

Effectiveness of Activity Scheduling on Loneliness Negative Cognitions among Patients with Depression

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Abstract: *Background:* Depression is a serious mental health condition that affects millions of people worldwide, characterized by persistent feeling of sadness, hopelessness, social withdrawal and lack of interest in activity. Loneliness is a complex and multifaceted emotional state characterized by perceived lack of social connection. Negative cognitions are unfavourable thoughts, beliefs, and attitudes that can contribute to mental health issues, such as depression, anxiety, and stress. *Objectives:* This study aimed to evaluate the effectiveness of activity scheduling on loneliness and negative cognitions among patients with depression, to determine the correlation between loneliness and negative cognitions among patients with depression and to find out the association of loneliness and negative cognitions among patients with depression with selected variables. *Methods:* The research design selected for the study was pre-experimental one group pretest post-test design. Patients diagnosed with depression attending psychiatric OPD were screened by using Zung's self-rating depression scale and patients who were having mild to moderate depression (50-69) were selected as study participants. Total 48 samples were selected by non-probability purposive sampling technique. The data were collected using socio personal data sheet and clinical data sheet, Revised UCLA loneliness scale and Automatic thoughts questionnaire. The data were tabulated and analysed by using descriptive and inferential statistics. *Results:* The study results shows that scores of loneliness and negative cognitions in pretest were reduced in post-test. The present study revealed that activity scheduling was effective in reducing loneliness and negative cognitions among patients with depression. It was also depicted that there was statistically significant moderate positive correlation between loneliness and negative cognitions among patients with depression. There was no statistically significant association found between loneliness and negative cognitions among patients with depression with selected variables. *Conclusion:* This research provides evidence for supporting the effectiveness of activity scheduling in reducing loneliness and negative cognitions among patients with depression. The study highlights the fact that by promoting engagement in meaningful activities, individuals can break the cycle of social isolation and negative thinking which may reduce their depressive symptoms.

Keywords: Depression; Loneliness; Negative cognition; Negative thought; Activity scheduling

1. Introduction

Depression, also known as major depressive disorder is a prevalent and serious mental health condition that significantly impacts how individuals feel, think, and behave. Depression is the most prevalent mental health condition that affects millions of people worldwide. It can lead to significant distress, impaired cognitive functioning, social isolation, negative cognitions and reduced quality of life.¹

Depression is ranked as the single largest contributor to global disability which can lead to suicide; over 800 000 people die due to suicide every year. It is the second leading cause of death among 15-29 years. According to the World Health Organization statistics 56% of Indians suffer from major depression at some point in their lives. In Kerala around nine per cent people belonging to different age groups are suffering from depression, according to a recent survey¹. A 2025 report indicated that a significant portion of Kerala's population, around 15-20%, particularly in urban areas, may be grappling with some form of mental health affliction, with depression being predominant.²

Depression has multiple risk factors - biological (genetic, chronic diseases, terminal illness), psychological, social (familial, relationships, violence, disasters), cultural (religion, caste, beliefs, attitudes) and economical. Consumption of alcohol and drugs can further aggravate the condition.

Depending on the number and severity of symptoms, it can be categorized as mild, moderate, or severe. Depression can cause great suffering and leads to impaired functioning in daily life. Impact of stressful life events such as poverty, unemployment, loss of loved ones, relationship problems, physical illness, and substance abuse can increase the risk of depression. Unipolar depression occurs in 7% of the general older population and it accounts for 5.7% of Years Lived with Disability (YLDs) among those over 60 years old. Depression frequently co-occurs with other mental health conditions like anxiety disorders and can also be linked to physical health problems such as cardiovascular disease, diabetes, cancer, and chronic pain. It can worsen these conditions and vice versa⁴

Globally, depression is more common in women than men. In India, studies have also shown higher prevalence rates among females, urban populations, and nuclear families. While it can occur at any age, it often begins in adulthood, and prevalence is notable among young adults (18-25 years) in some regions. Despite effective treatments being available, a significant treatment gap exists worldwide, particularly in low- and middle-income countries, where many individuals with mental disorders do not receive any care. In India, this gap is also a concern, with limited access to mental health services in many areas.⁵

Loneliness, a painful emotional state marked by isolation and sadness. Loneliness can be a significant risk factor for depression. The individual feel lonely, they may withdraw from social interactions, which can exacerbate feelings of isolation and sadness and can increase the risk of developing clinical depression. People with depression may experience a loss of interest in activities and relationships, leading them to isolate themselves and feel lonely.⁷

