Pilot Study On Effectiveness Of Community Based Mental Health Nursing Strategies On Depression, Somatic Disorders   Insomnia And Clinical Parameters Among Adults With Non -Communicable Diseases At Selected Kiosk Centres

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ABSTRACT

This pilot study explores how the strategies of community-based mental health nursing practices reduce depression, somatic disorders, insomnia, and clinical parameters (blood pressure rates and levels of blood glucose) among adults with non-communicable diseases (NCDs), namely, hypertension and diabetes. The research employs quasi experimental research design consisting of pre and post testing on an experimental group (experiencing mental health nursing interventions) and a control group (experiencing usual care). The findings show that the conditions of depression, somatic disorders, and insomnia showed significant improvements in the experimental rather than the control group, which means that the incorporation of mental health nursing can have a positive influence on the management of physical conditions chronic in their nature in the primary care practice.

KEYWORDS: Community-based mental health nursing, Non-communicable diseases (NCDs), Depression, Somatic disorders and Insomnia.

INTRODUCTION

Non-communicable diseases (NCDs) are the leading global cause of death, accounting for over 85% of premature deaths in low- and middle-income countries. Conditions such as cardiovascular disease, diabetes, cancer, and chronic respiratory diseases affect not only physical health but also psychological and social well-being, with depression and anxiety increasingly prevalent. Together, NCDs and mental disorders contribute to 72% of global deaths, highlighting the urgent need for integrated care addressing both physical and mental health [1]. Comorbid depression and anxiety significantly impact quality of life, treatment outcomes, and healthcare costs, as depression may exacerbate NCD manifestations, reduce treatment adherence, and compromise self-management [2]. Sleep disturbances also show a bidirectional relationship with NCDs, worsening stress, hypertension, and glucose control while being influenced by chronic illness [3-6]. Diabetes mellitus (DM) and hypertension (HTN) are particularly associated with depression, which impairs self-care, adherence, and lifestyle modification, though early intervention can improve coping, compliance, and overall well-being [7,8]. Despite this burden, nursing practice often underestimates depression, somatic disorders, and insomnia in NCD patients, underscoring the need for comprehensive, primary care–based approaches, particularly in marginalized communities, where nurses play a critical role but require structured frameworks [9,10].

This study evaluates the effectiveness of community-based mental health nursing interventions on depression, somatic disorders, and insomnia among adults with NCDs attending kiosk facilities under Omayal Achi Community Health Center [11]. Previous research reported that nearly 49% of DM and HTN patients experienced depression, with common symptoms including sleep disturbances, fatigue, and low activity [12]. A quasi-experimental pre- and post-test design will assess intervention effects on mental health and clinical parameters, including blood pressure and glucose, comparing intervention and control groups [13,14]. Demographic variables will also be examined for associations and differences [15-18]. Effectiveness will be evaluated at one, three, and six months using the Beck Depression Inventory, PHQ-15, Athens Insomnia Scale, and standard clinical measures. Interventions consist of six 60-minute group sessions over three weeks. Guided by Betty Neumann's systems theory emphasizing holistic care, the study aims to inform integrated healthcare models, demonstrating that addressing mental health in NCD patients is essential to improving treatment, quality of life, and overall well-being [19,20].

METHODOLOGY

Research Approach and Design: A quantitative research approach was used with a quasi-experimental (pre-test and post-test with control group) design.

Pilot Study Procedure: The study targeted 40 adults (20 experimental, 20 control) aged 40–60 years with diagnosed NCDs

(hypertension, diabetes, or both) of at least five years' chronicity, receiving care at kiosk centres in Arakkambakkam (experimental) and Arunjothipalayam (control). Participants underwent pre-testing for depression, somatic disorders, insomnia, and clinical parameters. The experimental group received community-based mental health nursing interventions, while the control group continued routine care, followed by a post-test to evaluate effectiveness.

Variables:
- **Independent Variable:** Community-based mental health nursing interventions
- **Dependent Variables:** Depression, somatic disorders, insomnia, and clinical parameters
- **Background Variables:** Demographics (age, gender, education, occupation, family type, income), personal habits (smoking, alcohol), and clinical variables (illness chronicity, type and place of treatment)

Study Setting: Omayal Achi Community Health Centre
Population and Sample: Adults with NCDs under kiosk care, aged 30–60+, with mild to moderate depression, somatic disorders, and insomnia, forming the accessible population. Total enumerative sampling was used until 40 eligible participants were included.

Inclusion Criteria: Adults with NCDs, aged 30–60+, Tamil or English speakers, mild/moderate depression, somatic disorders, and insomnia, permanent village residents, willing to participate.

Exclusion Criteria: Adults with severe complications (renal failure, cardiac issues, diabetic foot), physical or mental disabilities, prior participation in similar programs, or inability to follow the intervention.

Tools: Screening tools, demographic profile, Beck Depression Inventory, PHQ-15, Athens Insomnia Scale, and clinical measures (BP, blood glucose).

Tool Validity: Validated by 10 experts including a clinical psychologist, psychiatrist, research professionals, community health nursing specialists, and a medical-surgical nursing expert, ensuring reliability and relevance.

RESULTS

Table 1: Frequency and percentage distribution of demographic variables of adults with Non-communicable in study and control group

N=40

Demographic Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Age group (years)	40-45 years	5	25	2	10	χ^2=1.85 p=0.60(NS)
	46-50 years	3	15	5	25	
	51-55 years	**7**	**35**	**8**	**40**	
	56-60 years	5	25	5	25	
Gender	Male	2	10	3	15	χ^2=0.23 p=0.63(NS)
	Female	**18**	**90**	**17**	**85**	
Religion	**Hindu**	**17**	**85**	**17**	**85**	χ^2=0.00 p=1.00(NS)
	Christian	3	15	3	15	
	Muslim	0	0	0	0	

The study included 40 adults with non-communicable diseases, divided equally into study and control groups (n = 20 each). Most participants were aged 51–55 years (study: 35%; control: 40%), followed by 40–45 years (study: 25%; control: 10%), 56–60 years (study: 25%; control: 25%), and 46–50 years (study: 15%; control: 25%), with no significant age differences between groups (χ^2 = 1.85, p = 0.60). Gender distribution was predominantly female (study: 90%; control: 85%), without significant difference (z^2 = 0.23, p = 0.63). Both groups were mainly Hindu (85%), with 15% Christian participants and no Muslims, showing complete homogeneity in religion (χ^2 = 0.00, p = 1.00).

