group participants would receive no treatment or would not receive the treatment during the time frame of the study. Three assessment periods were established in order to measure the effects from the intervention: prior to the start of the intervention (pre-test); after the conclusion of the intervention (post-test); and finally, after all participants had experienced a certain amount of time since the end of the intervention (follow-up).

3.2 Participants and sampling

The participants in this study comprised seventy (n=70), female subjects from the Gaza Strip. These subjects were sampled by means of purposive sampling with reference to their connection to the research objective. All participants were randomly allocated to one of two conditions:

- Experimental group (N = 35)
- Control Group (N = 35)

All experimental and control condition subjects were assessed using standardized psychological tools under equivalent assessment conditions. Data relating to demographic factors were collected to assess possible influences upon outcomes.

3.3 Demographic characteristics of participants

The demographic characteristics of the participants are presented in Table 1. The data indicate a balanced distribution between the experimental and control groups across all variables, supporting the equivalence of the groups prior to the intervention.

Table 1: Demographic characteristics of participants

Variable	Category	Experimental group (n = 35)	Control group (n = 35)
Age	Less than 25 years	2	2
	25 to <35 years	16	16
	35 to <45 years	12	12
	45 years and above	5	5
Marital Status	Single	8	8
	Married	16	16
	Divorced	5	5
	Widowed	6	6
Economic Status	0–1000	9	9
	1000–2000	17	17
	2000–3000	5	5
	3000 and above	4	4
Educational Level	High School	9	9
	Diploma	3	3
	Bachelor's Degree	16	16
	Master's Degree	6	6
	PhD	1	1
Employment Status	Employed	11	11
	Unemployed	24	24

3.4 Instruments

3.4.1 Anxiety measure (GAD-7)

Anxiety was measured with the generalized anxiety disorder scale (GAD-7) developed by Spitzer *et al*. (2006) [20]. It consists of seven questions that measure the frequency of each symptom in the last 2 weeks as rated on a 4-point liker scale ranging from "Not at All" (0) to "Nearly Every Day" (3).

The GAD-7 is well regarded for its high quality and has demonstrated validity across many different types of individuals (Löwe *et al*., 2008) [12].

3.4.2 Depression measure (PHQ-9)

Depression was measured by using The Patient Health Questionnaire (PHQ-9). The PHQ-9 is a nine item assessment that measures the degree of depression based on how patients felt during the last two weeks. The PHQ-9 uses a four point Likert scale.

The PHQ-9 has been tested as valid and reliable for use within both clinical and research settings (American Psychiatric Association, 2022) [2].

3.5 The yoga-based therapeutic program

The intervention involved a 12-session structured yoga based therapeutic program that was specifically developed for women to help them decrease their symptoms of anxiety and depression. Each session targeted different psychological and physical outcomes.

Important aspects of the program included:

- Breathing techniques (pranayama), as well as other methods used to lower the physiological arousal
- Asanas to increase the participant's awareness of her body and to help decrease muscle tension
- Meditation in order to increase mindfulness and emotion regulation
- Progressive relaxation techniques to decrease overall levels of stress
- Cognitive or reflective activities done during each session to address participants' negative thoughts.

The program progressed from simple relaxation/awareness techniques to more complex emotional regulation/resilience/self-control concepts. In addition to these group sessions, participants were provided with take-home assignments to continue reinforcing what they learned during the groups, which would assist in maintaining the effectiveness of the interventions.

3.6 Procedure

The following is how this research was carried out as follows:

Step 1. Pre-assessments - Both groups utilized the GAD-7 and PHQ-9 to determine a basis for their assessments.

Step 2. Intervention Phase - The experimental group went through the 12 session Yoga Program, whereas the control group received no treatment.

Step 3. Post-Assessment - Both groups underwent an assessment with the same tools (GAD-7 & PHQ-9) after completing the program to assess the impact immediately.

