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RESEARCH ARTICLE

EFFECTIVENESS OF NURSE-LED MULTIFACETED INTERVENTION ON LONELINESS, DEPRESSION, SOCIABILITY, FAMILY SUPPORT AND QUALITY OF LIFE AMONG ELDERLY: A PILOT STUDY

J.Poornima Mary Rodriguez[1], Dinesh Selvam[2], Jenit Osborn[3] and Jeyadeepa.R[4]

1. Professor, PSG College of Nursing.
2. Principal, Amity College of Nursing.
3. Medical Officer Incharge, PSG Rural Health and Training Centre, Coimbatore.
4. Principal,PSG College of Nursing.

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Abstract

Background: Rapid population ageing in India has intensified psychos ocial challenges among older adults, including loneliness, depression, reduced sociability, inadequate family support, and compromised qualit y of life.Community-based, nurse-led interventions may offer a feasible and effective approach to address these multidimensional issues, particularly in rural settings.

Aim: To evaluate the effectiveness of a nurse-led multifaceted intervention on loneliness, depression, sociability, family support, and quality of life among elderly individuals.

Methods: A quantitative true experimental pretest–posttest control group design was employed. The pilot study was conducted in Vedapatt i village, adopted by the PSG Rural Health Training Centre, Tamil Nadu. Forty elderly participants aged ≥60 years were selected using simple random sampling and randomly allocated to experimental (n=20) and control (n=20) groups. The intervention comprised family education, befriending activities, structured sitting and standing exercises, and relaxation techniques delivered over five consecutive days, followed by a one-week follow-up. Outcome measures included the UCLA Loneliness Scale, Geriatric Depression Scale, Eysenck Personality Profiler (Sociability), Family Support Scale,and WHOQOL -BREF. Data were analysed using descriptive and inferential statistics, including paired and independent t tests and Pearson correlation.

Results: Post-intervention analysis revealed statistically highly significant improvements ($p < 0.001$) in the experimental group compared to the control group. Loneliness scores decreased by 12.27%, depression by 18.22%, while sociability improved by 74.89%. Family support showed a positive change, and significant improvements were observed across all WHOQOL domains, particularly social (64.10%), environmental (21.33%), psychological (18.50%), and overall quality of life (26.76%). No significant changes were observed in the control group.

Corresponding Author:-J.Poornima Mary Rodriguez
Address:-Professor, PSG College of Nursing.

Conclusion: The nurse-led multifaceted intervention was effective in improving psychosocial well-being, family support, and quality of life while reducing loneliness and depression among elderly participants. The pilot study confirmed the feasibility, reliability, and suitability of the intervention and tools, supporting their application in a larger-scale main study.

Introduction:-

Global Aging Demographic:-

The world is experiencing unprecedented demographic transformation, with life expectancy increasing globally. By 2030, one in six people worldwide will be aged 60 years or over, increasing from 1 billion in 2020 to 1.4 billion. By 2050, this population is projected to double to 2.1 billion, with those aged 80 years or older expected to triple to 426 million. While population aging initially characterized high-income countries, low- and middle-income countries are now experiencing the greatest demographic shift, projected to house two-thirds of the global elderly population by 2050.

Indian Context:-

India faces a unique demographic transition characterized by both a youth bulge and rapid aging. According to the World Health Organization, India's elderly population is expected to rise from 60 million to over 227 million by 2050, with the old-age dependency ratio increasing from 9.8 to 20.3. The 2011 Census reported approximately 104 million elderly persons (53 million females, 51 million males), projected to reach 138 million by 2021. Regional variations exist, with Kerala showing the highest proportion (16.5%), followed by Tamil Nadu (13.6%), Himachal Pradesh (13.1%), Punjab (12.6%), and Andhra Pradesh (12.4%).

Mental Health Challenges:-

Mental health concerns among Indian elderly are substantial. The Longitudinal Ageing Study in India (LASI) conducted between April 2017 and December 2018 revealed that 30% of 103 million people above age 60 display depressive symptoms, with 8.3% having probable major depression—a prevalence 10 times higher than self-reported diagnosed depression (0.8%). Gender disparities exist, with 9% of elderly women experiencing probable major depression compared to 7% of men. Rural residents show higher rates (9%) than urban counterparts (6%), and 10% of elderly living alone suffer from depression.

Social Isolation and Loneliness:-

According to Census 2011 data, approximately 15 million elderly Indians live alone, with three-fourths being women. One in every seven elderly persons lives in households without anyone below age 60. Contributing factors include reduced family interaction, poor health, and limited social engagement opportunities. Research demonstrates that social isolation and loneliness significantly impact elderly mortality, physical and mental health, and quality of life, with effects comparable to established risk factors such as smoking, obesity, and physical inactivity.

Quality of Life Considerations:-

The increasing elderly population faces unique challenges due to changing social structures, health issues, and inaccessible healthcare facilities, adversely affecting quality of life. Cross-sectional studies in urban and rural Bangalore revealed that rural elderly uniformly have lower quality of life across physical, psychological, social relationship, and environmental domains, regardless of sex, education, or financial dependence. Inequitable health resource distribution and inadequate social support systems must be addressed to improve elderly quality of life, particularly in rural areas.

Nursing Role and Rationale:-

Nurses play a significant role in elderly care through focused health screening, counseling, crisis intervention, and comprehensive care delivery. They serve as advocates in directing appropriate resource utilization and ensuring care continuity. With rapid urbanization and industrialization limiting family capacity to provide elder care, community-based interventions become essential. Mental health problems remain under-identified by healthcare professionals and elderly themselves, with stigma preventing help-seeking behavior. Considering the vulnerability of elderly populations and the importance of health status in this demographic, this pilot study aimed to identify baseline levels of loneliness, depression, sociability, family support, and quality of life, and evaluate the effectiveness of a nurse-led multifaceted intervention to protect, promote, and extend elderly life.

Objectives:-

1.To assess the pretest level of loneliness, depression, sociability, family support, and quality of life among elderly in experimental and control groups
2.To assess the post-test level of loneliness, depression, sociability, family support, and quality of life among elderly in experimental and control groups.
3.To evaluate the effectiveness of nurse-led multifaceted intervention on loneliness, depression, sociability, family support, and quality of life among elderly between experimental and control groups.
4.To correlate levels of loneliness, depression, sociability, family support, and quality of life in experimental and control groups.
5.To determine associations between pretest scores of loneliness, depression, sociability, family support, quality of life and selected demographic variables in experimental and control groups.