Table 2: Frequency and percentage distribution of demographic variables of adults with Non-communicable diseases in study and control group

N=20

Demographic Variables	Group	Chi square test

		Study (n=20)		Control (n=20)		
		n	%	n	%	
Educational Qualification	Professional degree	1	5	3	15	χ2=4.83 p=0.30(NS)
	Graduate	7	35	9	45	
	Intermediate/diploma	11	55	5	25	
	High school	1	5	2	10	
	Middle school	0	0	1	5	
	Primary school	0	0	0	0	
	Illiterate	0	0	0	0	
Occupation	Professional	0	0	0	0	χ2=8.30 p=0.08(NS)
	Semi- professional	0	0	0	0	
	Clerical/shop/farmer	0	0	2	10	
	Skilled worker	4	20	6	30	
	Semi- skilled worker	15	75	7	35	
	Unskilled worker	1	5	3	15	
	Unemployed	0	0	2	10	

In this study of 40 adults with non-communicable diseases (20 per group), educational and occupational distributions were assessed. The study group had more participants with intermediate/diploma education (55% vs. 25%), while the control group had more graduates (45% vs. 35%) and slightly higher professional degree holders. High school and middle school representation was low, and no participants were illiterate or had only primary education, with no significant overall educational difference (χ^2 = 4.83, p = 0.30). Occupationally, the study group mainly comprised semi-skilled workers (75% vs. 35%), while the control group had greater variation, including skilled, unskilled, and clerical/farming occupations, but the difference was not statistically significant (χ^2 = 8.30, p = 0.08).

Table 3: Frequency and percentage distribution of demographic variables of adults with Non-Communicable disease in study and control group
N=20

Demographic Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Family yearly income	>Rs. 185,895	4	20	0	0	χ2=5.00 p=0.08(NS)
	Rs.92951-185894	10	50	10	50	
	Rs.69535-92950	6	30	10	50	
	Rs.46475-69534	0	0	0	0	
	Rs.27883-46474	0	0	0	0	
	Rs.9308-27882	0	0	0	0	
	<Rs.9307	0	0	0	0	

Birth order	1	3	15	5	25	χ^2=2.92 p=0.40(NS)
	2	2	10	4	20	
	3	2	10	**6**	**30**	
	4	**8**	**40**	4	20	
	4 and above	5	25	1	5	

In this study of adults with non-communicable diseases, both groups were predominantly middle-income, with 50% earning Rs.92,951–185,894 annually. The study group had more high-income participants (20% vs. 0%), while the control group had more in the lower middle-income bracket (50% vs. 30%), though differences were not statistically significant (χ^2 = 5.00, p = 0.08). Birth order varied across groups, with the study group having more fourth- and fifth-borns and the control group more first- to third-borns, but this difference was also non-significant (χ^2 = 2.92, p = 0.40), indicating similar family-position characteristics.

Table 4: Frequency and percentage distribution of demographic variables of adults with Non-Communicable disease in study and control group

Demographic Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Marital status	**Married**	**20**	**100**	**20**	**100**	χ^2=0.00 p=1.00(NS)
	Single	0	0	0	0	
	Divorced	0	0	0	0	
	Widow/widower	0	0	0	0	
	Separated	0	0	0	0	
	others	0	0	0	0	
Type of family	**Nuclear**	**14**	**70**	**14**	**70**	χ^2=0.00 p=1.00(NS)
	Extended	0	0	0	0	
	Joint	6	30	6	30	
	Others	0	0	13	0	
Family size (including self)	**Small(2-4)**	**14**	**70**	**13**	**65**	χ^2=0.11 p=0.74(NS)
	Medium(5-7)	6	30	7	35	
	Large(<7)	0	0	0	0	

In this study of 40 adults with non-communicable diseases, both groups were homogeneous in marital status, family type, and family size. All participants were married (χ^2 = 0.00, p = 1.00). Nuclear families predominated (70% in both groups), with the remainder in joint families, and no extended-family arrangements were reported (χ^2 = 0.00, p = 1.00). Small families (2–4 members) were most common, with no significant difference in family size between groups (χ^2 = 0.11, p = 0.74), indicating well-matched demographics.

Table 5: Frequency and percentage distribution of demographic variables of adults with Non-Communicable disease in study group N=20

S.NO	Activities	<5 hours per week	5-10 hours per week	<10 hours per week	Chi square test

		no	%	no	%	no	%	
1	Hygiene & self- grooming	11	55	7	35	2	10	x2=2.94 p=0.23(NS)
2	Exercise/ physical fitness	2	10	0	0	0	0	x2=0.36 p=0.55(NS)
3	Gardening	12	60	5	25	1	5	x2=2.32 p=0.50(NS)
4	cooking	3	15	15	75	0	0	x2=0.23 p=0.88(NS)
5	Shopping	19	95	1	5	0	0	x2=1.44 p=0.48(NS)
6	Washing and cleaning	9	45	8	40	2	10	x2=2.53 p=0.47(NS)
7	Watching TV	1	5	17	85	2	10	x2=1.36 p=0.50(NS)
8	Media and social Networking	12	60	2	10	0	0	x2=3.67 p=0.30(NS)
9	Sit chat with friends and relatives	15	75	5	25	0	0	x2=1.55 p=0.21(NS)
10	Others	0	0	0	0	0	0	x2=0.00 p=1.00(NS)

The study assessed daily activity patterns of 20 adults with non-communicable diseases, categorizing weekly time spent into <5 hours, 5–10 hours, and >10 hours. Shopping was the most frequent low-time activity (<5 hrs, 95%), while television watching dominated the 5–10 hr range (85%). Social interaction, gardening, self-care, cooking, washing, exercise, and social media showed varied low- to moderate-time engagement. Chi-square analysis revealed no significant association between activity type and time spent (p > 0.05), indicating that observed patterns likely occurred by chance.

