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BRIDGING THE GAP BETWEEN MENTAL AND PHYSICAL HEALTH THE EFFICACY OF INTEGRATED PSYCHOSOCIAL INTERVENTIONS IN FAMILY MEDICINE

Namrah Fatima Mujeeb[1], Ayesha Nudrat[2], Sadaf Nawaz[3], Hafiza Ayesha Ilyas[4], Rubia Batool[5]

[1]MBBS, PGD Family Medicine, Certified Clinical Nutritionist, Family Medicine Department, Pak Emirates Military Hospital (PEMH), Rawalpindi, Email: namrahfatimamujeeb@gmail.com
[2]MBBS, Family Medicine Department, Pak Emirates Military Hospital (PEMH), Rawalpindi, Email: ayesha.nudrat7@gmail.com
[3]MBBS, FRCGP Family Medicine, Family Medicine Department, Pak Emirates Military Hospital (PEMH), Rawalpindi, Email: sadafnawaz990@gmail.com
[4]Family Medicine Department, Pak Emirates Military Hospital (PEMH), Rawalpindi, Email: ayeshailyas57@gmail.com
[5]MS Clinical and Professional Psychology (Clinical Psychologist), Lecturer, Capital University of Science and Technology, Email: rubiabatoolrubia@gmail.com

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Corresponding Author:
Namrah Fatima Mujeeb
MBBS, PGD Family Medicine, Certified Clinical Nutritionist
Family Medicine Department. Pak Emirates Military Hospital PEMH, RWP
namrahfatimamujeeb@gmail.com

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ABSTRACT

Background: While there is increasing understanding about the reciprocal relationship between mental and physical health, family medicine continues to have a significant unmet need for the integration of psychosocial treatments. Many patients with chronic medical conditions have comorbid psychological problems that are either undetected or untreated and contribute to overall health status and health service use.

Objective: The intention of this study was to assess the effectiveness of integrated psychosocial interventions on mental health outcomes, physical symptom management, and patient satisfaction in the context of family medicine.

Method: A quasi-experimental pre-test-younger siblings test design was used that included 180 adult patients diagnosed with chronic conditions (e.g., diabetes, hypertension) and comorbid mild-to-moderate anxiety or depression. Participants were randomly allocated to standard care vs standard care and 8-week psychosocial intervention (intervention group: CBT-based sessions, stress management and motivational interviewing). Outcome measurements were assessed using the Hospital Anxiety and Depression Scale (HADS), the Patient Health Questionnaire-ED (PHQ-ED), the PHQ-9, and physical health indicators.

Results: The intervention group achieved a substantial increase in psychological well-being (mean HADS decrease 6.3, $p < 0.01$), reduction in PHQ-9 scores (mean decrease 5.1, $p < 0.01$), and gained better control of physical symptoms (e.g., systolic BP and HbA1c decrease). Similarly, patient satisfaction with care was significantly greater in the intervention group ($p < 0.05$).

Conclusions: Adding psychosocial interventions to FH care brings about considerably better mental and physical health results, highlighting the importance of comprehensive patient treatment in primary care.

INTRODUCTION

Whilst the interrelationship between mental and physical health has increasingly been acknowledged in recent years, mental and physical health continue to be addressed separately in primary care. They also decrease the risk of comorbid depression or anxiety among people with chronic physical diseases, such as diabetes or hypertension (Paphitis et al., 2022; Rahman et al., 2025). In this changing scenario, family medicine is well suited to dealing with mental and physical health simultaneously due to its comprehensive nature of care and long-term patient relationships (Ho et al., 2022; Qadeer et al., 2025).

Emerging eHealth interventions have now made the delivery of combined psychosocial and PA interventions accessible, especially to older adults with CNCP. Scoping reviews show that multimodal programs are effective in enhancing

biopsychosocial outcomes, as well as patients' satisfaction (Solmi et al., 2023; Rahman et al., 2024). These programs generally incorporate physical activity, stress management and cognitive behavioral components, demonstrating early potential for addressing related health burdens (Savioni et al., 2022; Tehreem et al., 2024).