Research consistently demonstrates a strong connection between loneliness, depression, and negative cognitions. Loneliness often triggers negative thought patterns, which can worsen depressive symptoms and increase feelings of isolation. This creates a cycle where loneliness fuels negative thoughts about oneself and social interactions, and these negative thoughts, in turn, reinforce feelings of loneliness⁷. Activity scheduling, also known as behavioural activation, offers a complementary approach by focusing on engaging in purposeful activities. Patients with depression may stop doing things once enjoyed or found meaningful and also have social withdrawal. Activity scheduling involves planning and organizing daily activities intentionally to enhance social connections and reduce negative thoughts, thus combating symptoms of depression.⁹

Aim

To determine the effectiveness of activity scheduling in reducing loneliness and negative cognitions among patients diagnosed with mild to moderate depression

Objectives

- 1) To assess the loneliness among patients with depression
- 2) To assess the negative cognitions among patients with depression
- 3) To evaluate the effectiveness of activity scheduling on loneliness among patients with depression
- 4) To evaluate the effectiveness of activity scheduling on negative cognitions among patients with depression
- 5) To determine the correlation between loneliness and negative cognitions among patients with depression
- 6) To find out the association of loneliness and negative cognitions among patients with depression with selected variables.

2. Research Methodology

Research approach: Quantitative research approach

Research design: One group pre-test post-test design

Schematic representation

O₁ X O₂

O₁: Pre-test on day1

X: Activity scheduling for 3 weeks (21 days)

O₂: Post-test on 22nd day after pre test

Variables

Independent variable: Activity scheduling

Dependent variables: Loneliness and Negative cognitions

Setting of the study: Psychiatric outpatient department in Govt. Medical College Hospital, Kottayam

Population: Patients with depression

Sample: Patients who are diagnosed with depression and are attending psychiatric outpatient department of the Govt. Medical College Hospital, Kottayam

Sampling Technique: Non probability purposive sampling

Sample size calculation:

Based on a data from previous study “Cognitive behavioural analysis system of psychotherapy reduces loneliness in patients with depressive disorder”¹⁰ pre-test and post-test Mean and SD of loneliness based on UCLA loneliness scale was 2.7 (1.0) and 2.3 (0.9) respectively.

$$n = \frac{[Z_{1-\alpha/2} + Z_{1-\beta}]^2 [SD]^2}{(\bar{x}_1 - \bar{x}_2)^2}$$

whereas, $Z_{1-\alpha/2} = 1.96$, $Z_{1-\beta} = 0.84$, $S_1 = 1.0$, $S_2 = 0.9$, $\bar{x}_1 = 2.7$, $\bar{x}_2 = 2.3$, Pooled SD=0.95

$$n = \frac{(1.96+0.84)^2 (0.95)^2}{(2.7-2.3)^2}$$

$$= \frac{(2.8)^2 \times 0.9025}{(0.4)^2}$$

$$= \frac{7.84 \times 0.9025}{0.16}$$

$$= 44.2225$$

$$= 44$$

By considering the 10% attrition, the sample size (n) is fixed as 48.

Inclusion criteria

Patients who are diagnosed with depression

- between the age of 18 to 65 years.
- having mild to moderate depression on Zung's self-rating scale (score between 50-69)
- who can comprehend malayalam

Exclusion Criteria:

Patients with depression who are

- not willing to participate in the study

Tools

The tools used for data collection includes Zung's Self-Rating Depression Scale, Socio personal data sheet and clinical data sheet, R-UCLA Loneliness Scale (Revised University of California, Los Angeles Loneliness scale) and Automatic Thoughts Questionnaire- Believability (ATQ-B).

Tool 1: The Zung's Self-Rating Depression Scale

The Zung's Self-Rating Depression Scale was designed by W.W. Zung's to assess the level of depression for patients diagnosed with depressive disorder. The Zung's Self-Rating Depression Scale is a short-self-administered survey to quantify the depressive status of a patient. In this study it was used to screen the patients with depression in order to assess their level of depression and to select patients with mild to moderate depression. There are 20 items on the scale that rate

the four common characteristics of depression; the pervasive effect, the physiological equivalents, other disturbances, and psychomotor activities; There are ten positively worded and ten negatively worded questions. Each question is scored on a scale of 1-4 (a little of the time, some of the time, good part of the time, most of the time).

The scores range from 20-80.

Score Interpretation

- <50 non-depressed
- 50-59 Mildly depressed
- 60-69 Moderately depressed
- 70 and above Severely depressed

Tool-2: Socio Personal and Clinical data sheet

Socio Personal data and Clinical data sheet include age, gender, education, occupation, marital status, occupation, type of family, monthly income, number of children, support system, total duration of illness, number of relapses, no of hospitalisation and history and number of suicidal attempts.