Table 6: Frequency and percentage distribution of demographic variables of adults with Non-Communicable disease in control group   N=20

S.NO	Activities	<5 hours per week		5-10 hours per week		<10 hours per week		Chi square test
		NO	%	NO	%	NO	%	
1	Hygiene & self-grooming	15	75	5	25	0	0	x2=2.94 p=0.23(NS)
2	Exercise/ physical fitness	1	5	0	0	0	0	x2=0.36 p=0.55(NS)
3	Gardening	9	45	8	40	0	0	x2=2.32 p=0.50(NS)
4	cooking	3	15	14	70	0	0	x2=0.23 p=0.88(NS)

5	Shopping	17	85	2	10	0	0	I2=1.44 p=0.48(NS)
6	Washing and cleaning	8	40	11	55	0	0	I2=2.53 p=0.47(NS)
7	Watching TV	3	15	16	80	1	5	I2=1.36 p=0.50(NS)
8	Media and social Networking	6	30	3	15	0	0	I2=3.67 p=0.30(NS)
9	Sit chat with friends And relatives	18	90	2	10	0	0	I2=1.55 p=0.21(NS)
10	Others	0	0	0	0	0	0	I2=0.00 p=1.00(NS)

In the control group of 20 adults with non-communicable diseases, most participants spent minimal time on social interaction (90% <5 hrs/wk) and shopping (85% <5 hrs/wk), while television watching dominated 5–10 hrs/wk (80%). Self-care, cooking, washing, and gardening showed low- to moderate-time engagement. Exercise participation was very low (5% <5 hrs/wk), and media/social networking was mostly low-time. Chi-square analysis indicated no significant associations between activity type and time spent (p > 0.05), suggesting observed patterns occurred by chance.

Table 7: Frequency and percentage distribution of Personal variables of adults with Non-Communicable disease in study and control group
N=20

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
History of non – Communicable Disease	Yes	20	100	20	100	I2=0.00 p=1.00(NS)
	No	0	0	0	0	
If yes type of disease	Diabetes mellitus	10	50	10	50	I2=0.20 p=0.90(NS)
	Hypertension	10	50	10	50	
	Cardio vascular disease	0	0	0	0	
	Cancer	0	0	0	0	
	Thyroid disease	0	0	0	0	
	Hepatic disease	0	0	0	0	
	Renal disease	0	0	0	0	
	Mental illness	0	0	0	0	
	Others	0	0	0	0	

In both the study and control groups (n = 20 each), all participants (100%) had a history of non-communicable diseases, with no statistical difference between groups ($\chi^2 = 0.00$, p = 1.00). Diabetes mellitus and hypertension were the most common conditions, each affecting 50% of participants, while no cases of cardiovascular, cancer, thyroid, hepatic, renal, or mental diseases were reported. Disease-type distribution was not significantly different between groups ($\chi^2 = 0.20$, p = 0.90).

Table 8: Frequency and percentage distribution of Personal variables of adults with Non-Communicable disease in study and control group

Personal Variables	Group				Chi square test
	Study (n=20)		Control (n=20)		
	n	%	n	%	

1.2 Chronicity of illness (years)	0-3	0	0	0	0	I2=2.50 p=0.28(NS)
	4-6	0	0	1	50	
	7-9	**11**	**55**	**14**	**70**	
	10 and above	9	45	5	25	
1.3 Treatment	**Regular**	**18**	**90**	**17**	**85**	I2=0.22 p=0.63(NS)
	Irregular	2	10	3	15	
2. History of smoking	Yes	2	10	3	15	I2=0.22 p=0.63(NS)
	No	18	90	17	85	
2.1 Type of smoke tobacco	Beedi	1	5	1	5	I2=0.36 p=0.83(NS)
	Suruttu	0	0	0	0	
	Cigarette	**1**	**5**	**2**	**10**	
	Others	0	0	0	0	

The distribution of personal variables among adults with non-communicable diseases showed no significant differences between the study and control groups. Chronicity of illness was 7–9 years in 55% of the study group and 70% of controls, with the remainder 10+ years. Regularity of treatment was high in both groups (study: 90%; control: 85%). Smoking history was low (study: 10%; control: 15%), with minor differences in beedi and cigarette use, all non-significant by chi-square analysis.

Table 9: Frequency and percentage distribution of Personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
2.2 Frequency of use per day (times)	1-3	0	0	0	0	I2=0.36 p=0.83(NS)
	4-6	0	0	0	0	
	7-9	1	5	1	5	
	>10	1	5	2	10	
2.3 Chronicity of use (years)	0-5	0	0	0	0	I2=3.02 p=0.38(NS)
	6-10	1	5	0	0	
	11-15	0	0	2	10	
	>15	1	5	1	5	
2.4 Uses of alcohol	Yes	2	10	3	15	I2=0.22 p=0.63(NS)
	No	18	90	17	85	
3.1 Frequency per week (times)	1-3	1	5	0	0	I2=3.02 p=0.38(NS)

	4-6	0	0	2	10	
	7-9	1	5	1	5	
	above 10	0	0	0	0	

The analysis of alcohol consumption among adults with non-communicable diseases showed minimal differences between the study and control groups. Overall, 10% of the study group and 15% of controls reported alcohol use. Frequency and chronicity were low, with few participants consuming alcohol 1–6 times per week or over periods of 6–15 years. Daily usage patterns were similar, and no significant differences were observed between groups.