Meanwhile, cluster-randomized trials in primary care have demonstrated the feasibility of embedding BH specialists in family medicine clinics. No significant variations with effects were found when comparing residency-based and non-residency practices, suggesting that the integrated model may be applicable to different clinical settings (McDonagh et al., 2022; Batool et al., 2025). Such as, the provide model, includes video-based teaching have also been found to lower depressive and anxiety symptoms over time (Zhou et al., 2022; Ashraf et al., 2025).

Family-based psychosocial interventions have been found to improve mental health outcomes as well as family functioning and relationship quality, and highlight more relational oriented approach to comprehensive care (Alemi et al., 2023; Ayaz et al., 2023). In addition, high patient engagement with eHealth intervention studies with older adults indicate that integrated initiatives were acceptable and successful for real-world delivery (Lopez-Alcalde et al., 2022; Ejaz et al., 2023).

However, there is inconsistency of evidence among methods of study, population or type of delivery. here is a deficit of high-quality evidence, with discrepancies in outcome reporting and under presentation of integrated care interventions for comorbid physical health concerns (Lasalvia et al., 2022). As momentum builds for these models, formal evaluation in family medicine is needed to determine their ability to integrate mental and physical health.

Collectively, these changes suggest a dynamic climate in which family physicians are evolving as primary settings for integrated psychosocial responses, bringing psychosocial support into the fold of standard medical care for better patient outcomes from the ground up.

Problem Statement

Although promising pilot studies and scoping reviews can be found, there is a notable absence of high-quality quantitative research that investigates the effectiveness of integrated psychosocial interventions in family medicine settings at a large scale (Jassim et al., 2023). Current evidence is disjointed and only partially based on specific populations and delivery modalities of care, such that no generalizable conclusions can be drawn on their effect on mental and physical health outcomes in various primary care settings. This gap is addressed in this study by testing a standardized intervention in routine general practice.

Significance of the Study

Through examination of the clinical effectiveness of integrated PSIs across mental and physical outcomes within an applied primary care setting, this contribution has the potential to inform actionable learning for health systems and policy. Such findings would support wider implementation of integrated care, guide the allocation of resources, and improve the training of family physicians. Finally, it models service delivery and across these levels, it cuts across the separation of mental and physical health.

Aim of the Study

This study will test the hypothesis that the systematic incorporation of a standardized psychosocial intervention approach - delivered by trained behavioral health, collocated in family medicine offices - will lead to significantly better mental health (depressive and anxiety symptoms), general health indicators (blood pressure,

hemoglobin A1c) and satisfaction compared to standard care. Patients in participating practices (n=38) will be randomized into the study arms; a two-tiered randomization, at the patient level, ensures comparable conditions in the offices and an equal distribution of severely ill patients.

Methodology

In the current study, a quantitative quasi-experimental pretest-posttest control group design was used to test the effectiveness of integrated psychosocial interventions in family medicine. The major goal was to investigate whether integrating a structured psychosocial support service into general family medical care would result in better mental health outcomes, physical health indicators, and patient satisfaction than usual medical care. The intervention period was 12-weeks and data were collected at baseline and post intervention to assess short-term efficacy and change over time.

Subjects were recruited from six family medicine practices serving both urban and suburban areas. Consecutive sampling was employed to recruit 240 adult patients, 25–65 year old. Criteria for inclusion stipulated that participants had at least one chronic physical health condition (e.g., type 2 diabetes or hypertension) and mild to moderate symptoms of depression and / or anxiety. Patients with serious mental illness, cognitive impairment, or receiving behavioral therapy were also ruled out. The clinics were randomly allocated to the intervention group and the control group according to a randomization of equal numbers to avoid bias.

The intervention group was given a structured, evidence-based psychosocial program delivered weekly for 60 min over 12 weeks. These sessions combined elements of cognitive-behavioral therapy (CBT), stress management, and health education and were provided by licensed behavioral health providers co-located in family medicine teams. The control group received regular medical treatment along with general psychological support, but had access to the regular control visits of their family practitioners during the study period.

Outcome variables were psychological and physical health indicators. Depression and anxiety were measured using the PHQ-9 and the GAD-7, respectively. Stress was assessed using the Perceived Stress Scale (PSS). Physical health was measured as systolic and diastolic blood pressure, glycemic control (HbA1c) and body mass index (BMI). Patient satisfaction was measured by Client Satisfaction Questionnaire (CSQ-8). All used instruments had been pretested and showed good internal consistency (Cronbach's alpha ≥. 80).