Hypotheses:-

H1: There will be a significant difference between pretest and post-test scores for loneliness, depression, sociability, family support, and quality of life in the experimental group compared with the control group ($p < 0.05$)
H2: There will be significant correlations among loneliness, depression, sociability, family support, and quality of life scores in the experimental and control groups ($p < 0.05$)
H3: There will be a significant association of Pretest scores of loneliness, depression, sociability, family support, and quality of life with selected demographic variables in experimental and control groups ($p < 0.05$).

Methodology:-

Research Design:-

A quantitative research approach utilizing A true experimental study with pretest–posttest control group design was conducted.

E O_1 X O_2 O_3
C O_1 - O_2 O_3

Where:

- E = Experimental group
- C = Control group
- O_1 = Pretest observation
- X = Intervention
- O_2 = Post-test I
- O_3 = Post test II

Study Setting:-

- The main study will be conducted in villages adopted by PSG Rural Health Training Centre,Vedapatti.
- The catchment area covers 14 villages.
- Around 2812 elderly population are residing in the catchment area.
- For pilot study participants was selected only from one village(Vedapatti),this village will be excluded for main study.

Study Population:-

All elderly individuals belonging to villages adopted by PSG Rural Health Training Centre constituted the study population.

Sample Size and Sampling:-

For pilot study**,** Sampling frame of eligible participants was prepared after applying inclusion and exclusion criteria. Each participant was assigned a unique identification number. Using lottery method, 40 participants were selected by simple random sampling. The selected participants were then randomly allocated into experimental and control groups, wherein participants with odd numbers were assigned to the experimental group and those with even numbers to the control group.

Inclusion Criteria:-
1. Elderly individuals (male and female) aged 60 years and above
2. Residents of villages adopted by PSG Rural Health Training Centre, Vedapatti
3. Understanding Tamil language

Exclusion Criteria:-
1. Hearing impairment
2. Known cases of severe depression under treatment
3. Unconscious, bedridden elderly (traumatic brain injury, CVA), paralytic conditions, arthritis
4. Fractures in upper or lower extremities
5. History of delirium, dementia, Alzheimer's disease under treatment
6. History of arthritis in situation where joint mobility is impaired.

Variables:-
Independent Variable: Nurse-led multifaceted intervention
Dependent Variables: Loneliness, depression, sociability, family support, quality of life
Baseline Variables: Age, gender, religion, educational status, marital status, type of family, occupation, family income, source of income, living arrangements, number of children, illness history, medication history, healthcare access, meals, diet pattern, sleep, social group membership, recreational activities, BMI, blood pressure, smoking/alcohol history, vision, hearing acuity, mobility, supporting aids, cognitive function, bowel/bladder function, home environment, family dependence.

Data Collection Tools:-
Section A: Demographic Profile:-
Structured interview schedule assessing comprehensive demographic and health variables.

Section B: UCLA Loneliness Scale:-
- 20-item scale (10 negatively worded, 10 positively worded)
- Total score: 80
- Scoring: 20-34 (low), 35-49 (moderate), 50-64 (moderately high), 65-80 (high loneliness)

Section C: Geriatric Depression Scale:-
- Short form (Sheikh &Yesavage, 1986)
- Scoring: No=0, Yes=1
- Cut-off: Normal (0-4), Mild (5-8), Moderate (9-11), Severe (12-15)

Section D: Eysenck Personality Profiler - Sociability Subscale:-
- 30 questions (yes/no responses)
- Scoring: 17-30 (sociability), 0-16 (unsociability)

Section E: Family Support Scale:-
- 5-point Likert scale (researcher-developed)
- Scoring: 0-25 (poor), 26-50 (inadequate), 51-75 (moderate), 76-100 (adequate support)

Section F: WHO Quality of Life-BREF (WHOQOL-BREF):-
- Four domains: Physical, Psychological, Social, Environmental
- Scoring: 0-25 (poor), 26-50 (moderate), 51-75 (good), 76-100 (very good quality of life)
- Cronbach's $\alpha = 0.956$
- Domain scores were transformed to a 0–100 scale as per WHOQOL-BREF scoring guidelines.

Pilot study report:
Pilot study was conducted from 11.11.2024 to 27.12.2024 in Vedapatti village. 40 study participants (20 experimental and 20 control group) were selected based on inclusion and exclusion criteria using simple random sampling technique. Informed consent and family consent were obtained from each participant and family members. The investigator collected the demographic data, assessed the pretest level of loneliness, depression, sociability,

family support and quality of life among study participants in experimental and control group using structured questionnaire. Followed by day 2 family education given using powerpoint for 30 minutes,day 3 befriending initiatives(listening music,mandela arts) initiated ,day 4 sitting andstanding exercises were demonstrated ,day 5 relaxation exercises were demonstrated. One week follow up done .Post test done after one week follow up in experimental and control group.

ValidityAssessment:
Content validity of the tool was established by six nursing experts and one medical expert. Expert suggestions were incorporated into the final version of the instrument.

Reliability assessment:
The internal consistency of the data collection instruments was assessed using Cronbach's alpha based on pretest (pilot study) data to determine their reliability and suitability for the study population. Reliability analysis was performed separately for each scale. All instruments demonstrated good to excellent internal consistency, with Cronbach's alpha values ranging from 0.843 to 0.956, indicating that the tools were reliable and appropriate for use in the main study.

Section	Scale Name	Score
Section B	UCLA Loneliness Scale	0.896
Section C	Geriatric Depression Scale	0.934
Section D	Personality Scale	0.843
Section E	Family Support Scale	0.893
Section F	WHO Scale	0.956

Feasibility and Administration Details:
The average time taken to complete the questionnaire was 45minutes to60 minutes, and participants reported no difficulty in understanding the items.

Modifications Based on Pilot Findings:
Based on pilot study findings, minor modifications were made to section A to improve clarity, while the remaining items were retained.