Table 10: Frequency and percentage distribution of Personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
3.2 Amount per week (ml)	500	0	0	0	0	l2=0.36 p=0.83(NS)
	500-1000	1	5	1	5	
	1000-1500	1	5	1	5	
	1500-2000	0	0	0	0	
3.3 Chronicity of use (years)	0-5	0	0	0	0	l2=0.36 p=0.83(NS)
	6-10	0	0	0	0	
	11-15	1	5	1	5	
	>15	1	5	2	10	
4.Habit of exercise	Yes	2	10	2	10	l2=0.00 p=1.00(NS)
	No	18	90	18	90	
4.1 Type of exercise	Walking	1	5	1	5	l2=2.00 p=0.72(NS)
	Jogging	0	0	1	5	
	Bicycling	1	5	0	0	
	Swimming	0	0	0	0	
	Weight lifting	0	0	0	0	
	Playing shuttle	0	0	0	0	
	Playing tennis	0	0	0	0	

The distribution of alcohol use and physical activity among adults with non-communicable diseases showed minimal differences between the study and control groups. Weekly alcohol intake ranged from 500–1500 ml for 5% of participants in each group, with similar chronicity of use (11–15 years or >15 years). Only 10% of participants in both groups exercised, primarily walking,

with isolated instances of bicycling and jogging; yoga participation was notably higher. Chi-square analysis indicated no significant differences in alcohol consumption or exercise habits between groups.

Table 11: Frequency and percentage distribution of Personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				
		Study (n=20)		Control (n=20)		
		n	%	n	%	
4.2 Intensity of exercise	Moderate intensity	1	5	2	10	x^2=1.33 p=0.51(NS)
	Vigorous intensity	1	5	0	0	
4.3 Frequency of exercise	Once in a day	2	10	1	5	x^2=1.33 p=0.51(NS)
	Twice in a day	0	0	1	5	
	3-times in a weak	0	0	0	0	
	Rarely	0	0	0	0	
4.4.Duration of exercise in each frequency(minutes)	<10	0	0	1	5	x^2=2.00 p=0.57(NS)
	10-20	1	5	1	5	
	21-30	1	5	0	0	
	31-40	0	0	0	0	
	41-50	0	0	0	0	
	51-60	0	0	0	0	
4.5 Duration of exercise in each frequency (minutes)	1-3	2	10	1	5	x^2=1.33p=0.51(NS)
	4-6	0	0	1	5	
	7-9	0	0	0	0	
	>10	0	0	0	0	

Among adults with non-communicable diseases, exercise patterns were limited in both study and control groups. Moderate-intensity exercise was reported by 5% of participants in each group, while vigorous-intensity exercise was noted only in 5% of the study group. Daily exercise occurred in 10% of the study group and 5% of controls, with session durations of 10–30 minutes and 1–3 days per week. Overall, exercise frequency, intensity, and duration were low across both groups.

Table 12: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Cereals (wheat, ragi etc…)	More than 2 times a day	0	0	0	0	x^2=0.47 p=0.49(NS)
	Once a day	0	0	0	0	
	4-6 Times a week	0	0	0	0	
	2-3 times A week	7	35	5	25	
	Once a week	13	65	15	75	

	2-3 times a month	0	0	0	0	
	Once a month	0	0	0	0	
	Consume rarely	0	0	0	0	

Among adults with non-communicable diseases, cereal consumption was low and similar in both groups. In the study group, 35% consumed cereals 2–3 times per week and 65% once per week, while in the control group, 25% consumed cereals 2–3 times per week and 75% once per week. No participants reported daily or more frequent consumption.

Table 13: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables1		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Pulses and leguments	More than 2 times a day	1	5	0	0	Ӏ2=8.22 p=0.08(NS)
	Once a day	6	30	0	0	
	4-6 Times a week	8	40	8	40	
	2-3 times A week	4	20	11	55	
	Once a week	1	5	1	5	
	2-3 times a month	0	0	0	0	
	Once a month	0	0	0	0	
	Consume rarely	0	0	0	0	

Pulse and legume consumption among adults with non-communicable diseases showed moderate frequency in both groups. In the study group, 5% consumed more than twice daily, 30% once daily, 40% 4–6 days/week, 20% 2–3 days/week, and 5% once a week. In the control group, none consumed daily, with 40% consuming 4–6 days/week, 55% 2–3 days/week, and 5% once a week.

Table 14: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Salty foods (pickles, chips, dry fish, ect...)	More than 2 times a day	0	0	0	0	Ӏ2=6.40 p=0.17(NS
	Once a day	0	0	0	0	
	4-6 Times a week	1	5	0	0	
	2-3 times A week	0	0	0	0	
	Once a week	0	0	1	5	
	2-3 times a month	6	30	10	50	
	Once a month	4	20	6	30	
	Consume rarely	9	45	3	15	

Salt intake among adults with non-communicable diseases was generally low in both groups. In the study group, 5% consumed salty foods 4–6 times/week, 30% 2–3 times/month, 20% once/month, and 45% rarely. In the control group, 5% consumed

once/week, 50% 2–3 times/month, 30% once/month, and 15% rarely, with no participants consuming salty foods daily.

Table 15: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Yellow vegetables	More than 2 times a day	0	0	0	0	χ^2=3.00 p=0.22(NS)
	Once a day	8	40	8	40	
	4-6 Times a week	6	30	6	30	
	2-3 times A week	6	30	6	30	
	Once a week	0	0	0	0	
	2-3 times a month	0	0	0	0	
	Once a month	0	0	0	0	
	Consume rarely	0	0	0	0	

Consumption of yellow vegetables among adults with non-communicable diseases was similar in both groups. In each group, 40% consumed them once daily, 30% 4–6 days per week, and 30% 2–3 days per week. No participants reported eating yellow vegetables more than twice daily, once a week, or rarely.

Table 16: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Green leafy vegetables	More than 2 times a day	0	0	0	0	χ^2=1.35 p=0.51(NS)
	Once a day	2	10	3	15	
	4-6 Times a week	6	30	3	15	
	2-3 times A week	12	60	14	70	
	Once a week	0	0	0	0	
	2-3 times a month	0	0	0	0	
	Once a month	0	0	0	0	
	Consume rarely	0	0	0	0	

Consumption of green leafy vegetables among adults with non-communicable diseases showed moderate frequency in both groups. In the study group, 10% ate them once daily, 30% 4–6 days/week, and 60% 2–3 days/week. In the control group, 15% consumed them once daily, 15% 4–6 days/week, and 70% 2–3 days/week, with no participants consuming them more than twice daily, once a week, or rarely.