Step 4. Follow-Up Assessment - One month post-treatment, a follow up assessment was made to assess if the program's results were sustained.

3.7 Data analysis

Statistical methods appropriate to the study's design were employed to analyze the data collected. The data were summarized by descriptive statistical measures (i.e., mean and standard deviation) so that an overview could be obtained of the data collected.

In addition to summarizing the data, inferential statistical analysis techniques were used to:

- Determine if a statistically significant difference existed in pre-test and post-test scores for each group.
- Compare the average post-test scores for participants in both the experimental group and control group.
- Determine if statistically significant reductions in anxiety or depression occurred as a result of treatment.
- Determine if demographic factors had an effect on the outcome.

If $\alpha = .05$ or less, then there would be evidence to indicate that the results observed are due to chance.

3.8 Ethical considerations

Ethical principles were strictly observed throughout the study. Participants were informed about the purpose of the research and their voluntary participation. Confidentiality and

anonymity were ensured, and participants were given the right to withdraw at any stage without any consequences.

4. Results

4.1 Normality test

To determine whether the data followed a normal distribution, the Shapiro–Wilk test was conducted, as it is recommended for small sample sizes (≤50). The results are presented in Table 2.

Table 2: Shapiro–wilk test for normality

Variable	Measurement	Group	N	Shapiro–Wilk	Sig.
Anxiety	Pre	Experimental	35	0.952	0.131
		Control	35	0.947	0.092
	Post	Experimental	35	0.974	0.563
		Control	35	0.948	0.100
Depression	Pre	Experimental	35	0.949	0.108
		Control	35	0.941	0.059
	Post	Experimental	35	0.973	0.542
		Control	35	0.941	0.062

The results indicate that all significance values exceed the threshold ($\alpha \geq 0.05$), confirming that the data are normally distributed. Accordingly, parametric statistical tests were applied in subsequent analyses.

4.2 Group equivalence

To verify the equivalence of the experimental and control groups prior to the intervention, independent samples t-tests were conducted. The results are presented in Table 3.

Table 3: Group equivalence in pre-test measures

Variable	Group	N	Mean	SD	t-value	Sig.
Anxiety	Experimental	35	2.01	0.29	0.002	0.963
	Control	35	2.12	0.28		
Depression	Experimental	35	1.87	0.40	0.444	0.507
	Control	35	1.55	0.47		

The findings indicate no statistically significant differences between the two groups in the pre-test measures of anxiety and depression ($p > 0.05$), confirming that the groups were equivalent prior to the intervention.

4.3 Hypothesis 1: Effect of the program on anxiety

Paired sample t-tests were conducted to examine differences between pre- and post-test scores within each group. Results are presented in Table 4.

Table 4: Paired sample t-test results for anxiety

Group	Measurement	N	Mean	SD	df	t-value	Sig.	η^2
Experimental	Pre	35	2.01	0.29	34	12.020	0.000	0.81
	Post	35	1.07	0.31				
Control	Pre	35	2.12	0.28	34	-0.733	0.469	0.02
	Post	35	2.14	0.25				

The results show a statistically significant reduction in anxiety levels in the experimental group ($p < 0.05$), with a large effect size ($\eta^2 = 0.81$). In contrast, no significant change was observed in the control group ($p > 0.05$).

4.4 Hypothesis 2: Effect of demographic variables on anxiety

4.4.1 Age

A one-way ANOVA was conducted to examine differences in anxiety levels based on age. Results are presented in Table 5.

Table 5: ANOVA results for anxiety by age

Measurement	Source	SS	df	MS	F	Sig.
Pre	Between Groups	0.091	3	0.030	0.349	0.790
	Within Groups	2.697	31	0.087		
Post	Between Groups	0.051	3	0.017	0.164	0.920
	Within Groups	3.190	31	0.103		

No statistically significant differences were found based on age ($p > 0.05$).

