Effect of Emotion regulation Nursing Intervention on Emotional Regulation Difficulties and Peace of Mind among older adults

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Abstract

Background: Emotional dysregulation is considered a phenotypic finding that has a purported impact on older adults' peace of mind. Emotion regulation nursing intervention is a breakthrough treatment that has been empirically targeted to restore positive emotional states and strengthen mental clarity in the geriatric population. **Aim:** This study aimed to determine the effect of emotion regulation nursing intervention on emotional regulation difficulties and peace of mind among older adults. **Design:** A quasi-experimental methodological approach was applied. **Setting:** Two seniors' clubs that belonged to Egypt's Ministry of Social Solidarity, Alexandria Governorate were included. **Study participants:** 80 older adults (aged 60 and above), randomly assigned into two equal groups. The study group received the study intervention, and the control group, received regular seniors' club services. **Tools:** 4 tools were used for data collection: 1) Mini-Mental State Examination Scale (MMES), 2) Brief version of the Difficulties in Emotion Regulation Scale: the DERS-16, 3) The Peace of Mind Scale: PoM, and 4) Socio-demographic and Health Profile of Older Adults Structured Interview Schedule. **Results:** The reported emotional regulation difficulties score was significantly reduced in the study group from 73.59±5.99 to 19.18±8.0 following the intervention (P<0.001) and was significantly higher than the control group's post-test percent score 70.63±4.20 (P<0.001). The peace of mind score increased from 11.70±7.84 to 24.91±0.56 among the study group following the interventions and was significantly higher than that of the control group's post-test percent scores 6.07±5.0 (P<0.001). **Conclusion:** Emotion regulation nursing intervention generated a significant reduction in older adults' emotional regulation difficulties and a significant improvement in their peace of mind. **Recommendations:** The present study finding provides support for the creation of a skill-based training program for all nurses who work with older adults in all settings about the importance of emotion regulation nursing intervention and how to implement them for older adults.

Introduction

Emotional dysregulation is considered a phenotypic finding among older adults, which may be partly attributable to age-related changes, such as declining physical health, retirement, and rising mortality among partners and friends **(Kunzmann et al., 2022)**. Dependence on caregivers and financial limitations can undermine older adults' self-confidence and self-esteem, and numerous additional psychosocial factors can affect their experience and progression of emotional difficulties **(McRae & Gross, 2020)**. Emotional dysregulation is operationally defined in this study as the inability to accept emotional responses, difficulty engaging in goal-directed behavior, issues with impulse control, limited access to emotion regulation strategies, and lack of emotional clarity. In this sense, they are more likely to experience a wide range of emotional difficulties, ranging from simple and subtle mood changes to complex psychiatric problems, such as feelings of abandonment, loneliness, emptiness, worthlessness, and powerlessness. Older adults are more likely to report full-blown age-related emotional problems, including but not limited to anger outbursts, anxiety, sadness, substance misuse, suicidal ideation, self-harm, and other self-destructive behaviors, particularly among those who have

trouble controlling their emotions **(Dunn et al., 2018)**.

Aging is an inevitable and progressive process that might be explicitly linked to undesirable emotional states. Carstensen's socioemotional selectivity theory of age-related positivity proposes that motivational shifts in older adults are hastened by an age-related acceptance of the finiteness of life and heightened awareness **(Carstensen et al., 2003)**. As a result, motivation shifts toward definite goals that focus on emotional meaning and enjoying everyday life experiences, which affect older adults' decisions to conceal undesirable emotions through defense mechanisms. For instance, they become less likely to engage in situations that might fall within the parameters of undesirable feelings and negative impacts **(Blanchard-Fields, 2007; Charles & Carstensen, 2010; Rovenpor et al., 2013)**. Anyone's life balance can be thrown off by negative emotions, but the systematic reduction in older adults' ability to control their emotions might be manifest in a subtle manner, such as becoming easily frustrated or more irritable by minor annoyances **(Sasagawa et al., 2021)**. This intrinsically has a purported impact on lowering their mental health and thereby their peace of mind (PoM). PoM is operationally defined as a sense of calmness and tranquility, a feeling of being at peace with oneself and the world, a lack of worry or anxiety, a sense of contentment and satisfaction, and a feeling of being in control of one's life. If older adults are experiencing severe emotional dysregulation, they may require professional assistance. Regulating emotions may be a key therapy goal in psychological interventions for older adults **(Isaacowitz, 2022)**.

Consistent with Erikson's psychosocial theory of personality development **(Erikson, 1994)**, older adults begin their final stage of psychosocial growth, during which they explore and reflect on their prior experiences in an effort to make sense of their lives and reconcile their good and bad experiences. When they perform this work successfully, a sense of ego integrity is enforced, which is characterized by feeling unified, harmonious, and finished with one's identity and life as a whole. Conversely, individuals feel hopeless when they are unable to discern significance in the lives they have led, and feelings of regret, bitterness, and disillusionment

over a life wasted are characteristics of despair. Despair exhibits an opposite pattern of correlations from ego integrity, which has a positive relationship with mental health and a lower risk for depressive symptoms **(Derdaele et al., 2019; Van Hiel & Vansteenkiste, 2009)**.