Tool 3: The Revised UCLA loneliness scale

The Revised UCLA Loneliness Scale (Revised university of California Los Angeles loneliness scale) was used to assess the subjective feelings of loneliness. Scale is a 20-item self-administered questionnaire that has become a standard measurement of subjective loneliness. The Revised UCLA Loneliness Scale is the most widely used tool for diagnosing a person's subjective feelings of loneliness and social isolation. The Revised UCLA Loneliness Scale is open to anyone aged 18 or over.

Scoring:

Items 1, 4, 5, 6, 9, 10, 15, 16, 19, 20 are positive and all are reverse scored.

2,3,7,8,11,12,13,14,17,18 are negatively scored and scoring continuous.

The scores range from 20-80

Score Interpretation

- 20-34: Low degree of loneliness
- 35-49: Moderate degree of loneliness
- 50-64: Moderately high degree of loneliness
- 65-80: High degree of loneliness

Tool-4: Automatic Thoughts Questionnaire- Believability (ATQ-B)

The Automatic Thoughts Questionnaire Believability (ATQ-B) is a 15-item self-report questionnaire that measures the frequency of negative automatic thoughts (NATs) that contribute to negative cognitions among patients with depression. The ATQ-B was developed by Steven D Hollon and Phillip C Kendall (1980) in response to Aaron T. Beck's hypothesis that thinking in depressed populations tends to be negative. Scores are summed across the 15 items to form an ATQ-B index ranging from 15 to 75. A higher score indicates a higher level of cognitive fusion with depressive thoughts.

- Low scores (15-30): Few negative automatic thoughts
- Moderate scores (31-45): Moderate levels of negative automatic thoughts
- High scores (46-60): High levels of negative automatic thoughts

- Very high scores (61-75): Extremely high levels of negative automatic thoughts

Reliability of the tool

The Zung's self-rating depression scale is a standardized tool. The internal consistency of the scale is 0.92. The reliability coefficient of R-UCLA scale to assess loneliness was ranging from 0.89 to 0.94 and test-retest reliability was $r = 0.73$. The Cronbach's alpha of ATQ(B) was at 0.96. All 3 scales are standardized. Hence, the tools were found reliable.

Data collection process

The main study was conducted at psychiatric outpatient department, Government Medical College Hospital, Kottayam, during January 2025 after getting formal permission from the Head of the Department of the Psychiatry, Government Medical College Hospital, Kottayam, Scientific Research Committee, Institutional Ethics Committee and approval from KUHS for undertaking the study.

Data were collected from 48 patients with depression who met the inclusion criteria and those who are attending psychiatric outpatient department, Govt. Medical College hospital, Kottayam. Initially 56 patients were screened using Zung's self-rating depression scale. Among them 48 patients having a scores of 50-69 (mild to moderate) depression were selected for the study. The purpose of the study was explained and informed consent was obtained from the patients and caregivers. From the selected patient's socio personal and clinical data were collected using socio personal data sheet and clinical data sheet. Loneliness was assessed by using R-UCLA Loneliness scale and negative cognitions was assessed by using Automatic thought questionnaire- Believability (ATQ-B).

After completion of the pretest, activity scheduling was explained and the schedule was given to the patients. Activity scheduling encompasses newspaper reading, simple warm up exercise (at least 20 minute), outdoor / indoor games, cleaning own bed and surrounding, listening to music, gardening, individual activity, rest and sleep(7-9 hours of sleep), tea and snack with friends or family, gratitude journaling, watching television, positive self-talk, positive affirmation (Choose a word, phrase or sound to silently repeat to yourself), cutting vegetables or helping in cooking or individual activity, gardening, Journaling(Writing down your thought and feelings). They were instructed to practice the schedule for a period of 21days from 7.00am to 9.30pm daily. Family members also instructed to motivate the patients for practicing the schedule. Follow-ups were carried out through mobile phone instructions. The patients were asked to bring the activity schedule on 22nd day and post test was conducted for the same group on the day by using R-UCLA Loneliness scale and Automatic thought questionnaire- Believability (ATQ-B). The data was entered in SPSS for appropriate analysis.