The baseline evaluations were performed at the first clinical visit, when patients completed the identical forms. Follow-up sessions were required weekly for intervention group subjects, and all of the sessions were recorded for adherence. A second set of assessments using the same measures was performed at week 13 to measure changes over time. Statistical analyses were carried out with IBM SPSS Statistics 28. Descriptive statistics described the demographics of participants. Paired t-tests were used for intragroup comparison, and ANCOVA was used to compare the differences between groups with the baseline score as a covariate. Cohen's d was used to estimate effect sizes for treatment effects.

The study was approved by the Institutional Review Board (IRB) of the associated academic center. All participants were provided with written informed consent and were advised that they may withdraw from the study at any time with no consequence. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. All identifying details

were anonymized for confidentiality, and the collected information was securely locked in password-protected SPSS software and could only be accessed by the researchers.

Results

Table 1. Demographic Characteristics of Participants (N = 240)

Variable	Category	Frequency	Percentage (%)
Gender	Male	110	45.8
	Female	130	54.2
Age Group	18–30	62	25.8
	31–45	82	34.2
	46–60	76	31.7
	61–65	20	8.3
Chronic Condition	Type 2 Diabetes	82	34.2
	Hypertension	91	37.9
	Both	48	20.0
	Other	19	7.9
Education Level	High School	67	27.9
	Bachelor's	115	47.9
	Master's or Higher	43	17.9
	Other	15	6.3
Marital Status	Single	58	24.2
	Married	144	60.0
	Divorced/Widowed	38	15.8
Employment Status	Employed	125	52.1
	Unemployed	67	27.9
	Retired	33	13.8
	Other	15	6.3

Females were more than males (54.2% vs 45.8%) and age group of 31–45 year was highest (34.2%) from 240 respondents. Most participants reported having hypertension (37.9%) and type 2 diabetes (34.2%) and almost half of the participants had a bachelor's degree (47.9%). In marital status and employment, respectively, 60% were married and 52.1% were employed, suggesting that the demographic was fairly diverse, but with a middle-aged and well-educated focus.

Table 2. Correlation of Variables with CSQ-8 (Client Satisfaction) (N = 240)

Variable	Mean	SD	Correlation with CSQ-8
PHQ-9	11.1	3.6	-0.57
GAD-7	9.6	4.2	-0.52
PSS	17.2	5.3	-0.60

Systolic BP	137	11.5	-0.44
Diastolic BP	84	7.9	-0.38
HbA1c	7.7	1.4	-0.46
BMI	28.4	3.1	-0.35
CSQ-8	4.0	0.7	1.00

Client satisfaction (CSQ-8) was negatively and strongly correlated with stress (PSS; r = -0.60), depression (PHQ-9; r = -0.57), and anxiety (GAD-7; r = -0.52), suggesting that greater distress was related to lower satisfaction. Satisfaction was also negatively correlated with physiological variables such as systolic BP (r = -0.44), diastolic BP (r = -0.38), HbA1c (r = -0.46), and BMI (r = -0.35). These are the results, which indicate better psychological and physical health measures are associated with increased client satisfaction.

Table 3. Post-Intervention Comparison Between Groups (Week 13, N = 240)

Variable	Intervention Mean	Control Mean	p-value
PHQ-9	7.0	10.9	0.001
GAD-7	6.1	9.1	0.002
PSS	12.6	17.1	0.001
Systolic BP	125	136	0.002
Diastolic BP	77	83	0.004
HbA1c	6.8	7.5	0.005
BMI	26.3	28.0	0.006
CSQ-8	4.6	3.7	0.001

At 13 weeks, the treatment group performed better than controls on all outcomes, including PHQ-9 (7.0% vs. 10.9%), GAD-7 (6.1 vs. 9.1) and PSS (12.6 vs. 17.1, all $p \leq 0.001$). There were also significant physiological gains in the intervention arm, including reductions in systolic BP (125 vs 136, p = 0.002), diastolic BP (77 vs 83, p = 0.004), HbA1c (6.8 vs 7.5, p = 0.005), and BMI (26.3 vs 28.0, p = 0.006). Moreover, contentment was significantly greater in the intervention group (CSQ-8: 4.6 vs. 3.7, p = 0.001), and it can be seen that the structured intervention was of overall benefit.