Table 17: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables	Group				Chi square test
	Study (n=20)		Control (n=20)		
	n	%	n	%	

Fruits	More than 2 times a day	0	0	0	0	x^2=5.03p=0.17(NS)
	Once a day	2	10	0	0	
	4-6 Times a week	0	0	0	0	
	2-3 times A week	8	40	6	30	
	Once a week	5	25	11	55	
	2-3 times a month	5	25	3	15	
	Once a month	0	0	0	0	
	Consume rarely	0	0	0	0	

Fruit consumption among adults with non-communicable diseases varied between groups. In the study group, 10% consumed fruits daily, 40% 2–3 times/week, 25% once a week, and 25% 2–3 times/month. In the control group, none consumed fruits daily, 30% 2–3 times/week, 55% once a week, and 15% 2–3 times/month.

Table 18: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Milk &products	More than 2 times a day	0	0	0		x^2=1.03p=0.60(NS)
	Once a day	13	65	14	70	
	4-6 Times a week	1	5	0	0	
	2-3 times A week	6	30	6	30	
	Once a week	0	0	0	0	
	2-3 times a month	0	0	0	0	
	Once a month	0	0	0	0	
	Consume rarely	0	0	0	0	

Milk and milk product consumption among adults with non-communicable diseases was similar in both groups. In the study group, 65% consumed them once daily, 5% 4–6 times/week, and 30% 2–3 times/week. In the control group, 70% consumed them once daily and 30% 2–3 times/week, with no participants reporting consumption more than twice daily, once a week, or none.

Table 19: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Fish	More than 2 times a day	0	0	0	0	x^2=7.27p=0.12(NS)
	Once a day	1	5	0	0	
	4-6 Times a week	1	5	5	25	

2-3 times A week	11	55	9	45
Once a week	4	20	6	30
2-3 times a month	0	0	0	0
Once a month	3	15	0	0
Consume rarely	0	0	0	0

Fish consumption in the study group was as follows: once a day-5% (n=1) and 4-6 times a week-25% (n=5), 2-3 times a week-55% (n=11), once a week-20% (n=4), once a month- 15% (n=3). Of the control group 5% (n=1) reported eating fish every day and 25% (n=5) 4-6 times a week, while 45% (n=9) ate fish 2-3 times a week, 30% (n=6) 1 time a week, and 15% (n=3) once a month.

Table 20: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Meats and chicken	**More than 2 times a day**	0	0	0	0	$x^2=6.22$ p=0.10(NS)
	Once a day	0	0	0	0	
	4-6 Times a week	6	30	3	15	
	2-3 times A week	6	30	5	15	
	Once a week	8	40	10	50	
	2-3 times a month	0	0	4	20	
	Once a month	0	0	0	0	
	Consume rarely	0	0	0	0	

Regarding the consumption of meat and chicken, in the study group, 30% (n=6) consumed meats and chicken 4 to 6 times a week, 30% (n=6) 2 to 3 times a week, and 40% (n=8) once a week. In the control group, 15% (n=3) ate meats and chicken 4-6 times a week, 15% (n=5)2-3 times a week and 50% (n=10) a time a week.

Table 21: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Egg	**More than 2 times a day**	0	0	0	0	$x^2=1.67$=0.13(NS)
	Once a day	11	55	10	50	
	4-6 Times a week	2	10	5	25	
	2-3 times A week	7	35	5	25	
	Once a week	0	0	0	0	

2-3 times a month	0	0	0	0
Once a month	0	0	0	0
Consume rarely	0	0	0	0

In the study group 55% (n=11) of students ate eggs once a day, 10% (n=2) four to six times a week, and 35% (n=7) of the students two to three times a week. Control group consumed the eggs as follows: 50% (n=10) at a rate of one per day, 25% (n=5) four to six times a week and 25 like/ (n=5) two to 3 times a week.

Table 22: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Oily foods	**More than 2 times a day**	0	0	0	0	$\chi^2=1.67=0.13$(NS)
	Once a day	0	0	0	0	
	4-6 Times a week	0	0	0	0	
	2-3 times A week	1	5	0	0	
	Once a week	0	0	2	10	
	2-3 times a month	7	35	11	55	
	Once a month	8	40	6	30	
	Consume rarely	4	20	1	5	

In the study group 5% (n=1) said eating oily foods 2-3 times a week, 35% (n=7) 2-3 times a month, 40% (n=8) once a month, and 20% (n= 4) sometimes. 10% (n=2) oily foods ate in the control group once a week, 55% (n=11) 2-3 times a month, 30% (n.

Table 23: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				Chi square test
		Study (n=20)		Control (n=20)		
		n	%	n	%	
High cholesterol foods	**More than 2 times a day**	0	0	0	0	
	Once a day	1	5	0	0	
	4-6 Times a week	0	0	0	0	
	2-3 times A week	0	0	0	0	
	Once a week	4	20	0	0	
	2-3 times a month	7	35	4	20	
	Once a month	2	10	9	45	
	Consume rarely	6	30	7	35	

In the study group, participants consumed high cholesterol food/drink on a daily basis – 5%, (n=1), weekly – 20%, (n=4), monthly – 35%, (n=7), hardly ever – 30%, (n=6) In the control arm, none of the participants ate high cholesterol foods every day and 45% (n=9) ate them every month.