Description of intervention

Structured activity scheduling

Structured activity scheduling encompasses newspaper reading, simple warm up and breathing exercise (at least 20

minutes/day), outdoor / indoor games, cleaning own bed and surroundings, listening to music, gardening, individual activity, rest and sleep(7-9 hours of sleep), tea and snack with friends or family, preparation of gratitude journal, watching

movie, Positive self-talk, Journaling(Patients will be instructed to write down their thought and feelings) are instructed to continue the assigned activities for a period of 21days from 7.00am to 9.30pm daily.

Time	Activity scheduling		
	Week 1	Week 2	Week 3
7am	Wake up	Wake up	Wake up
7.15-8.15 am	Brushing Bathing Daily routines	Brushing Bathing Daily routines	Brushing Bathing Daily routines
8.15-8.30 am	Prayer	Prayer	Prayer
8.30-9 am	Break fast	Break fast	Break fast
9-9.30 am	Cleaning own bed and surrounding Medicine	Cleaning own bed and surrounding Medicine	Cleaning own bed and surrounding Medicine
9.30-9.55am	Simple warm up exercise Breathing exercise	Simple warm up exercise Breathing exercise	Simple warm up exercise Breathing exercise
10.15-10.30 am	Cool off time	Cool off time	Cool off time
10.30-11 am	Newspaper reading	Newspaper reading	Newspaper reading
11-12 pm	Individual activity Cutting vegetables or helping in cooking	Individual activity Cutting vegetables or helping in cooking	Individual activity Cutting vegetables or helping in cooking
12-1 pm	Listening Music	Listening Music	Listening Music
1-2 pm	Lunch	Lunch	Lunch
2-3	Rest	Rest	Rest
3-4	Watching movie	Watching movie	Watching movie
4-4.30 pm	Tea with friends or family members	Tea with friends or family members	Tea with friends or family members
4.30-5.30 pm	Reading book	Reading book	Reading book
5.30-6 pm	Outdoor games or gardening	Outdoor games or gardening	Outdoor games or gardening
6-7 pm	Prayer	Prayer	Prayer
7-8 pm	Dinner and medicine	Dinner and medicine	Dinner and medicine
8-8.30 pm	positive self-talk	positive self-talk	positive self-talk
8.30-9 pm	Journaling	Journaling	Journaling
9.30 pm	Bed time	Bed time	Bed time

Statistical analysis

Data were analysed by using descriptive and inferential statistics.

- Socio-personal data and clinical data were analysed using frequency distribution and percentage.
- Effectiveness of structured activity scheduling on loneliness and negative cognitions among patients with depression were analysed by using measures of Wilcoxon Signed Rank test.
- Correlation between loneliness and negative cognitions was analysed by using Spearman's rank order correlation
- Chi-square test was done to find out the association between loneliness and negative cognitions among patients with depression and with selected variables.

3. Result

Table 1: Frequency distribution and percentage of patients with depression based on Zungs Self-Rating Depression Scale (n=56)

Sample characteristics	f	%
Mildly depressed (50-59)	23	41.07
Moderately depressed (60-69)	25	44.64
Severely depressed (70&above)	8	14.29

Table 1 shows that 44.64% of patients were moderately depressed and 41.07% were mildly depressed and 14.29% were severely depressed. From 56 patients with depression 48 patients those who are had the scores of 50-69 (mild to moderate) selected as study participants.

3.1 Socio personal data of patients with depression (n=48)

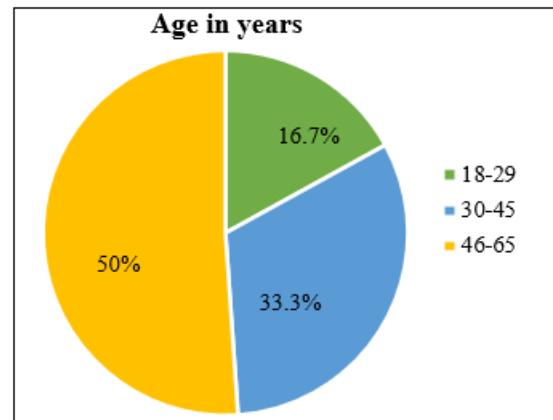


Figure 3: Percentage distribution of patients with depression based on age in years

Figure 3 shows that 50% of patients with depression belonged to 46-65 years and 33.3% belonged to 30-45 years.

Table 2: Frequency distribution and percentage of patients with depression based on gender (n=48)

Gender	f	%
Male	18	37.5
Female	30	62.5

Table 2 depicts that 62.5% of patients with depression were females and 37.5% were males.