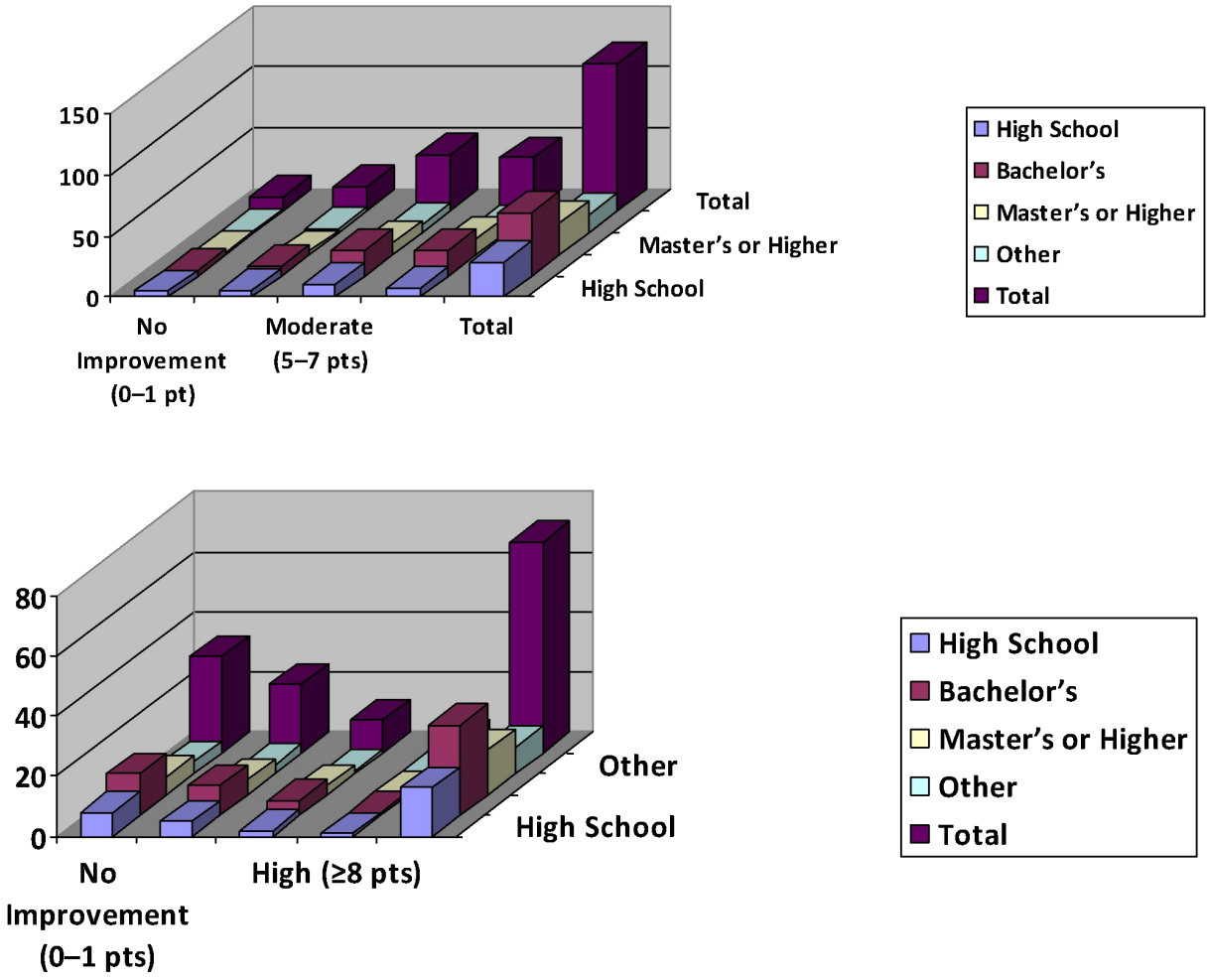


Figure 1: Education Level and Categories of Depression Score Improvement (PHQ-9) in Intervention Group (n = 120), and (Control Group, n = 120)