Intervention Protocol:-
Nurse-Led Multifaceted Intervention Components:-

DAY	INTERVENTIONS
Day 1:	Baseline assessment using structured questionnaires Family education (30-minute PowerPoint presentation) covering: • Health risks of elderly • Common health problems • Government initiatives and schemes • Safe home environment • Family role in elderly care
Day 2:	Befriending initiatives: • Listening to music • Mandela arts • Newspaper reading

Day 3:	**Sitting exercises** 1. Toe raises **2.** Heel raises **3.** Leg raises 4. Knee raises 5. Hip abduction 6. Upper back exercises
Day 4:	**Standing Exercises** 1. Sit to stand exercises 2. Hip abduction 3. Hip extension 4. Toe raises 5. Heel raises 6. Upper back 7. Standing on one leg 8. Tandem stance 9. Calf stretch 10. Harmstring stretch
Day 5:	Relaxation techniques: • Breathing exercises • Jacobson's progressive muscle relaxation technique

Follow-up: One-week
Post-test: Conducted after one-week follow-up in both groups

Data Collection Procedure:-
1. Ethical approval obtained from institutional review board
2. Permission secured from PSG Rural Health Training Centre
3. Informed consent obtained from participants and family members
4. Baseline demographic data collected from experimental and control group
5. Pretest assessment conducted in both groups
6. Five-day intervention implemented in experimental group
7. One-week follow-up conducted
8. Post-test assessment done in both groups

Statistical Analysis:-
Descriptive Statistics:
- Frequency and percentage distribution for demographic variables
- Mean, standard deviation, median

Inferential Statistics:
- Chi-square and Fisher's exact tests for group homogeneity
- Kolmogorov-Smirnov and Shapiro-Wilk tests for normality assessment
- Paired t-test for within-group comparisons
- Independent t-test for between-group comparisons
- Pearson correlation for relationship assessment
- Fisher's exact test for association with demographic variables

Significance level: $p < 0.05$

Results:-

Demographic Characteristics:

Table 1 Frequency and Percentage distribution of study participants based on demographic variables in experimental and control group: N=40

ITEM		Experimental group		Control group	
		Frequency	Percentage	Frequency	Percentage
1.AGE	66 years-70 years	10	50	8	40
	71 years -75 years	3	15	3	15
	76 years-80 years	4	20	3	15
	80 years-85 years	3	15	6	30
2.SEX	Male	7	35	9	45
	Female	13	65	11	55
3.religion	Hindu	7	35	6	30
	Christian	13	65	14	70
4.Education	No formal education	7	35	5	25
	Primary school	6	30	4	20
	High school	7	35	11	55
5.Marital status	Married	4	20	2	10
	Unmarried	5	25	7	35
	Widow	11	55	11	55
6.Type of family	Nuclear	7	35	11	55
	Joint	13	65	9	45
7.Occupation	Home maker	14	70	11	55
	Retired	6	30	9	45
8.Family income per month	<Rs.5000	6	30	6	30
	Rs.5,001-Rs.10,000	5	25	4	20
	Rs.10,001-Rs.15,000	9	45	10	50
9.Do you earn monthly income from any of the below mentioned options	Pensioner	7	35	11	55
	Supported by siblings	6	30	4	20
	Supported by spouse	3	15	3	15
	No source of regular income	4	20	2	10
10.Currently living with	Son/Daughter	5	25	7	35
	Alone	12	60	10	50
	Spouse	3	15	3	15
11.Number of children	One	3	15	3	15
	Two	10	50	8	40
	Four	7	35	9	45
12.History of illness	DM	2	10	1	5
	HT	14	70	16	80
	Cardiac	4	20	3	15
13.History of medications	Oral Hypoglycemic drugs	3	15	3	15
	Anti hypertensive drugs	2	10	1	5
	Cardiac drugs	4	20	3	15
	oral hypoglcemic and antihypertensive drugs	11	55	13	65
14.Medications received from	Private	17	85	17	85
	Government	3	15	3	15
15.Medication expenses met by	Son	10	50	6	30
	Daughter	6	30	6	30
	Spouse	3	15	6	30

	Sibling	1	5	2	10
16.Person accompanying for treatment during illness	Nil	6	30	3	15
	Son	8	40	11	55
	Daughter	6	30	6	30
17.Person taking care during illness	Spouse	6	30	6	30
	Son	11	55	11	55
	Daughter	3	15	3	15
18.Medical facility distance from home	Less than 2km	17	85	14	70
	More than 2km	3	15	6	30
19.Mode of travel to hospital during illness	Walk	9	45	6	30
	Government bus	1	5	2	10
	Private transport	6	30	9	45
	Own vehicle	4	20	3	15
20.Insurance	Government	14	70	11	55
	Private	6	30	9	45
21.Meals	3 times per day	8	40	11	55
	2 times per day	9	45	6	30
	1 time per day	3	15	3	15
22.Diet pattern	Veg	12	60	13	65
	Mixed diet	8	40	7	35
23.Type of sleep	Disturbed	17	85	17	85
	Not disturbed	3	15	3	15
24.Duration of sleep	Less than 4 hours	11	55	13	65
	4-6 hours	9	45	7	35
25.Day time sleep	Yes	17	85	17	85
	No	3	15	3	15
26.Member of social groups	Yes	6	30	6	30
	No	14	70	14	70
27.Recreational activities	Listening music	3	15	3	15
	Watching TV	14	70	14	70
	Reading books	3	15	3	15
28.BMI	Severely underweight	3	15	3	15
	Underweight	7	35	8	40
	Normal weight	3	15	3	15
	Overweight	7	35	6	30
29.BP	Normal	3	15	3	15
	Elevated BP	10	50	11	55
	Stage I	1	5	2	10
	Stage II	6	30	4	20
30.Smoking History	Yes	3	15	2	10
	No	17	85	18	90
31.Alcoholoism	Yes	3	15	2	10
	No	17	85	18	90
32.Vision	Normal	9	45	12	60
	Short sight	8	40	5	25
	Long sight	3	15	3	15
33.Hearing acquity	Normal	16	80	17	85
	Moderate	4	20	3	15
34.mobility inhouse	Independent	20	100	20	100

35.mobility outdoors	Independent	20	100	20	100
36.Supporting aids	None	13	65	11	55
	Stick	3	15	6	30
	Walker	4	20	3	15
37.Need to use stairs	Independent	11	55	8	40
	Partially dependent	9	45	12	60
38.Bathing	Independent	20	100	20	100
39.Dressing	Independent	20	100	20	100
40.Forgetfulness	Yes	5	25	4	20
	No	15	75	16	80
41.Difficulty in calculation	Yes	13	65	9	45
	No	7	35	11	55
42.Way finding difficulty	Yes	13	65	9	45
	No	7	35	11	55
43.Bladder function	Continence	20	100	20	100
44.Bowel function	Continence	20	100	20	100
45.Handle your money	Yes	20	100	20	100
46.Home slippery floor	No	20	100	20	100
47.Rab bars at toilet	Yes	12	60	10	50
	No	8	40	10	50
48.Toilet	Indian	13	65	10	50
	Western	7	35	10	50
49.My family	Dependent	7	35	5	25
	Not dependent	6	30	6	30
	Interdependent	7	35	9	45

The study involved 40 elderly participants equally divided between experimental (n=20) and control (n=20) groups. Key demographic findings:

- **Age:** 45% were 66-70 years, 22.5% were 80-85 years
- **Gender:** 60% female, 40% male
- **Religion:** 67.5% Christian, 32.5% Hindu
- **Education:** 45% high school, 30% illiterate, 25% primary school
- **Marital Status:** 55% widowed, 30% unmarried, 15% married
- **Family Type:** 55% joint family, 45% nuclear family
- **Occupation:** 62.5% homemakers, 37.5% retired
- **Income:** 47.5% earned ₹10,001-15,000/month, 30% <₹5,000/month
- **Living Arrangements:** 55% lived alone, 30% with children, 15% with spouse
- **Health Status:** 75% hypertensive, 17.5% cardiac issues, 7.5% diabetes

Baseline comparison of demographic variables using Chi-square and Fisher's exact tests revealed no statistically significant differences between the groups ($p > 0.05$), confirming homogeneity with respect to age, sex, education, marital status, socioeconomic factors, health status, functional abilities, and environmental characteristics.

Normality of outcome variables was assessed using the Shapiro–Wilk test and all measures—including Family Support, Geriatric Depression, Personality, UCLA Loneliness, and WHO-QOL domains—showed normal distribution ($p > 0.05$), justifying the use of parametric tests. Overall, these findings indicate effective randomization, baseline comparability of groups, and suitability of the data for further parametric analysis, allowing post-intervention changes to be attributed to the intervention rather than pre-existing differences.

Comparison of Pretest and Post-test level ofloneliness in experimental and control group:

Figure1: Pretest level of loneliness among elderly:

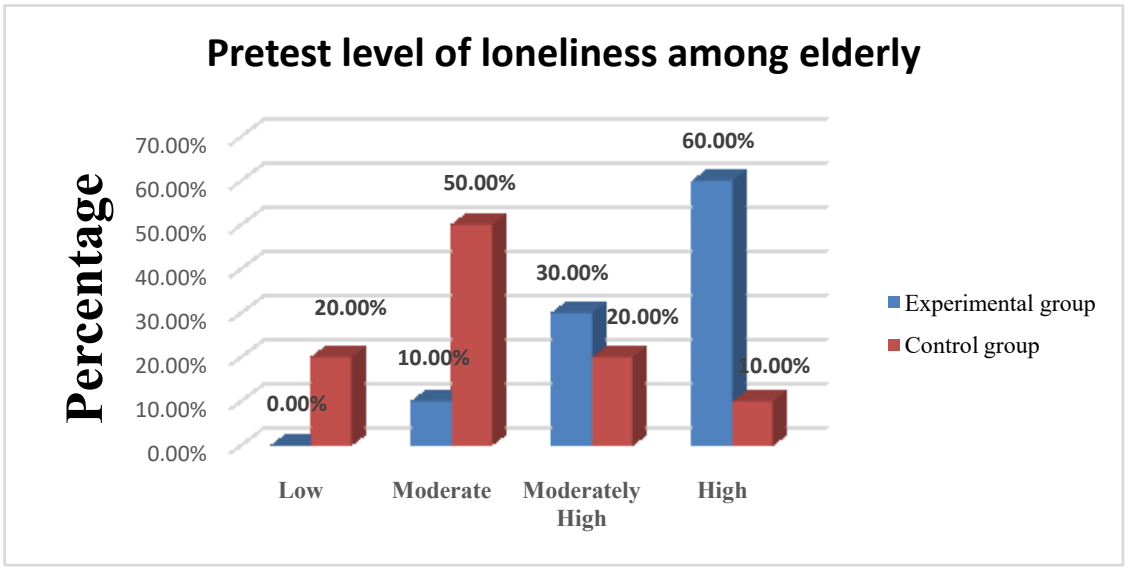
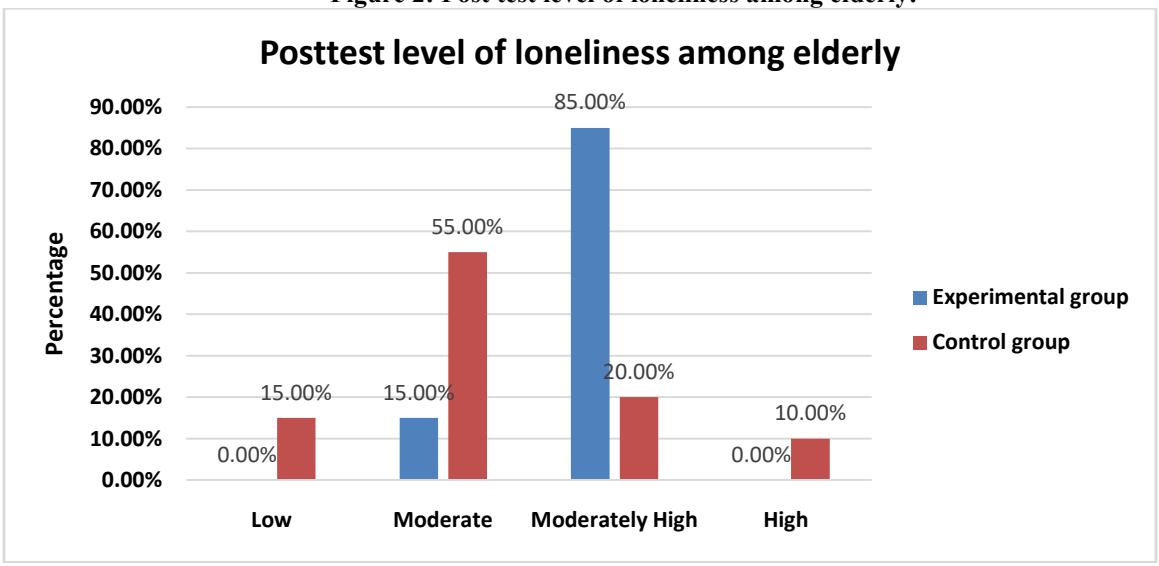


Figure 2: Post test level of loneliness among elderly:



The above figure 1 and 2 reveal overall percentage distribution of pretest and posttest level of loneliness in experimental and control group.In experimental group 60% of the experimental group were in the high loneliness category ,30% in moderately high category,10% in moderate category and none in low category in pretest and this was found to reduce in posttest with 85% in moderately high category,15% in moderate category,whereas in control group 10% had high loneliness in pretest and posttest respectively.