Table 3: Frequency distribution and percentage of patients with depression based on education (n=48)

Education	f	%
Primary	14	29.2
Secondary	5	10.4
Higher secondary	12	25.0
Degree and above	14	29.2
Professional	3	6.2

Table 3 depicts that 29.2% of patients with depression were educated till primary class and degree and above respectively. It also shows that 25% had educated till higher secondary.

**Figure 4:** Percentage distribution of patients with depression based on occupation

Figure 4 shows that 47.9% of patients were unemployed and 41.6% of patients with depression were private employees.

Table 4: Frequency distribution and percentage of patients with depression based on marital status and type of family (n=48)

Socio-personal variables	f	%
Marital status		
Married	34	72.3
Unmarried	9	19.8
Divorced/separated	2	4.3
Widow/widower	3	4.3
Type of family		
Nuclear	40	85.1
Joint	8	14.9

Table 4 shows that 72.3% of patients with depression were married and 19.8% of them were unmarried. The data also depicts that majority of (85.1%) patients with depression belonged to nuclear family.

Table 5: Frequency distribution and percentage of patients with depression based on economic status and available support system (n=48)

Socio-personal variables	f	%
Economic Status		
APL	7	14.9
BPL	41	85.1
Available support system		
Spouse	7	14.9
Parents	10	21.3
Children	9	19.1
Relatives	2	4.3
Siblings	6	12.8
Social agencies	1	2.1
Friends	7	14.9
Nil	6	10.6

Table 5 shows that most of (85.1%) patients with depression belonged to BPL category and only 14.9% of them belonged to APL category. Regarding available support system 21.3% of patients with depression were got support from parents and 19.1% of them are got support from children. Table also shows that 14.9% each of them got support from spouse and friends respectively.

2.2 Clinical data of patients with depression

Table 6: Frequency distribution and percentage of patients with depression based on total duration of illness and total number of relapses (n=48)

Clinical variables	f	%
Total duration of mental illness		
<1	8	16.7
1-5	25	52.1
6-10	10	20.8
>10	5	10.4
Total number of relapses		
Nil	22	45.8
2	11	22.9
3	10	20.8
4	2	4.2
>4	3	6.3

Table 6 reveals that 52.1% of patients with depression experienced illness for 1-5 years and 20.8% of patients were having illness for 6-10 years. Table also depicts that 45.8% of patients reported no relapses and 22.9% of patients had 2 relapses and 20.8% of patients experienced 3 relapses.

Table 7: Frequency distribution and percentage of patients with depression based on number of hospitalization and history of suicidal attempt (n=48)

Clinical variables	f	%
No. of hospitalization		
0	24	50.0
1	4	8.3
2	11	22.9
3	3	6.3
4	5	10.4
>4	1	2.1
History of suicidal attempt		
Yes	19	39.6
No	29	60.4

Table 7 shows that 50% of patients with depression were not hospitalized and 22.9% had hospitalized 2 times. Table also depicts that 60.4% of patients with depression had no history of suicidal attempt and 39.6% had history of suicidal attempt.

Table 8: Frequency distribution and percentage of patients with depression based on discontinued medication and use of alternative system of medicine (n=48)

Clinical variables	f	%
Discontinued medication		
Yes	17	35.4
No	31	64.6
Alternative system of medicine		
No	42	87.5
Yes	6	12.5

Table 8 depicts that 64.6% of patients with depression did not discontinue medication and 35.4% of patients had history of discontinued medication. Table 8 also reveals that majority (87.5%) of patients with depression did not use any alternative system of medicine.

Section 3: Loneliness among patients with depression

This section deals with the level of loneliness among patients with depression. Loneliness was measured by using UCLA loneliness scale.

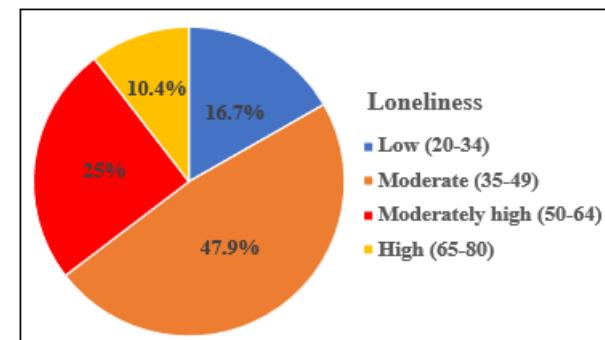


Figure 5: Percentage distribution of patients with depression based on loneliness

Figure 5 shows that 47.9% of patients with depression experienced a moderate degree of loneliness and 25% of patients experienced a moderately high degree of loneliness.