Table 24: Frequency and percentage distribution of personal variables of adults with Non-Communicable disease in study and control group

Personal Variables		Group				
		Study (n=20)		Control (n=20)		
		n	%	n	%	
Animals fats	More than 2 times a day	0	0	0	0	^{2}=1.67=0.13(NS)
	Once a day	0	0	0	0	
	4-6 Times a week	0	0	0	0	
	2-3 times A week	0	0	0	0	
	Once a week	3	15	2	10	
	2-3 times a month	5	25	6	30	
	Once a month	9	45	5	25	
	Consume rarely	3	15	7	35	

In study group, 15% (n=3) consumed flesh fats one time a month, 25% (n=5) two to three times a month, 45% (n=9) one time a month, 15% (n=3) is the frequency not much. In control group, 10% (n=2) consumed animal fat once a week, 30% (n=6) 2-3 times a month, 25% (n=5) a month & 35% (n=7) seldom.

Table 25: Overall comparison of pre and post-test level of depression of patients with Non-Communicable disease in study and control group

Assessment	Level of depression	Study		Control		Chi square test
		n	%	n	%	
Pre-test	Minimal	0	0	0	O	^{2}=0.92 P=0.34 DF= (NS)
	Mild	10	50	13	65	
	Moderate	10	50	7	35	
	Severe	0	0	0	0	
Post Test	Minimal	9	45	0	0	^{2}= 15.46 P=0.001*** DF= (S)
	Mild	11	55	14	70	
	Moderate	0	0	6	30	
	Severe	0	0	0	0	

In the pre-test, 50% of the study group and 65% of the control group had mild depression, while 50% of the study group and 35% of controls had moderate depression. In the post-test, 45% of the study group reached minimal depression and 55% mild, whereas 70% of controls remained mild and 30% moderate, indicating a modest reduction in depression levels in the study group.

Table 26: Overall comparison of pre and post-test level of Somatization of patients with Non-Communicable disease in study and control group

Assessment	Level of depression	Study	Control	Chi square test

		n	%	n	%	
Pre-test	**Minimal**	6	30	5	25	χ^2=0.12 P=0.73 DF= (NS)
	Mild	14	70	15	75	
	Moderate	0	0.00	0	0.00	
	Severe	0	0.00	0	0.00	
Post Test	**Minimal**	14	70	7	35	χ^2= 4.91 P=0.03 DF= (S)
	Mild	6	30	13	65	
	Moderate	0	0	6	30	
	Severe	0	0	0	0	

In the pre-test, minimal somatization was observed in 30% of the study group and 25% of the control group, while mild somatization was 70% and 75%, respectively, with no moderate or severe cases. Post-test, 70% of the study group showed minimal somatization versus 35% in the control group, and mild somatization decreased to 30% in the study group compared to 65% in controls, indicating significant improvement in the study group.

Table 27: Overall comparison of pre and post-test level of Insomnia of patients with Non-Communicable disease in study and control group

Assessment	Level of depression	Study		Control		Chi square test
		n	%	n	%	
Pre-test	**Mild**	7	35	8	40	χ^2=0.11 P=0.74 DF= (NS)
	Moderate	13	65	12	60	
	Severe	0	0.00	0	0	
Post Test	**Mild**	15	75	8	40	χ^2= 5.01 P=0.02 DF= (S)
	Moderate	5	25	12	60	
	Severe	0	0	0	0	

In the pre-test, mild insomnia was observed in 35% of the study group and 40% of controls, while moderate insomnia affected 65% of the study group and 60% of controls, with no severe cases. Post-test, 75% of the study group reported mild insomnia and 25% moderate, compared to 40% mild and 60% moderate in the control group, indicating a notable improvement in the study group.

Table 28: Frequency and percentage distribution of Bio Physiological parameters of patients with Non Communicable disease in study and control group- Pre test

Assessment of the bio physiological parameters		Group			
		Study (n=20)		Control(n=20)	
		n	%	n	%
BMI(Kg/m2)	**18.5-24.9**	0	0	0	0

	25.0-29.9	3	15	5	25
	30.0- 34.9	14	70	13	65
	35-39.9	3	15	2	10
Waist circumferences Male:	< 90 cm	5	25	4	20
	90-94 cm	11	55	13	65
	95-98 cm	2	10	2	10
	99-102 cm	2	10	1	5
Female:	< 80 cm	4	20	5	25
	80-82 cm	6	40	8	40
	83-85 cm	8	40	8	40
	86- 88 cm	2	10	2	10

In the study group, 15% had a BMI of 25.0–29.9, 70% 30.0–34.9, and 15% 35–39.9, while in the control group, 25% were 25.0–29.9, 65% 30.0–34.9, and 10% 35–39.9. Waist circumference distributions were similar between groups: among males, 25% of the study group were <90 cm and 55% between 90–94 cm, while female measurements showed 40% each in the 80–82 cm and 83–85 cm ranges, with comparable distributions in the control group.

Table 29: Frequency and percentage distribution of Bio Physiological Parameters of patients with diabetes mellitus in study and control group- Pre test

Assessment of the bio physiological parameters		Group			
		Study (n=20)		Control(n=20)	
		n	%	n	%
Systolic BP mm of Hg	<120	0	0	0	0
	120-139	3	15	2	10
	140-149	13	65	13	65
	150-159	4	20	5	25
Diastolic BP mm of Hg	<80	0	0	0	0
	80-89	5	25	6	30
	90-99	11	55	11	55
	100-109	4	20	3	15
Fasting Blood Sugar (mg/dl)	<110	0	0	0	0
	110-125	3	15	5	25
	126-140	10	50	11	55
	141-156	6	30	4	20

Among adults with non-communicable diseases, systolic blood pressure in the study group was 120–139 mm Hg in 15%, 140–149 mm Hg in 65%, and 150–159 mm Hg in 20%, compared to 10%, 65%, and 25% in the control group, respectively. Diastolic BP of 80–89 mm Hg and 90–99 mm Hg was observed in 25% and 55% of the study group, and 30% and 55% of controls. Fasting blood sugar levels of 126–140 mg/dl were found in 50% of the study group and 55% of controls.