4.4.2 Marital status

Table 6: ANOVA results for anxiety by marital status

Measurement	Source	SS	df	MS	F	Sig.
Pre	Between Groups	0.398	3	0.133	1.719	0.183
Post	Between Groups	0.077	3	0.026	0.251	0.860

No statistically significant differences were found ($p > 0.05$).

4.4.3 Economic status

Table 7: ANOVA results for anxiety by economic status

Measurement	Source	SS	df	MS	F	Sig.
Pre	Between Groups	0.342	3	0.114	1.444	0.249
Post	Between Groups	0.075	3	0.025	0.244	0.865

No statistically significant differences were found ($p > 0.05$).

4.4.4 Educational level

Table 8: ANOVA results for anxiety by education

Measurement	Source	SS	df	MS	F	Sig.
Pre	Between Groups	0.068	4	0.017	0.188	0.943
Post	Between Groups	0.292	4	0.073	0.743	0.570

No statistically significant differences were found ($p > 0.05$).

4.4.5 Employment status

Table 9: Independent t-test for anxiety by employment

Measurement	Category	N	Mean	SD	t	Sig.
Pre	Employed	11	2.01	0.26	0.367	0.549
	Unemployed	24	2.01	0.30		
Post	Employed	11	1.14	0.24	1.049	0.313
	Unemployed	24	1.04	0.33		

No statistically significant differences were found ($p > 0.05$).

4.5 Hypothesis 3: Follow-up effect on anxiety

Table 10: Paired sample t-test (Post vs Follow-Up)

Measurement	N	Mean	SD	df	t	Sig.	η^2
Post	35	1.07	0.31	34	3.516	0.001	0.27
Follow-up	35	1.00	0.26				

A statistically significant difference was found, indicating sustained improvement over time.

4.6 Hypothesis 4: Effect of the program on depression

Table 11: Paired sample t-test for depression

Group	Measurement	N	Mean	SD	df	t	Sig.	η²
Experimental	Pre	35	1.87	0.40	34	11.467	0.000	0.79
	Post	35	0.92	0.47				
Control	Pre	35	1.55	0.47	34	0.298	0.768	0.00
	Post	35	1.55	0.44				

A significant reduction in depression was observed in the experimental group, with a large effect size ($\eta^2 = 0.79$), while no significant change occurred in the control group.

4.7 Hypothesis 5: Demographic variables and depression

Across all demographic variables (age, marital status, economic status, education, and employment), no statistically significant differences were found in depression scores ($p > 0.05$), except for a significant difference in the pre-test based on educational level ($p = 0.041$), which disappeared after the intervention.

4.8 Hypothesis 6: Follow-Up effect on depression

Table 12: Paired Sample t-Test (Post vs Follow-Up)

Measurement	N	Mean	SD	df	t	Sig.	η²
Post	35	0.92	0.47	34	3.580	0.001	0.27
Follow-up	35	0.84	0.40				

The results indicate sustained improvement in depression symptoms over time.

5. Discussion

5.1 Effect of the yoga program on anxiety

The findings of this research show there was a statistically significant decrease in anxiety of the participants within the treatment group after the yoga-based therapy program was implemented. The extent of the decrease (large effect size $\eta^2 = .81$), shows not just that there were differences from the pre- to post-treatment, but that the differences were practically meaningful. That no changes occurred on the control group supports the notion that the decreases in anxiety were caused by the treatment itself.

Similar to these findings are those of Shohani *et al*. (2018) [19] who concluded that Yoga is a viable method for reducing anxiety and stress in females. Additionally, Amiri *et al*. (2018) [3] found that Hatha yoga significantly improves mental health outcomes including decreased anxiety. These results support Brinsley *et al*. (2020) [4] whose overall view was that yoga is a multi-dimensional intervention that includes both physical relaxation through physiology as well as cognitive and emotional regulation.

In terms of mechanisms, it appears possible that some or all of these findings could be due to the ability of yoga practices to modulate autonomic nervous system functioning and thus reduce physiological arousal. This would be consistent with Szafraniec *et al*. (2024) [21] who described how repeated participation in yoga is associated with improved autonomic function and enhanced emotional regulation.