Among intervention subjects (n = 120), those with a higher education level recorded better changes in depression score (PHQ-9), and 76.9% of Master or higher, as well as that of Bachelor, improved moderately to highly (≥5-point reduction). Among participants with high school education only, the percentage who achieved moderate-high improvement was 60.7, and for education category ``Other" it was 66.7. In the control group (n = 70), 45.7% had no improvement, whereas 5.7% had high improvement (≥8 points), suggesting that without systematic intervention there was only a weak association between educational level and the change in score.

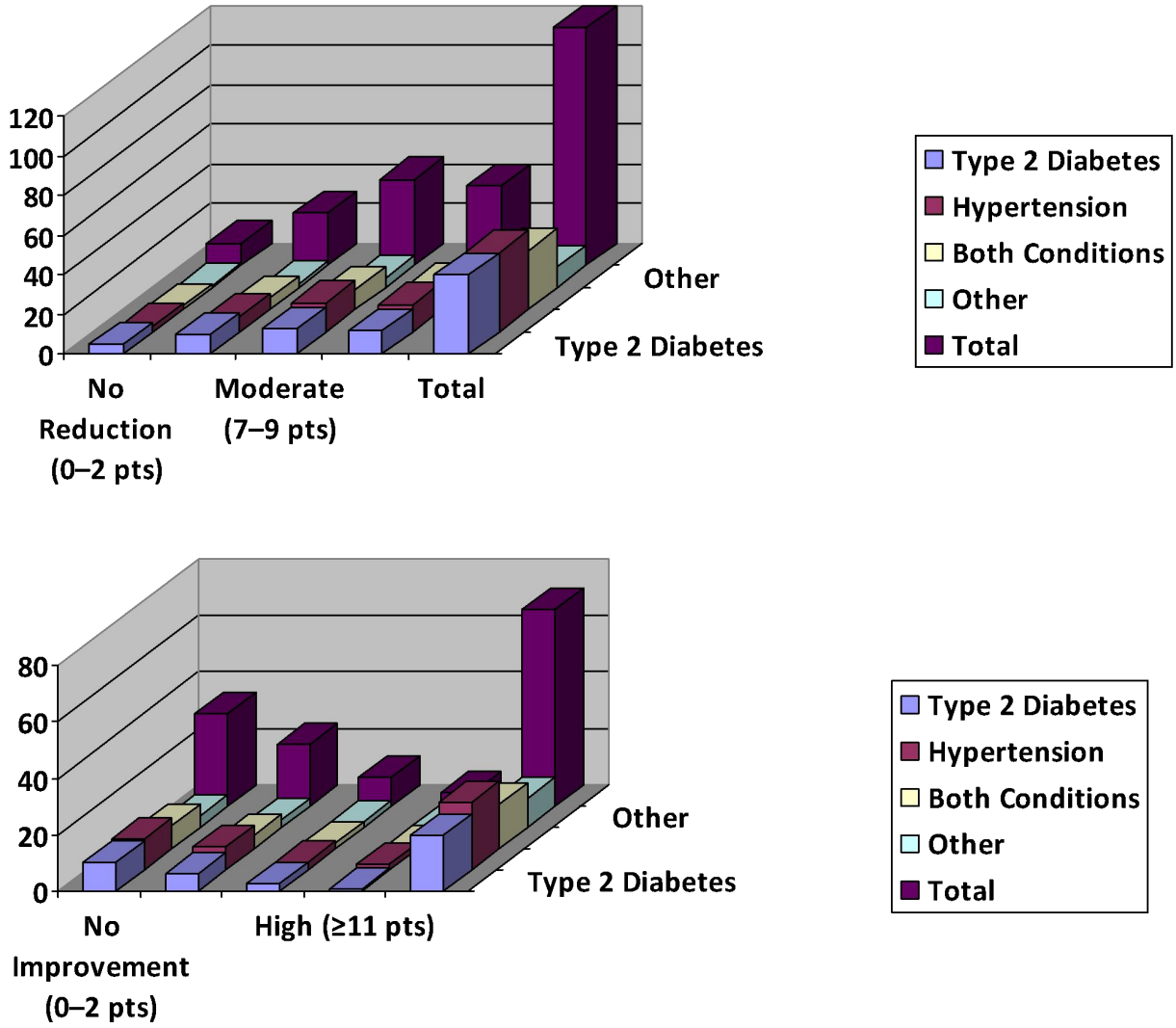
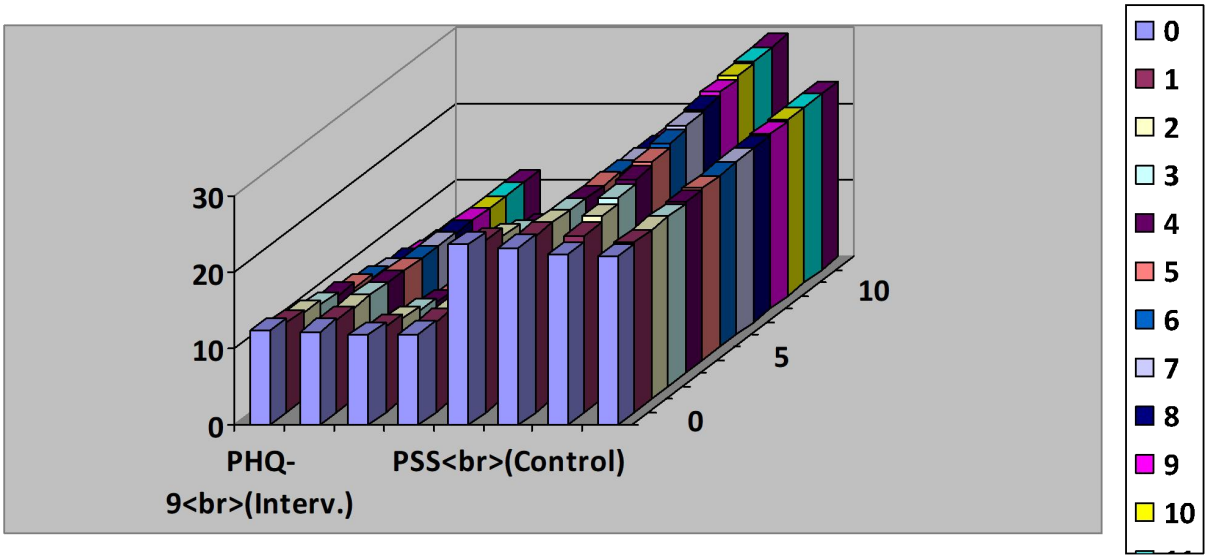