Table 30: Frequency and percentage distribution of Bio Physiological parameters of patients with Non Communicable diseases in study and control group – Post test

Assessment of the bio physiological parameters		Group			
		Study (n=20)		Control(n=20)	
		n	%	n	%
BMI(Kg/m2)	18.5-24.9	3	15	0	0
	25.0-29.9	8	40	5	25

	30.0- 34.9	9	45	15	75
	35-39.9	0	0	0	0
Waist circumferences Male:	**< 90 cm**	8	40	5	25
	90-94 cm	12	60	15	75
	95-98 cm	0	0	0	0
	99-102 cm	0	0	0	0
Female:	**< 80 cm**	8	40	5	25
	80-82 cm	6	30	5	25
	83-85 cm	6	30	10	50
	86- 88 cm	0	0	0	0

Post-test measurements among adults with non-communicable diseases showed that 15% of the study group had a BMI of 18.5–24.9 and 40% were 25.0–29.9, while no participants in the control group were in the lower BMI range and 25% were 25.0–29.9. For waist circumference, 40% of males in the study group were <90 cm and 60% between 90–94 cm; among females, 40% were <80 cm and 30% between 83–85 cm. The control group had similar distributions, with fewer individuals in the lower waist circumference ranges.

Table 31: Frequency and percentage distribution of Bio Physiological Parameters of patients with diabetes mellitus in study and control group- Post test

Assessment of the bio physiological parameters		Group			
		Study (n=20)		Control(n=20)	
		n	%	n	%
Systolic BP mm of Hg	**<120**	5	25	5	25
	120-139	5	25	4	20
	140-149	10	50	13	65
	150-159	0	0	3	15
Diastolic BP mm of Hg	**<80**	4	20	0	0
	80-89	7	35	6	30
	90-99	9	45	14	70
	100-109	0	0	0	0
Fasting Blood Sugar (mg/dl)	**<110**	3	15	0	0
	110-125	8	40	6	30
	126-140	9	45	11	55
	141-156	0	0	3	15

Post-test clinical assessments among adults with non-communicable diseases showed improvements in the study group. Systolic BP was <120 mm Hg in 25% and 140–149 mm Hg in 50%, with no readings of 150–159 mm Hg, while the control group had more varied values. Diastolic BP in the study group was <80 mm Hg in 20% and 90–99 mm Hg in 45%, compared to 30% and 70% in controls. Fasting blood sugar was 110–125 mg/dl in 40% and 126–140 mg/dl in 45% of the study group, whereas in controls, 55% were 126–140 mg/dl and 15% 141–156 mg/dl. These findings indicate the effectiveness of community-based mental health nursing strategies in improving depression, somatic disorders, insomnia, and clinical parameters in adults with non-communicable diseases.

Table 32: Comparison of pre and post-test Depression of patients with Non communicable diseases in study and control group

Group	Assessment	Mean	SD	Mean gain score	Student independent "t" test
Study	**Pre-test**	18.65	4.39	6.40	t= 8.00

	Post-test	12.25	3.65		**p=0.01** (S)**
Control	Pre-test	17.70	3.57	0.65	t= 1.91 p=0.06 (NS)
	Post-test	17.05	3.80		

In the study group, mean depression scores decreased significantly from 18.65 (SD=4.39) pre-test to 12.25 (SD=3.65) post-test, with a mean gain of 6.40 (t=8.00, p=0.01), indicating a substantial reduction in depression levels. In contrast, the control group showed minimal change, from 17.70 (SD=3.57) to 17.05 (SD=3.80), with a gain of 0.65, which was not statistically significant (t=1.91, p=0.06).

Table 33: Comparison of pre and post-test somatic disorder of patients with Non communicable diseases in study and control group

Group	Assessment	Mean	SD	Mean gain score	Student independent "t" test
Study	**Pre-test**	5.20	1.01	2.30	**t= 8.00** **p=0.01** (S)**
	Post-test	2.90	1.21		
Control	Pre-test	5.65	1.69	0.20	t= 1.91 p=0.06 (NS)
	Post-test	5.45	1.88		

In the study group, somatic disorder scores significantly improved, with a pre-test mean of 5.20 (SD=1.01) decreasing to 2.90 (SD=1.21) post-test, yielding a mean gain of 2.30 (t=8.00, p=0.01). In the control group, scores showed minimal change from 5.65 (SD=1.69) to 5.45 (SD=1.88), with a gain of 0.20, which was not statistically significant (t=1.91, p=0.06).

Table 34: Comparison of pre and post-test Insomnia of patients with Non communicable diseases in study and control group

Group	Assessment	Mean	SD	Mean gain score	Student independent "t" test
Study	**Pre-test**	**10.80**	**3.24**	**3.15**	**t= 4.94** **p=0.01** (S)**
	Post-test	**7.65**	**1.95**		
Control	**Pre-test**	**10.40**	**2.78**	**0.60**	**t= 1.37** **p=0.18 (NS)**
	Post-test	**9.80**	**2.57**		

The study group showed significant improvement in insomnia, with pre-test scores of 10.80 (SD=3.24) decreasing to 7.65 (SD=1.95) post-test, resulting in a mean gain of 3.15 (t=4.94, p=0.01). In the control group, scores slightly decreased from 10.40 (SD=2.78) to 9.80 (SD=2.57), with a mean gain of 0.60, which was not statistically significant (t=1.37, p=0.18).

Table 35: Comparison of study and control group Depression of patients with Non communicable diseases

Assessments	Study group		Control group		Mean difference	Student independent t-test	p-value
	Mean	**SD**	**Mean**	**SD**			

Pretest	18.65	4.39	17.70	3.57	-0.95	0.75	0.45
Post test	12.25	3.65	17.05	3.80	-4.80	4.06	0.001
Total	20	100%	20	100%			

In the pre-test, mean depression scores were 18.65 (SD=4.39) for the study group and 17.70 (SD=3.57) for the control group, with a non-significant mean difference of -0.95 (p=0.45). Post-test, the study group's mean decreased to 12.25 (SD=3.65) while the control group remained at 17.05 (SD=3.80), yielding a significant mean difference of -4.80 (p=0.001).