5.2 Sustainability of anxiety reduction

One of the most significant results from this research was that participants demonstrated a continued decrease in anxiety symptoms at the end of the treatment period compared to their level after the last session. Therefore, it can be concluded that the participants benefited psychologically from the treatment for an extended period of time; they did not experience only temporary relief from their symptoms.

This is consistent with Petukhova (2022) [15], whose research indicated that yoga improves emotional regulation and leads to lasting psychological well-being. Additionally, Zadrożna *et al*. (2022) [22] stated that while some benefits of yoga are short-term, many benefits persist due to its influence on both the neurology and psychology of individuals.

Likely due to the combination of structured practices completed outside of sessions (and therefore practiced consistently over time) and skill development through internalization of skills, the participants were able to use what they had learned about managing their anxiety in multiple different areas of their lives.

5.3 Role of demographic variables in anxiety outcomes

The analysis did not find a statistically significant difference in participants' levels of anxiety as it related to demographic factors; such factors included age, marital status, income level, education, and employment status. These results indicate that this yoga-based intervention provided similar benefits for all participants regardless of their demographics.

The present study's results support those of other studies such as Setiyarini *et al*. (2024) [18]; they have also demonstrated that the use of yoga has been shown to be effective in reducing anxiety in women from various demographic backgrounds. Similarly, Omar & Rafiq (2023) [13] found that populations undergoing the same yoga-based programs experienced an improvement in psychological well-being regardless of their demographic background.

In terms of the current situation within Gaza, one reason for the lack of variance in demographic background is the extreme nature of socio-political stressors experienced by nearly all members of this society. Prolonged exposure to these forms of stressors can lead to a commonality of psychological distress and minimize individual demographic differences in this regard.

5.4 Effect of the yoga program on depression

The studies show a large impact (η^2=0.79) on reducing symptoms of depression for all participants in the experimental group while showing no decline in symptoms from the control group; this was an important indicator that the treatment had caused the effects observed. This is consistent with other research including Brinsley *et al*. (2020) [4] which found that participating in a yoga program could significantly improve the depressive symptomatology of adults experiencing mental illness. Also, as shown in Padmavathi *et al*. (2023) [14] yoga programs have been effective in helping manage stress, which may help alleviate or mitigate the role stress plays in the development of depressive disorders. Additionally, Korkem *et*

al. (2024) [11] showed that engaging in regular yoga practice improved both psychological wellbeing and quality of life among women.

5.5 Sustainability of depression reduction

These findings show that the gains made in depressed symptom reduction have been ongoing; there was a difference at follow up when compared to post test, which indicates that the treatment had promoted the establishment of long term coping mechanisms.

This finding is also supported by Zadrožna *et al*. (2022) [22] that stated that the positive effects on mental health from yoga are long lasting. The continued use of learned skills found in this study could explain why participants showed sustained reductions in depression.

5.6 Role of demographic variables in depression outcomes

The results of this research indicated there were no statistical differences in depression outcome for the majority of demographic characteristics. However, one variable had a pre-educational level difference that was eliminated by the post intervention data. This indicates the yoga intervention provided the same benefit regardless of the participant's background.

This finding supports Omar & Rafiq (2023) [13] finding in their research; that yoga interventions create similar psychological benefits for people from different backgrounds. These results suggest that yoga based interventions are equalizers for improving mental health outcomes.

5.7 Contextual interpretation in the Gaza setting

The results from this study should be viewed through a political-social lens due to the fact that the Gaza Strip is exposed for long durations to ongoing conflicts with unstable economies and has limited access to mental health care. Studies including those by Abu-Khattab & Elshaer (2020) [1], have shown high levels of psychological stress in women in the Gaza Strip. Thusly, given these conditions, research suggesting that inexpensive and pharmacologically-free forms of intervention are crucial. Additionally, these studies also indicate that yoga may provide a cost-effective means of providing mental health care in areas where resources are extremely limited.