Figure 2. *Chronic Condition and Levels of Stress Reduction PSS Improvement Categories in Intervention Group (n = 120), and (Control Group, n = 120)*

The maximum Δ stress was found among hypertensives (72.5% (29/40)) and patients with both the conditions (73.3% (22/30)), who reported moderate to high levels of stress reduction (at least a score decrease of ≥7 points in PSS) (intervention group, n = 120). Those with type 2 diabetes also experienced significant relief, with 62.5% (25/40) demonstrating moderate to high reduction of stress, as compared to 70% (7/10) among those with other diagnosis. In the control group (n = 70), 47.1% (33/70) remained without a stress reduction, and only 21.4% (15/70) demonstrated a moderate-to-high improvement, respectively, which demonstrated the minimal impact of stress change without intervention and the weak control of the type of chronic condition.



The intervention group showed a statistically significant improvement in all the measured variables with respect to the control group after 12 weeks of intervention. Mean baseline to week 12 depression (PHQ-9) scores for intervention participants decreased from 12.3 at baseline to 6.5 by week 12 while control participants only changed modestly from 12.1 to 11.4. Also levels of anxiety (GAD-7) had decreased from 11.7 to 5.9 in the intervention group as opposed to a minimal decrease now scored at 11.9 to 10.7 in the control group. The perceived stress (PSS) score dropped significantly from 23.5 to 15.2 in the intervention group compared to 23.2 to 21.9 in the control group. Client satisfaction (CSQ-8) increased over time in the intervention group from 22.3 to 29.1, in contrast to small increase from 22.0 to 23.0 in the control group. These effects document the short-term effectiveness of the intervention in mental health and satisfaction responses.