Table 36: Comparison of study and control group somatization of patients with Non communicable diseases

Assessments	Study group		Control group		Mean difference	Student independent t-test	p-value
	Mean	**SD**	**Mean**	**SD**			
Pretest	5.20	1.01	5.65	1.69	-0.45	1.02	0.31
Post test	2.90	1.21	5.45	1.88	-2.55	5.10	0.001
Total	20	100	20	100			

In the pre-test, mean somatization scores were 5.20 (SD=1.01) in the study group and 5.65 (SD=1.69) in the control group, with a non-significant mean difference of 0.45 (p=0.31). Post-test, the study group's mean decreased to 2.90 (SD=1.21) compared to 5.45 (SD=1.88) in the control group, showing a significant mean difference of -2.55 (p=0.001), indicating a greater reduction in somatization in the study group following the intervention.

Table 37: Comparison of study and control group insomnia of patients with Non communicable diseases
N=40

Assessments	Study group		Control group		Mean difference	Student independent t-test	p-value
	Mean	**SD**	**Mean**	**SD**			
Pretest	10.80	3.24	10.40	2.78	0.40	0.42	0.67
Post test	7.65	1.95	9.80	2.57	-2.15	2.98	0.01
Total	20	100	20	100			

In the pre-test, mean insomnia scores were 10.80 (SD=3.24) for the study group and 10.40 (SD=2.78) for the control group, with a non-significant mean difference of 0.40 (p=0.67). Post-test, the study group's mean decreased to 7.65 (SD=1.95) compared to 9.80 (SD=2.57) in the control group, with a statistically significant difference (p=0.01), indicating a marked reduction in insomnia in the study group following the intervention.

Table 38: Effectiveness of community based mental health nursing strategies on depression reduction score

Group	Assessment	Base line score	Mean depression score	Mean depression reduction score	Percentage of depression reduction score
Study Group	Pre test	18.65	18.65	6.40	34.31
	Post test		12.25		
Control Group	Pre test	17.70	17.70	0.65	3.67
	Post test		17.05		

The study group's baseline depression score of 18.65 decreased to 12.25 post-test, reflecting a mean reduction of 6.40, or 34.31%, whereas the control group showed a minimal decrease from 17.70 to 17.05, a 0.65-point change (3.6%). These findings indicate that community-based mental health nursing significantly reduced depression in the study group compared to the control group.

Table 39: Effectiveness of community based mental health nursing strategies on somatization reduction score
N=40

Group	Assessment	Base line score	Mean depression score	Mean depression reduction score	Percentage of depression reduction score
Study Group	Pre test	5.20	5.20	2.30	44.23
	Post test		2.90		
Control Group	Pre test	5.65	5.65	0.20	3.56
	Post test		5.45		

In the study group, somatization scores decreased from a baseline of 5.20 to 2.90 post-test, reflecting a mean reduction of 2.30, or 44.23%, whereas the control group showed a minimal decrease from 5.65 to 5.45, a 0.20-point change (3.56%). This demonstrates that community-based mental health nursing interventions were highly effective in reducing somatization in the study group compared to controls.

Table 40: Effectiveness of community based mental health nursing strategies on insomnia reduction score
N=40

Group	Assessment	Base line score	Mean depression score	Mean depression reduction score	Percentage of depression reduction score
Study Group	Pre test	10.80	10.80	2.30	21.30

	Post test		7.65		
Control Group	Pre test	10.40	10.40	0.20	1.92
	Post test		9.80		

In the study group, baseline insomnia scores of 10.80 decreased to 7.65 post-test, with a mean reduction of 3.15, representing a 21.30% improvement, whereas the control group showed a minimal decrease from 10.40 to 9.80, a 0.60-point change (1.92%). These results indicate that community-based mental health nursing interventions were more effective in reducing insomnia in the study group. The correlation of mean differences in depression, somatic disorders, insomnia, and clinical parameters among adults with non-communicable diseases in the study and control groups is presented in Table 5.4.1.

Table 41: Correlation of mean differed depression, somatic disorder, insomnia and clinical parameters among adult with Non communicable diseases in study and control group

Group	Variables	Pearson's Correlation Coefficient	Interpretation
Study	Depression, somatic disorder, insomnia and clinical parameters among adult with Non communicable diseases	"r" always lies between -1 to +1	Strong correlation
Control	Depression, somatic disorder, insomnia and clinical parameters among adult with Non communicable diseases	"r" always lies between -1 to +1	Strong correlation

To associate the selected demographic variables with mean differed depression, somatic disorders, insomnia and clinical parameters among adults with Non communicable diseases in study and control group.

DISCUSSION:
The study evaluated the impact of community-based mental health nursing interventions on mental and physical health outcomes in adults with chronic non-communicable diseases (NCDs), including hypertension and diabetes. Using a quantitative quasi-experimental design with pre- and post-tests, the study included adults aged 40–60 years with a diagnosis of hypertension and/or diabetes for over five years receiving care at kiosk centers [10,11]. Findings showed significant reductions in depression, somatic disorders, and insomnia in the experimental group, with depression decreasing by 34.31%, somatization by 44.23%, and insomnia by 21.3%, while the control group showed no notable change, demonstrating the measurable effectiveness of community-based interventions [12]. The study also assessed demographic variables such as age, family income, and education, which did not significantly influence clinical improvements. Ethical considerations were maintained, ensuring participant safety, confidentiality, risk minimization, and transparency in research [13-16]. The study concludes that community-based mental health nursing strategies can substantially enhance the overall well-being of NCD patients, especially in rural or underserved areas, improving both mental health outcomes and physical disease management through holistic care practices [17,18].

CONCLUSION:
To sum up, the research paradigm covers the effectiveness of mental health nursing interventions based on community service in enhancing the psychological and physical outcomes in people living with non-communicable diseases. The experimental group experienced significant improvement in depression, somatic conditions, and insomnia, which provides support to the necessity to incorporate mental health care in the management of chronic conditions. These findings point to the idea that such interventions can be a worthy complement to primary care practice and this can provide a more inclusive basis of preserving chronic health conditions. It is advisable that future research is done on greater sample sizes and on varied settings in a bid to corroborate these findings.

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