5.8 Theoretical implications

The research adds to existing literature exploring how mind-body treatments function, through demonstrating empirical data regarding its effectiveness in a setting affected by war.

Additionally, it provides support for an integrated model of mental wellness; one that recognizes interdependence among physical body regulatory mechanisms, cognitive process and emotion.

Also, the results of the study provide support for the use of holistic therapy practices when treating individuals experiencing severe mental disorder(s) in areas where access to conventional (clinical) treatment options are limited or unavailable.

In total, the findings demonstrated that participants who participated in the yoga based therapeutic program experienced a reduction in symptoms of anxiety and depression; and these reductions were substantial and sustainable. Additionally, the lack of significant demographic variation further demonstrates the broad application of the treatment. Overall, these results illustrate the feasibility and utility of yoga as a practical, accessible and scaleable means of addressing mental health concerns in stressful settings.

6. Conclusion and Recommendations

6.1 Conclusion

The current research has provided strong empirical evidence supporting the efficacy of a yoga based therapy program in decreasing symptoms associated with anxiety and depression in women residing in the Gaza strip. The data from this investigation clearly show that the therapy resulted in significant decreases ($p < .001$) in both anxiety and depressive symptomatology; also, there are large effect size values which demonstrate that the decreases were clinically relevant.

Moreover, the data showed that these decreases in symptomatology did not only occur at the end of the therapy but continued through follow-up measures. Therefore, it appears that the therapy promoted long term self-regulatory mechanisms to deal with their own psychological distress after they had completed the structured therapy sessions.

Another important result of the study is that no significant statistical difference existed between demographic factors (i.e., age, marital status, socioeconomic status, education, employment). Thus, it is clear that all participants benefited equally well from the therapy regardless of their individual backgrounds or characteristics. This highlights how flexible and applicable the therapy may be.

In light of the fact that women in the Gaza strip experience extreme amounts of chronic stress, socio-economic hardship and lack access to adequate mental health resources, the implications of this study are especially valuable. Specifically, this study shows that inexpensive, non-pharmacologic approaches like yoga can provide meaningful psychological support to those experiencing severe levels of psychological distress in resource poor areas where stress levels are extremely high. Also, because this approach utilizes a multi-modal methodology combining physical, cognitive and emotional components, it provides an integrated way to treat many types of mental health problems.

Overall, this study provides additional evidence to the expanding body of literature on mind-body interventions demonstrating the potential for yoga to serve as a viable, cost-effective and easily scaled method to promote improved mental health and resiliency within vulnerable populations.

6.2 Recommendations

A number of recommendations at both practical (applied) and research levels are based on the results of this study. Practically, it is suggested that therapists working in mental health environments and organizations that deliver therapies should implement a variety of yoga-based programs to complement standard psychological treatment. The evidence of yoga's ability to reduce stress and symptoms of anxiety and

depression supports its use as an effective, affordable and adaptable form of treatment.

Institutionally, health and education decision-makers and policy makers may want to implement structured yoga programs in educational institutions, community centers and healthcare facilities. This would help develop preventive mental health initiatives for wider groups of people than those already identified and improve overall mental health through better psychological wellbeing.

Research-wise, future research is necessary to extend the current investigation. Further studies could investigate whether or not the same types of interventions have benefits with other populations i.e. youth; older adults; and those with more severe forms of mental illness. Research comparing the efficacy of interventions based on yoga compared to existing treatments e.g. Cognitive Behavioral Therapy will also aid in determining how beneficial each type of treatment is.

Also, it would be useful to include longer term research designs than just short-term follow-ups to understand if effects from the interventions last over time. A mixed methods approach would also assist in gaining a clearer picture of the impact of the interventions as both quantitative measures of outcome as well as qualitative accounts of participant experience would be included.

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