Section 4: Negative cognitions among patients with depression

This section deals with negative cognitions among patients with depression. Negative cognitions measured by using Automatic Thoughts Questionnaire Believability (ATQ-B) is a 15-item self-report questionnaire that measures the negative cognitions among patients with depression.

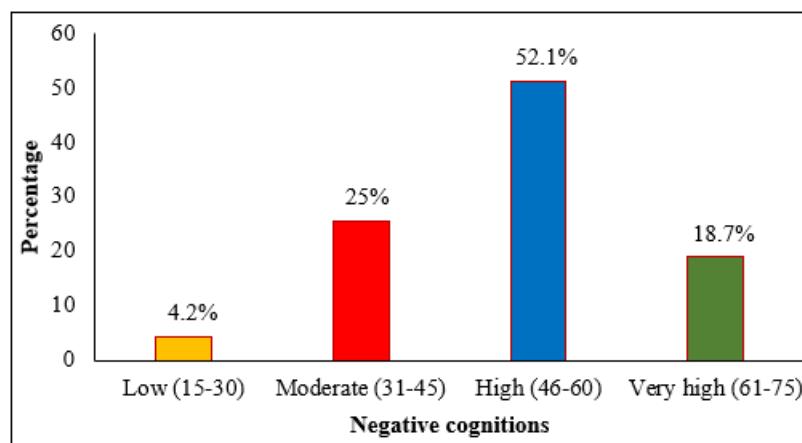


Figure 6: Percentage distribution of patients with depression based on negative cognitions (n=48)

Figure 6 shows that 52.1% of patients had a high level of negative cognitions and 25% of them had a moderate level of negative cognitions.

Table 9 depicts that the median scores of pre-test and post-test were 43 and 33.50. The Inter Quartile Range of pre-test and post-test were 18.75 and 17.25 respectively.

To test the effectiveness of activity scheduling on loneliness, the following null hypothesis was formulated

H_01 : There is no significant difference in the scores of loneliness among patients with depression before and after activity scheduling

Table 9: Median and Inter Quartile Range (IQR) of loneliness among patients with depression (n=48)

	Loneliness	
	Median	IQR
Pre test	43	18.75
Post test	33.50	17.25

Table 10: Mean rank, Sum of ranks and Z value of loneliness among patients with depression

Loneliness				
	Mean rank	Sum of ranks	Z value	p value
Pre test	25.41	1169	5.963	0.01
Post test				

Table 10 shows that Z value was 5.963, which was statistically significant at 0.05 level. There was significant difference in the scores of loneliness among patients with depression before and after activity scheduling. Hence the null hypothesis (H01) was rejected. So, it is interpreted that activity scheduling was effective in reducing loneliness among patients with depression.

Section 6: Effectiveness of activity scheduling on negative cognitions among patients with depression

This section deals with effectiveness of activity scheduling on negative cognitions among patients with depression.

Table 11: Median and Inter Quartile Range (IQR) of negative cognitions among patients with depression (n=48)

Groups	Negative cognitions	
	Median	IQR
Pre test	51.50	15.75
Post test	39	14.50

Table 11 depicts that the median scores of negative cognitions of pre and post-test were 51.5 and 39. The Inter Quartile Range of pre-test and post test scores were 15.75 and 14.50 respectively.

To test the effectiveness of activity scheduling on negative cognitions, the following null hypothesis was formulated

H02: There is no significant difference in the scores of negative cognitions among patients with depression before and after activity scheduling.

Table 12: Mean rank, Sum of ranks and Z value of negative cognitions among patients with depression

Negative cognitions				
	Mean rank	Sum of ranks	Z value	p value
Pre test	24.99	1174.50	6.01	0.01
Post test				

Table 12 shows that Z value was 6.01, which was statistically significant at 0.05 level. There was significant difference in the scores of negative cognitions among patients with depression before and after activity scheduling. Hence, the null hypothesis (H02) was rejected. It is interpreted that activity scheduling was effective in reducing negative cognitions among patient with depression.

Section 7: Correlation between loneliness and negative cognitions among patients with depression

This section deals with the relationship between loneliness and negative cognitions among patients with depression. The Spearman's rank order correlation coefficient was used to assess the correlation between loneliness and negative cognitions among patients with depression. For this purpose, following null hypothesis was formulated.

H03: There is no significant correlation between loneliness and negative cognitions among patients with depression.

Table 13: Correlation between loneliness and negative cognitions among patients with depression

Variables	p	p value
Loneliness	0 ⁺ .505	0.01
Negative cognitions		

Table 13 shows that there was a moderate positive correlation ($p=+0.505$) between loneliness and negative cognitions among patients with depression which was statistically significant at 0.05 level. Hence null hypothesis (H03) was rejected. There is significant correlation between loneliness and negative cognitions among patients with depression. So as loneliness increases negative cognitions also increases.