Comparison of Pretest and posttest level of depression in experimental and control group:

Figure 3: Pretest level of depression among elderly :

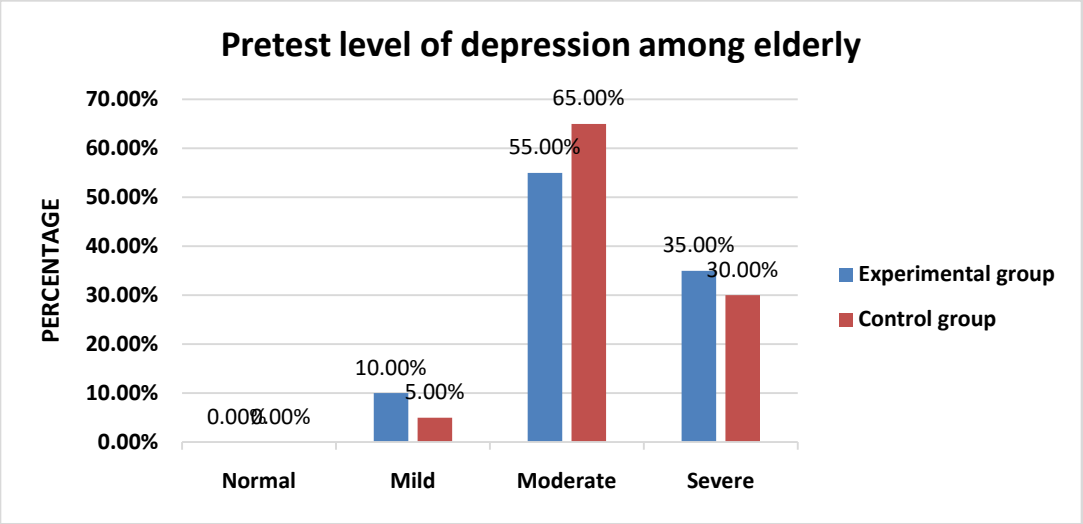
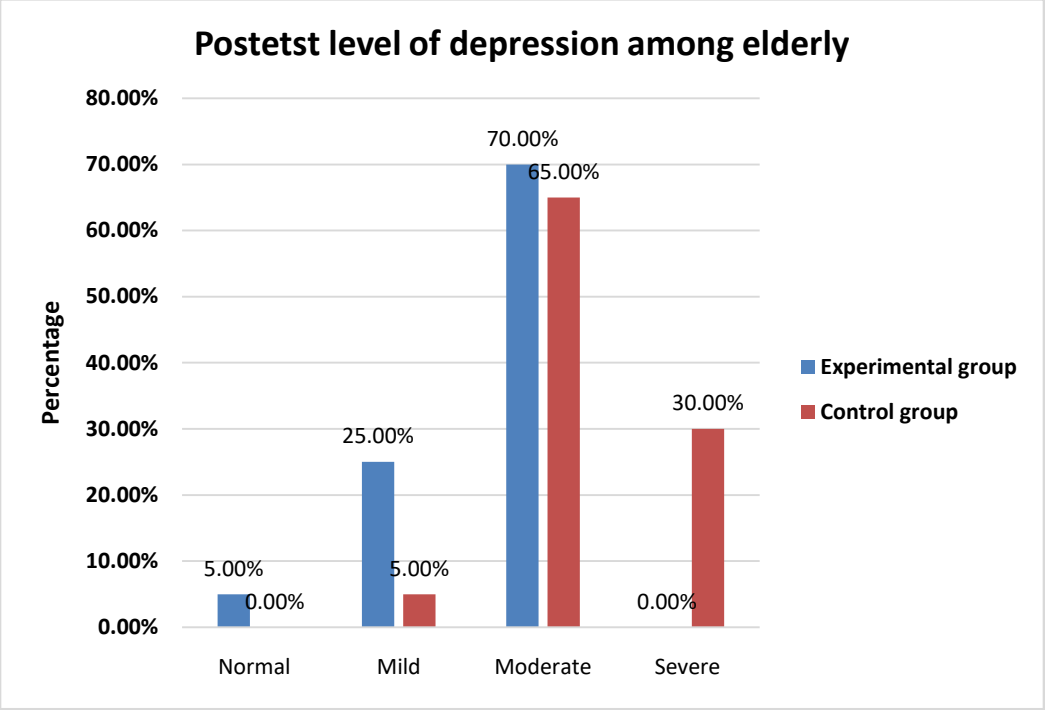


Figure 4:Posttest level of depression among elderly :



The figure 3 and 4 represents the distribution of study participants according to levels of depression measured using the Geriatric Depression Scale (GDS) during pretest and posttest in both experimental and control groups. During the pretest,in the experimental group, none of the participants (0%) were in the normal category. A majority of participants showed moderate depression (55%), followed by severe depression (35%), and mild depression (10%). Similarly, in the control group, no participants were categorized as normal. Most participants exhibited moderate depression (65%), while 30% had severe depression and 5% had mild depression. Following the intervention,inpost test the experimental group showed a marked improvement in depression levels. The proportion of participants with normal scores increased to 5%, and those with mild depression increased to 25%. Although moderate depression was still present in 70% of participants, none of the participants remained in the severe depression category (0%).In contrast, the control group showed no notable improvement. The majority continued to have moderate depression

(65%), while 30% remained severely depressed and 5% had mild depression. No participants achieved normal scores in the posttest.

Comparison of Pretest and posttest level of sociability in experimental and control group:

Figure 5: Pretest level of sociability among elderly

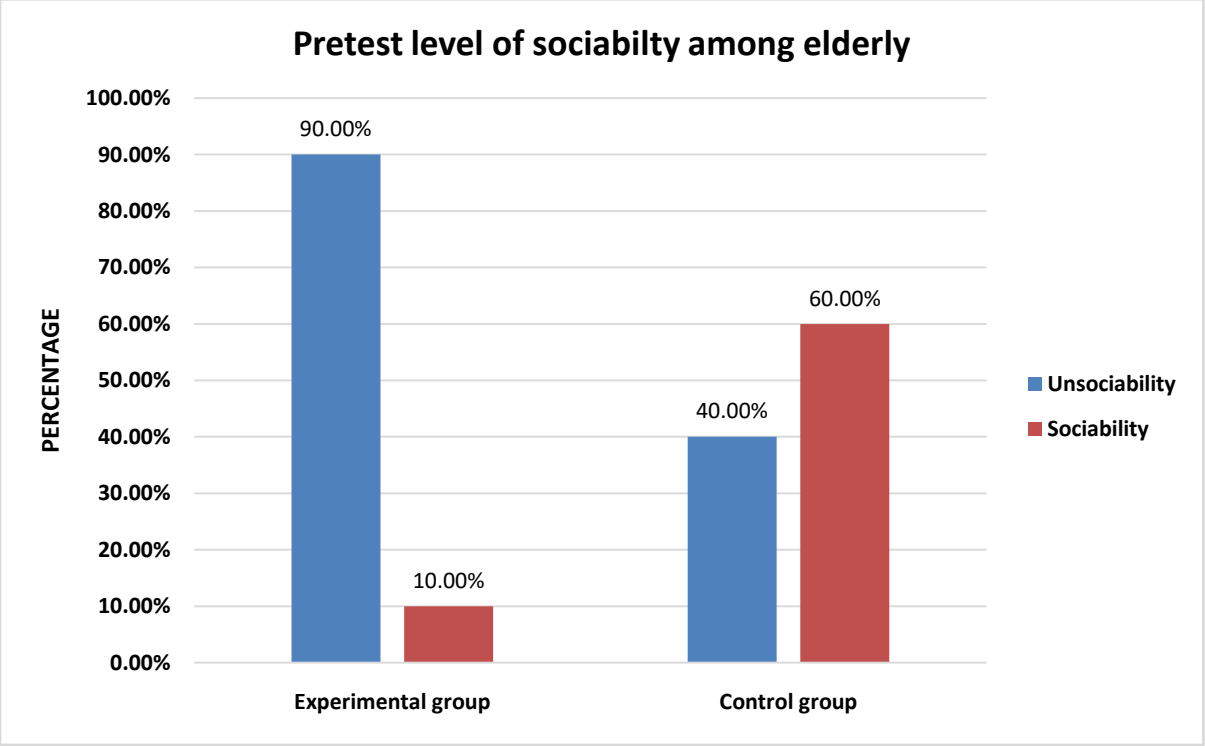
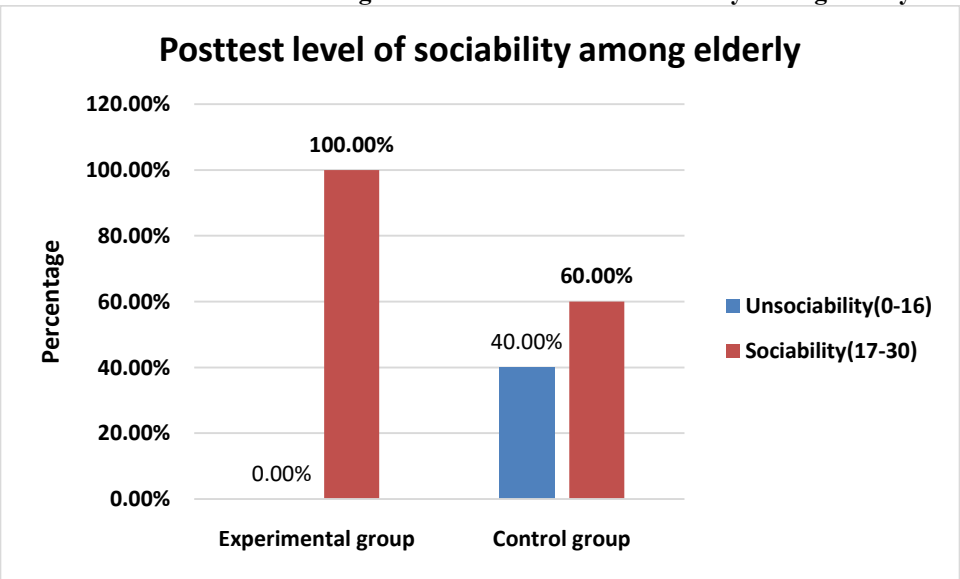


Figure 6: Posttest level of sociability among elderly



The figure5and 6 represents the distribution of study participants according to levels of sociability during pretest and posttest in both experimental and control groups. In pretest,inexperimental group, the majority of participants (90%) were categorized as unsociable, while only 10% demonstrated sociability.In contrast, the control group showed a relatively better personality profile, with 60% of participants classified as sociable and 40% as unsociable.

Following the intervention, the experimental group showed a marked improvement in personality characteristics. All participants (100%) were classified as sociable, and none remained in the unsociable category.In the control group, no change was observed between pretest and posttest scores. 40% of participants continued to be unsociable, while 60% remained sociable.

Table1: Frequency and percentage distribution of Pretest and posttest level of family support in experimental and control group: N=40

ITEM	Range	Pretest				Posttest			
		Experimental group		Control group		Experimental group		Control group	
		F	%	F	%	F	%	F	%
FAMILY SUPPORT SCALE	Poor(0 - 25)	0	0	0	0	0	0	0	0
	Inadequate(26 - 50)	13	65	16	80	6	30	16	80
	Moderate(51 - 75)	3	15	2	10	10	50	2	10
	Adequate(76 - 100)	4	20	2	10	4	20	2	10

The table1, shows the distribution of participants according to levels of family support, assessed using the Family Support Scale, during the pretest and posttest periods in both experimental and control groups. In pretest, in the experimental group, the majority of participants (65%) reported inadequate family support, followed by 20% with adequate support and 15% with moderate support. None of the participants reported poor family support.Similarly, in the control group, most participants (80%) had inadequate family support, while 10% each reported moderate and adequate levels of family support.whereas , after the intervention, the experimental group demonstrated a noticeable improvement in family support levels. The proportion of participants with moderate family support increased to 50%, while those reporting inadequate support decreased to 30%. The proportion of participants with adequate family support remained unchanged at 20%, and none reported poor support. In contrast, the control group showed no change between pretest and posttest. The majority (80%) continued to report inadequate family support, while 10% each remained in the moderate and adequate categories.

Table2: Frequency and percentage distribution of Pretest and posttest level of quality of life of elderly in experimental and control group:N=40

ITEM	Range	Pretest				Posttest			
		Experimental group		Control group		Experimental group		Control group	
		F	%	F	%	F	%	F	%
WHO-PSYCHOLOGICAL	Very Poor(0-20)	0	0	0	0	0	0	0	0
	Poor(21 - 40)	14	70	15	75	7	35	15	75
	Moderate(41 - 60)	6	30	5	25	13	65	5	25
	Good(61 - 80)	0	0.	0	0	0	0	0	0
	V.Good(81-100)	0	0	0	0	0	0	0	0
WHO-PHYSICAL HEALTH	Very Poor(0-20)	0	0	0	0	0	0	0	0
	Poor(21 - 40)	11	55	6	30	9	45	6	30
	Moderate(41 - 60)	9	45	14	70	11	55	14	70
	Good(61 - 80)	0	0	0	0	0	0	0	0
	V.Good(81-100)	0	0	0	0	0	0	0	0
WHO-SOCIAL	Very Poor(0-20)	0	0	0	0	0	0	0	0
	Poor(21 - 40)	17	85	17	85	4	20	17	85
	Moderate(41 - 60)	3	15	3	15	10	50	3	15
	Good(61 - 80)	0	0	0	0	6	30	0	0
	V.Good(81-100)	0	0	0	0	0	0	0	0
WHO-ENVIRONMENT	Very Poor(0-20)	0	0	0	0	0	0	0	0