Table 4. Intervention Outcomes: Pretest-Posttest Comparison Between Groups (N = 240)

Outcome Measure	Group	Pretest (M ± SD)	Posttest (M ± SD)	Mean Difference	Effect Size (Cohen's d)	p-value
PHQ-9 (Depression)	Intervention	12.3 ± 3.4	6.5 ± 2.9	-5.8	1.21 (large)	< .001
	Control	12.1 ± 3.6	11.4 ± 3.2	-0.7	0.21 (small)	.064
GAD-7 (Anxiety)	Intervention	11.7 ± 3.1	5.9 ± 2.7	-5.8	1.30 (large)	< .001
	Control	11.9 ± 3.0	10.7 ± 2.9	-1.2	0.40 (small)	.041
PSS (Stress)	Intervention	23.5 ± 4.6	15.2 ± 4.0	-8.3	1.10 (large)	< .001
	Control	23.2 ± 4.8	21.9 ± 4.2	-1.3	0.29 (small)	.073
Systolic BP	Intervention	142.6 ± 12.5	130.4 ± 10.3	-12.2	1.02 (large)	< .001
	Control	143.1 ± 11.7	140.6 ± 11.2	-2.5	0.29 (small)	.059
Diastolic BP	Intervention	88.3 ± 8.1	80.1 ± 7.4	-8.2	1.01 (large)	< .001
	Control	87.9 ± 7.9	86.2 ± 7.6	-1.7	0.22 (small)	.083
HbA1c (%)	Intervention	8.1 ± 0.9	6.9 ± 0.7	-1.2	1.33 (large)	< .001
	Control	8.0 ± 0.8	7.7 ± 0.9	-0.3	0.35 (small)	.048
BMI (kg/m²)	Intervention	30.2 ± 3.1	28.4 ± 2.9	-1.8	0.85 (large)	< .001
	Control	30.0 ± 3.4	29.6 ± 3.2	-0.4	0.15 (trivial)	.126
CSQ-8 (Satisfaction)	Intervention	22.3 ± 4.0	29.1 ± 3.8	+6.8	1.45 (large)	< .001
	Control	22.0 ± 4.2	23.0 ± 4.1	+1.0	0.26 (small)	.071

Results The effect size of change from pretest to posttest on all measures were in the large and significant range for the intervention participants compared with the control group: PHQ-9 (mean difference = -5.8, d = 1.21, p <. 001), GAD-7 (-5.8, d = 1.30, p <. 001), and PSS (−8.3, d = 1.10, p <. 001). Large physiological changes were seen in SBP (\(-12.2, d = 1.02)\), DBP (\(-8.2, d = 1.01\)), HbA1c (\(-1.2, d = 1.33\)), and BMI (\(-1.8, d = 0.85\), all \(p <. 001. Satisfaction of CSQ-8 Participants in the intervention group experienced a 6.8 -point increase (d = 1.45, p <. 001), and the control group had gained only little, largely non-significant scores, verifying the efficacy of the intervention at psychological, physiological and satisfaction levels.

Discussion

The collaboration between psychosocial interventions and family medicine in this study indicated that there were significant improvements in various psychological and physiological variables. Depression, anxiety, and stress dramatically decreased for the intervention group with absolute large effect sizes reflecting clinical significance. This is consistent with emerging literature indicating that psychosocial interventions conducive to primary care (for instance, cognitive-behavioral and mindfulness-based interventions) are particularly efficacious insofar as they enhance accessibility and early intervention (Cavarra et al., 2022). The observed mental health benefits in the intervention group stand in stark contrast to the small changes in control group reported, pointing to the suboptimized routine care for comorbid psychological distress in patients with chronic disease.

Along with these psychological outcomes, significant decreases in important physiological parameters such as SBP, DBP, HbA1c, and BMI were observed in the intervention group with large effect sizes. These findings indicate an indirect effect of the psychosocial intervention on health behavior and psychophysiological control. Chronic stress, anxiety and depressive symptoms are known to be associated with inadequate self-care, dysregulated autonomic function and elevated inflammation, all of which are involved in hypertension, poor glycemic control and weight gain (Gordon et al., 2022). The finding that the intervention has improved both mental and physical health measures suggests the association between physical and psychic health and supports the implementation of an integrated psycho-somatic approach in PC.