Section 8: Association between loneliness among patients with depression and the selected variables

This section deals with association between loneliness among patients with depression and the selected variables. Chi square test was used to find out the association between loneliness among patients with depression and selected variables. For this purpose, following null hypothesis was formulated.

H04: There is no significant association between loneliness among patients with depression and the selected variables.

Table 14: Chi square value and degree of freedom of loneliness among patients with depression and the selected variable

Selected Variables	df	χ^2	p value
Age	6	15.15	0.01
Gender	3	17.45	0.01
Education	8	21.02	0.05
Occupation	9	10.53	0.31
Marital status	9	10.61	0.31
Type of family	3	20.52	0.01
Economic status	3	3.21	0.36
Available support system	21	21.53	0.43
Total duration of mental illness	9	24.69	0.03
Total number of relapses	12	24.71	0.01
Number of hospitalizations	15	29.04	0.01
History of suicidal attempt	3	2.35	0.51

Table 14 reveals that age, gender, type of family, total duration of mental illness, total number of relapses, number of hospitalizations were statistically significant at 0.05 level. There is no statistically significant association between loneliness among patients with depression with other selected variables. Hence null hypothesis (H04) was not rejected. There is no significant association between loneliness among patients with depression and the selected variables.

Section 9: Association between negative cognitions among patients with depression and the selected variables

This section deals with association between negative cognitions among patients with depression and the selected variables. Chi square test was used to find out the association between negative cognitions among patients with depression and the selected variables. For this purpose, following null hypothesis was formulated.

H_{05} : There is no significant association between negative cognitions among patients with depression and the selected variables.

Table 15: Chi square value and degree of freedom of negative cognitions among patients with depression and the selected variables

Sample characteristics	df	χ^2	p value
Age	6	12.61	0.05
Gender	3	0.43	0.94
Education	8	9.71	0.64
Occupation	9	6.88	0.65
Marital status	9	5.52	0.79
Economic status	3	1.34	0.71
Available support system	21	21.96	0.41
Total duration of mental illness	9	8.95	0.44
Total number of relapses	10	19.51	0.07
Number of hospitalizations	10	19.85	0.18
History of suicidal attempt	3	13.22	0.04

Table 15 reveals that history of suicidal attempt was statistically significant at 0.05 level. It also shows that the obtained Chi-square value of negative cognitions among patients with depression and the selected variables were not statistically significant at 0.05 level. Hence null hypothesis (H_{05}) was not rejected. There was no statistically significant association between negative cognitions among patients with depression and the selected variables.

4. Discussion

The main aim of present study was to determine effectiveness of activity scheduling on loneliness and negative cognitions among patients with depression, attending psychiatric OPD Govt. Medical College hospital, Kottayam. A sample of 48 patients with mild to moderate depression were participated in the study. Data collection tools included socio-personal and clinical data sheet, R-UCLA loneliness scale and Automatic thought questionnaire believability. Descriptive and inferential statistics were used to analyze the data. The findings of the study were discussed in relation to the objectives, with reference to relevant previous studies.

The present study showed that most of the patients (70.8%) with depression were married and majority (62.5%) of the depressed individuals were females. The findings were supported by a descriptive study conducted in Tamil Nadu, India to assess depression and its associated factors among the older adults revealed that 60.8% were females and majority of them (78.7%) were married.

This finding was congruent with another study conducted by department of public health, faculty of allied health sciences, Bangladesh reported that married women were at risk of depression.¹⁰

Loneliness and negative cognitions among patients with depression

The present study revealed that 47.9% of patients with depression were having moderate degree of loneliness which is supported by a meta-analysis conducted to determine the effect of loneliness on depression showed that loneliness had a moderately significant effect on depression.³⁵ Another multicentric study conducted to assess the relationship of

loneliness and social connectedness with depression in Western countries (Ireland, United States, and the Netherlands) have suggested that 77.3% of the elderly patients with depression were experienced loneliness.¹¹

Effectiveness of activity scheduling on loneliness and negative cognitions among patients with depression

The present study depicts that median scores of pre test and post-test were 43 and 33.50 and the Inter Quartile Range of pretest and post test were 18.75 and 17.25 respectively (z value was 5.963 at 0.05 level). There was significant difference in the scores of loneliness among patients with depression before and after activity scheduling. Activity scheduling was effective in reducing loneliness among patients with depression. These findings were congruent with an international study conducted among patients with depression, revealed that behavioural activation was effective in reducing social isolation and loneliness.¹⁴