	Poor(21 - 40)	20	100	20	100	3	15	20	100
	Moderate(41 - 60)	0	0	0	0	17	85	0	0
	Good(61 - 80)	0	0	0	0	0	0	0	0
	V.Good(81-100)	0	0	0	0	0	0	0	0
WHO-Over all	Very Poor(0-20)	0	0	0	0	0	0	0	0
	Poor(21 - 40)	16	80	15	75	4	20	15	75
	Moderate(41 - 60)	4	20	5	25	16	80	5	25
	Good(61 - 80)	0	0	0	0	0	0	0	0
	V.Good(81-100)	0	0	0	0	0	0	0	0

The table 2,presents the distribution of participants according to quality of life levels across WHOQOL domains—psychological, physical health, social relationships, environmental domain, and overall quality of life—during pretest and posttest assessments in both experimental and control groups.

Whoqol – Psychological Domain:-
Pretest:-
In the experimental group, 70% of participants had poor psychological quality of life, while 30%wereinthemoderate category.Similarly, in the control group, the majority (75%) reported poor psychological quality of life, and 25% reported moderate levels. None of the participants in either group were categorized as good or very good.

Posttest:-
Following the intervention, the experimental group showed marked improvement, with 65% of participants moving to the moderate category and those in the poor category reducing to 35%. In contrast, the control group showed no change, with 75% remaining poor and 25% moderate.

Whoqol – Physical Health Domain:-
Pretest:-
In the experimental group, 55% of participants reported poor physical health, while 45% had moderate physical health. In the control group, a higher proportion (70%) reported moderate physical health, while 30% were in the poor category.

Posttest
In the experimental group, the proportion of participants with moderate physical health increased to 55%, while those with poor physical health decreased to 45%. The control group showed no change, with 70% remaining moderate and 30% poor.

Whoqol – Social Domain:-
Pretest
Most participants in both groups reported poor social quality of life (85%), with only 15% falling into the moderate category.

Posttest:-
In the experimental group, substantial improvement was observed: 50% reported moderate social quality of life and 30% achieved good social quality of life, while those in the poor categoryreducedto20%.The control group showed no change, with 85% remaining poor and 15% moderate.

WHO–Environment Domain:-
Pretest
In the pretest, all participants (100%) in both the experimental and control groups were classified under the Poor (21–40) category of the WHO–Environment domain. None of the participants fell into the Very Poor, Moderate, Good, or Very Good categories, indicating an overall poor environmental quality of life before the intervention in both groups.

Posttest:-

In the posttest, the experimental group showed a marked improvement in the WHO–Environment domain. A majority of participants (85%) shifted to the Moderate (41–60) category, while only 15% remained in the Poor (21–40) category. In contrast, the control group showed no change, with 100% of participants continuing to remain in the Poor (21–40) category. No participants in either group achieved Good or Very Good levels.

Table3:Effectiveness of the Nurse Led multifaceted intervention of pretest and posttest level of Loneliness,depression,sociability,family support and quality of life among elderly : N=40

ITEM	GROUP		Mean	Std. Deviation	Effectiveness						
					Mean difference	S.D of difference	Change (%)	Comparison within group (paired t test)		Comparison between groups (independent t test)	
								p		p	
Loneliness	Experimental group	Pretest	64.00	8.83	7.85	5.33	12.27	0.000	HS	0.000	HS
		Posttest	56.15	6.98							
	Control group	Pretest	56.15	14.82	-0.95	1.10	1.69	0.001	NS		
		Posttest	57.10	13.94							
Depression	Experimental group	Pretest	10.70	2.00	1.95	0.60	18.22	0.000	HS	0.000	HS
		Posttest	8.75	2.12							
	Control group	Pretest	10.60	1.64	-0.15	0.37	1.42	0.083	NS		
		Posttest	10.75	1.71							
Sociabilty	Experimental group	Pretest	11.55	2.19	-8.65	1.16	74.89	0.000	HS	0.000	HS
		Posttest	20.20	1.91							
	Control group	Pretest	13.50	3.83	0.00	0.00	0.00	1.000	NS		
		Posttest	13.50	3.83							
Family support	Experimental group	Pretest	54.70	19.86	-1.55	1.64	2.83	0.000	HS	0.000	HS
		Posttest	56.25	19.37							
	Control group	Pretest	48.10	17.05	0.00	0.00	0.00	1.000	NS		
		Posttest	48.10	17.05							
WHO-ENVIRONMENT	Experimental group	Pretest	35.16	2.46	-7.50	3.71	21.33	0.000	HS	0.000	HS
		Posttest	42.66	4.21							
	Control group	Pretest	35.00	2.60	0.00	0.00	0.00	1.000	NS		
		Posttest	35.00	2.60							
WHO-Overall	Experimental group	Pretest	35.70	5.58	-9.55	5.44	26.76	0.000	HS	0.000	HS
		Posttest	45.25	4.75							
	Control group	Pretest	35.71	5.95	0.00	0.00	0.00	1.000	NS		
		Posttest	35.71	5.95							
WHO-PHYSICAL HEALTH	Experimental group	Pretest	39.11	7.09	-3.21	4.16	8.22	0.003	HS	0.001	HS
		Posttest	42.32	8.77							
	Control group	Pretest	40.36	7.78	0.00	0.00	0.00	1.000	NS		
		Posttest	40.36	7.78							
WHO-PSYCHOLO	Experimental group	Pretest	36.04	8.58	-6.67	4.56	18.50	0.000	HS	0.000	HS
		Posttest	42.71	6.88							

GICAL	Control group	Pretest	35.00	8.80	0.00	0.00	0.00	1.000	NS		
		Posttest	35.00	8.80							
WHO-SOCIAL	Experimental group	Pretest	32.50	8.51	-20.83	19.78	64.10	0.000	HS	0.000	HS
		Posttest	53.33	15.63							
	Control group	Pretest	32.50	8.51	0.00	0.00	0.00	1.000	NS		
		Posttest	32.50	8.51							