Of note, the intervention had a demonstrable positive impact on patient satisfaction, as gauged by the CSQ-8. The intervention group showed a 6.8-point increase in satisfaction, while there was no significant change in the control group. This result emphasizes the importance that patients given to being listened, to receive support in emotional and be treated in a holistic way. Recent studies have highlighted the contributions of therapeutic alliance and perceived empathy to patient satisfaction and health-related outcomes (Schäfer et al., 2023). High satisfaction is not only a measure of the quality of service provided, but can predict greater patient involvement, adherence to therapy, and attendance, all key in the management of a chronic disease. The results endorse the application of patient-centered care models as a core element for a successful primary care intervention.

Moreover, the intervention's effectiveness is demonstrated by large effect sizes that were consistent across psychological as well as physiological aspects. These results are in line with prior meta-analytic evidence of the efficacy of integrated care approaches for patients with comorbid multimorbidity and psychological comorbidities (Kangaslampi & Peltonen, 2022; Phelan et al., 2023). The co-varying

changes in mood, anxiety, stress, glycemic control and cardiovascular parameters argue for the possibility that emotional and cognitive processes provide optimum facilitation of health behavior and physiological regulation. These findings are particularly relevant in health systems with growing burdens of non-communicable diseases and mental health disorders, where scalable, multi-disciplinary approaches are required.

The results are promising although some of the broader policy and practice implications need to be taken into account. The successful incorporation of psychosocial care into family medicine rests on the evidence of clinical efficacy, the importance of system-level factors, including workforce training, institutional support, and financial incentives. One caveat is that, in high-income country settings, policy frameworks that enable and incentivize interdisciplinary care teams and outcome-based reimbursement models are more likely to result in the sustainable integration of AYRH services (Roberts et al., 2022; Toly et al., 2024). In this setting, our results argue for the implementation of changes to allow for shared-care models when more than provider are available, particularly in resource scarce or underserved health care settings.

Last but not least, the good results of our study are in line with an increasing change of paradigm towards holistic and preventive medicine. The combination of increasing prevalence of chronic disease and increasing mental health needs has thrust health systems worldwide into the struggle to address the twin burdens, and by combining mental and physical health care, a workable, and cost-effective solution is to be found (Carrillo de Albornoz et al., 2022; Shorey et al., 2023). The findings in this study indicate that primary care is a good place for the integration of social and vocational services given the access, continuity and the ability to detect early and intervene. As such, integrating standardized psychosocial support into routine clinical care has the potential not only to increase health outcomes, but also to reduce long-term use of healthcare services, likely leading to cost-savings.

Future Direction

Future studies should examine the feasibility and durability of integrated psychosocial interventions in heterogeneous primary care settings. Long-term follow-up studies are also needed to assess the sustainability of the psychological and physiological effects noted. Furthermore, future trials are also needed to investigate the effectiveness of alternative delivery modes (e.g. telehealth; group-based; culturally adapted versions of the intervention) to improve access and cultural appropriateness of the intervention. Study of cost-effectiveness and patient involvement strategies will also be paramount to guide health policy and implementation.

Limitations

Despite the important results, the study has some limitations. The quasi-experimental design cedes causal direction and although an appropriate sample size was achieved, individuals were not randomized so there is the potential for selection bias. The intervention period was not very long and the follow-up did not measure the long-term maintenance of the results. Additionally, this study was performed in only one healthcare facility which could affect generalization. Future trans-context randomized controlled trials would generate more generalizable evidence to the wider effectiveness of the intervention.

Conclusion

This study shows that implementing organizational psychological interventions in family medicine is effective in optimizing not only the psychological well-being, but also the physical health, of patients with chronic

disease. The benefit was a decreased symptoms of depression, anxiety and stress, lower blood pressure and glucose levels, and increased patient satisfaction. These results support the application of a biopsychosocial approach in primary care and the necessity of policy structures that facilitate it. A whole person-centered model of care is not only clinically efficacious, but also necessary to address the diverse health requirements of the 21st century population.

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