The present study depicts that median scores of negative cognitions of pre and post- test were 51.5 and 39. The Inter Quartile Range of pretest and post- test scores were 15.75 and 14.50 respectively, (z value at 0.05 level). It is interpreted that activity scheduling was effective in reducing negative cognitions among patient with depression. The findings congruent with a systematic review conducted to evaluate the impact of structured activity programmes on cognitive function among mentally ill inmates of a destitute home, suggest that structured activity programme was effective in improving the cognitive function of mentally ill destitute.¹⁰

Correlation between loneliness and negative cognitions among patients with depression

The data showed that obtained p value (+ 0.505) was statistically significant at 0.5 level, which indicates that a moderate positive correlation between loneliness and negative cognitions among patients with depression. The investigator assumes that negative thoughts and loneliness are closely related, creating a harmful cycle in which loneliness frequently results in negative views about oneself and social relationships. As loneliness increases negative cognitions also increases. This is congruent with a longitudinal study conducted to assess the correlation between loneliness and depressive symptoms among adults aged 50 years and older showed that there was a moderate positive correlation between loneliness and depression.⁶³ It was also consistent with another cross-sectional study conducted to assess the relationships among coping, loneliness, and depression in Chinese older patients with major depressive disorder found that depressive symptoms were positively correlated with overall, emotional, and social loneliness.¹²

Association between loneliness and negative cognitions among patients with depression and selected variables

The obtained chi-square value of loneliness among patients with depression and the selected variables such as age and gender were statistically significant at 0.05 level. There is a significant association between loneliness with depression and selected variables. Findings were supported by a cross-sectional study conducted in India to assess the prevalence and socioeconomic impact of depressive disorders found that

age and gender were found to be significantly associated with current depressive disorder.¹³

5. Limitations

- Long-term effect of activity scheduling was not assessed due to time limit.
- The study was done only in patients with depression attending outpatient department of a single tertiary care centre
- Patients willing to participate are included, potentially excluding those with more severe symptoms or those less motivated, thus limiting the generalizability.
- A short follow-up period might not capture the long-term effects of activity scheduling on loneliness and negative cognitions

6. Conclusion

This study suggests that activity scheduling is a helpful intervention for reducing loneliness and negative cognitions among patients with depression. The present study revealed that 47.9% of patients with depression experienced a moderate degree of loneliness and 52.1% had a high level of negative cognitions. It also depicted that there was a moderate positive correlation between loneliness and negative cognitions. It also revealed that there was a significant association between negative cognitions and gender. By engaging in structured activities, patients experienced an increase in social connection and a decrease in depressive symptoms. This intervention offers a practical approach to improving mental well-being and to reducing negative cognitions, thus helping to managing the challenges associated with depression.

7. Scope for Future Study/ Recommendations

- Other interventional programme can be given to reduce the loneliness and negative cognitions
- Conduct multi-center studies involving a larger and more representative sample of patients with depression from various settings (e.g., community health centers, primary care facilities) in Kerala
- Ensure the sample includes diverse socioeconomic backgrounds and cultural groups to enhance generalizability
- Implement longitudinal studies with extended follow-up periods to assess the long-term effects of activity scheduling on loneliness and negative cognitions
- Explore the potential benefits of combining activity scheduling with other interventions
- Future research should pay close attention to the impact of common comorbidities with depression, such as anxiety, and how those comorbidities impact activity scheduling effectiveness
- Conduct qualitative studies to explore the lived experiences of patients with loneliness and negative cognitions
- Tailor activity scheduling interventions to the individual needs and preferences of each patient and consider the patient's cultural background, socioeconomic status, and personal interests when developing activity plans.

- Develop community-based programs that encourage activity scheduling, and social engagement, to reduce the impact of depression in a broader context

Ethical policy and Institutional Review Board statement

The research was conducted following institutional ethical clearance vide letter dated 04/08/2023 with file number EC/NEW/INST/2023/3134

Declaration of patient consent

Prior to participation, all subjects provided written informed consent after receiving a thorough explanation of the study's purpose, procedures, potential benefits, and any associated risks. Participants were informed that their involvement was entirely voluntary, and they retained the right to withdraw from the study at any time without penalty or affecting their ongoing treatment. Participants were assured that their confidentiality and anonymity would be strictly maintained, and the results would be published respecting this commitment. No additional financial expenses were incurred by the participants as a result of their involvement in the study."

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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