This table 3 presents the effectiveness of the intervention by comparing pre-test and post-test mean scores of outcome variables within the experimental and control groups, as well as between-group comparisons. Effectiveness was assessed using mean difference, standard deviation of difference, percentage change, and p-values, indicating statistical significance. In the experimental group, statistically highly significant improvements ($p < 0.001$) were observed across all outcome variables following the intervention. Family Support scores increased from 54.70 ± 19.86 to 56.25 ± 19.37, showing a 2.83% improvement**.** Geriatric Depression scores decreased from 10.70 ± 2.00 to 8.75 ± 2.12, reflecting an 18.22% reduction in depressive symptoms**.** Personality scores showed a marked improvement from 11.55 ± 2.19to 20.20 ± 1.91, indicating a 74.89% positive change. Loneliness levels significantly reduced, with scores decreasing from 64.00 ± 8.83 to 56.15 ± 6.98 **(**12.27% improvement**).** Significant improvements were also observed in all WHO-QOL domains, including Environmental **(**21.33%**),** Overall quality of life **(**26.76%**),** Physical health **(**8.22%**),** Psychological (18.50%**),** and Social domain (64.10%**).**

In contrast, the control group showed no statistically significant changes between pre-test and post-test scores across all variables ($p > 0.05$), with mean differences remaining negligible or zero. Furthermore, between-group comparisons demonstrated statistically highly significant differences ($p < 0.001$) for all outcome variables, favoring the experimental group. Overall, these findings clearly indicate that the intervention was highly effective in improving psychosocial well-being, reducing depression and loneliness, enhancing personality traits, strengthening family support, and improving quality of life among participants in the experimental group, while no such improvements were observed in the control group.

Correlation between Loneliness, Depression, Sociability, Family Support and Quality of Life among Elderly in experimental and control group in pretest:

Experimental Group (Pre-test):-

- UCLA Loneliness Scale & Personality Scale showed a strong negative and statistically significant correlation ($r = −0.635$, $p = 0.003$), indicating that higher levels of loneliness were associated with poorer personality traits/coping patterns.
- Geriatric Depression Scale & Family Support Scale showed a moderate negative and statistically significant correlation ($r = −0.571$, $p = 0.009$), suggesting that greater family support was associated with lower levels of depression.
- All other correlations between loneliness, depression, personality, family support, and WHOQOL domains were not statistically significant ($p > 0.05$).

Control Group (Pre-test):-

- UCLA Loneliness Scale & WHO–Environment domain demonstrated a moderate negative and statistically significant correlation ($r = −0.535$, $p = 0.015$), indicating that poorer environmental quality of life was associated with higher loneliness.
- Geriatric Depression Scale & Family Support Scale showed a strong negative and statistically significant correlation ($r = −0.671$, $p = 0.001$), implying that better family support was strongly associated with lower depression levels.
- All remaining correlations were not statistically significant ($p > 0.05$).

Correlation between Loneliness, Depression, Sociability, Family Support and Quality of Life among Elderly in experimental and control group in pretest:

Experimental Group (Post-test)

- Geriatric Depression Scale & Family Support Scale showed a moderate negative and statistically significant correlation ($r = −0.556$, $p = 0.011$). This indicates that higher family support was associated with lower levels of depression after the intervention.

- All other correlations involving loneliness, personality, family support, and WHOQOL domains were not statistically significant ($p > 0.05$).

Control Group (Post-test)

- UCLA Loneliness Scale & WHO–Environment domain showed a moderate negative and statistically significant correlation ($r = -0.536$, $p = 0.015$). Poorer environmental quality of life was associated with higher loneliness.
- Geriatric Depression Scale & Family Support Scale showed a strong negative and statistically significant correlation ($r = -0.662$, $p = 0.001$). Better family support was associated with lower depression levels.
- All other correlations were not statistically significant ($p > 0.05$).

Association of pretest level of loneliness,depression,sociability ,family support and quality of life among elderly in experimental and control group:

Fisher's Exact test revealed statistically significant associations ($p< 0.05$) between selected socio-demographic and health-related variables and study outcomes. Age was significantly associated with family support ($p = 0.041$), personality ($p = 0.002$), WHO-physical health ($p = 0.004$), and WHO-social domain ($p = 0.002$). Sex showed significant association with depression ($p = 0.027$) and personality ($p< 0.001$). Religion was significantly associated with family support ($p = 0.010$), WHO-physical health ($p = 0.002$), and WHO-social domain ($p< 0.001$). Marital status and type of family were associated with family support ($p = 0.036$ for both), personality ($p = 0.017$), WHO-environment ($p = 0.044$), WHO-overall ($p< 0.001$), and WHO-social domain ($p = 0.016$). Family income showed significant association with personality ($p = 0.004$), WHO-environment ($p = 0.018$), and WHO-physical health ($p = 0.006$). Depression was significantly associated with number of children ($p< 0.001$), history of illness ($p = 0.025$), medication history ($p = 0.033$), BP ($p = 0.015$), smoking and alcoholism ($p = 0.024$), forgetfulness ($p = 0.013$), and social group membership ($p< 0.001$). WHO quality-of-life domains showed significant associations with education (WHO-overall and psychological, $p = 0.001$), insurance (WHO-overall $p = 0.003$; WHO-social $p = 0.040$), diet and meals (WHO-overall $p = 0.014$), BMI (WHO-social $p = 0.017$), BP (WHO-overall $p = 0.010$; WHO-physical $p = 0.006$), recreational activities (WHO-physical $p = 0.049$; WHO-social $p = 0.027$), and forgetfulness (WHO-overall $p = 0.003$; WHO-physical $p = 0.030$).

Conclusion:-

The pilot study findings confirmed that the study was feasible, practicable, and the research tool and intervention were appropriate for the study population, with only minor modifications required in the demographic section. The majority of participants were aged 66–70 years (45%), females (60%), widowed (55%), living alone (55%), and hypertensive (75%). In the experimental group, high loneliness reduced notably from 60% in the pretest to none in the posttest, while depression levels showed marked improvement, with severe depression decreasing from 35% to 0% and mild depression increasing from 10% to 25%. Sociability improved substantially, with unsociable participants reducing from 90% in the pretest to 0% in the posttest. Family support also improved, with inadequate support decreasing from 65% to 30%. Significant improvements were observed across all WHOQOL domains, particularly social (64.10%), psychological (18.50%), environmental (21.33%), and overall quality of life (26.76%). Statistically highly significant improvements were noted in all outcome variables in the experimental group ($p < 0.001$), while no significant changes were observed in the control group ($p > 0.05$). These findings indicate that the intervention was effective and the finalized tool and intervention were suitable for implementation in the main study.

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