An essential assumption in self-determination theory is that individuals naturally tend to progress toward higher levels of psychological maturity and integration as they grow older **(Deci & Ryan, 2000; Ryan & Deci, 2017)**. This is attributed to their formulation of an authentic and cohesive sense of self, which is made up of a set of interconnected identities based on integrated, self-adopted preferences, interests, and values **(Ryan & Deci, 2003; Soenens & Vansteenkiste, 2011)**. Age positively correlates with mental health in this regard, which may be explained by people becoming more adept at remaining true to themselves and regulating their behavior based on self-endorsed motives **(Sheldon et al., 2003, 2005; Van der Kaap-Deeder et al., 2020)**.

Emotional dysregulation in older adults can become very challenging to handle if not addressed at the earliest possible time. It can lead to adverse ramifications related to their emotional well-being and physical health. From another perspective, it might seriously impose additional stress on family members and caregivers **(Stephens et al., 2023)**. Unfortunately, if the older adults' psychological concerns are ignored or overlooked by family members due to the popular belief that such emotional changes are typical symptoms of aging, and do not require immediate attention, this could exacerbate older adults' suffering, and even increase the risk of depression and suicide.

Significance of the study

The optimal evaluation and identification of potential emotional difficulties and delivery of prompt and effective care interventions to support older adults to effectively manage their emotions in an adaptive way necessitates the integration of multidisciplinary teams, including gerontological nurses. In particular, the care team ought to develop a personalized plan of care to protect patients from falling prey to negative feelings such as sadness and depression, and committing self-destructive behaviors (e.g., medication avoidance) or suicide **(Sasagawa et al., 2021)**. Emotion regulation nursing intervention (ERNI)

is one of the breakthroughs and empirically supported cognitive behavioral therapies that has been specifically targeted to control older adults' own emotions, foster better relationships, and endure difficult life situations without impulsivity.

ERNI could strengthen mental clarity, restore a positive emotional state, improve coping mechanisms, and lessen depressive symptoms in the geriatric population **(Delhom et al., 2018)**. This study explores the specific Dialectical Behavioral Therapy (DBT) model, developed by **Linehan & Wilks, (2015)**. The DBT is a validated, evidence-based practice that originally targeted a variety of emotional-related disorders, such as borderline personality disorder and poor impulse control disorder **(Linehan & Wilks, 2015)**.

Although there is evidence that there are numerous strategies to increase emotion regulation, it is still unclear which specific interventions are most likely to do so. Also, there is a shortage of research on the effectiveness of interventions that are specifically targeted at improving emotion regulation in older adults. To advance more in-depth understanding of this area, identifying the components of emotion regulation-specific interventions that could result in better emotion regulation is of utmost importance **(Bellingtier & Neupert, 2018; Smith & Hanni, 2019)**. Additionally, few reviews have looked at theory-to-intervention links, and this is an important area to take into account given the ambiguity surrounding what emotion regulation is and how much of an intervention (in terms of form, focus, and amount) is required to enhance patients' capacity for and proficiency in managing emotions **(Moore et al., 2022)**. Therefore, the current study examines the effect of ERNI on emotional regulation difficulties and peace of mind (PoM) among older adults.

Aim of the study

The present study aimed to determine the effect of emotion regulation nursing intervention on emotional regulation difficulties and peace of mind among older adults.

Research objectives:

- Explore the emotional regulation difficulties and peace of mind among older adults.

- Examine the effect of ERNI on emotional regulation difficulties and PoM among older adults.
- Investigate the relationship between emotional regulation difficulties, PoM, and older adults' sociodemographic characteristics.

Research hypotheses:

Based on the evidence from existing literature (as expounded above), the following hypotheses were formulated:

H1: After eight weeks of ERNI, the recruited older adults who attend the training sessions exhibit lower emotion regulation difficulties compared to those who do not attend the proposed study intervention.

H2: After eight weeks of ERNI, the recruited older adults who attend the training sessions exhibit higher PoM compared to those who do not attend the proposed study intervention.

Methods

Study Design

A quasi-experimental research design was used in this study.

Setting

Fidelity monitoring was used to document the extent to which study intervention can be implemented with high fidelity among older adults in seniors' clubs, two of which were the sites for recruitment in this study: El-Wafaa in Moharrem Bec and Al-Hayah and Al-Amal in Sidi-Bisher. These institutions were incorporated as part of the Alexandria Governorate's Ministry of Social Solidarity. Both clubs offer a variety of activities for older adults, such as social gatherings, field trips, and seminars on health issues affecting older adults.

Sampling and Study Participants

The Epi info V 7.0 program was used to calculate a convenience sample of 80 older adults, based on the following statistical features: population size 250, 50% expected frequency, 95% confidence level, and 10% acceptable error, resulting in a minimum required sample size of 70.

The researchers initially contacted the directors of the seniors' clubs to ask for permission to conduct the study. After that, they visited the sites on 2 days per week, and explained the study to the attending members, and then asked them if they would like to participate. The participating older adults were informed in full of the voluntary nature of participation prior to recruitment and were assured that all data would be anonymous and that they could withdraw from the study at any time. The study consequently included 80 older adults (aged 60 years and older) who met the following inclusion criteria: (1) having a score of 17 or higher on the Brief Version of the Difficulties in Emotion Regulation Scale (DERS-16), indicating difficulties with emotional regulation; and (2) being easily accessible during data collection in the chosen settings. Older adults who had mild or severe cognitive impairments, as indicated by the Mini-Mental State Examination Scale (MMES) score of less than 24, were excluded. MMES, developed by **Folstein et al., (1975)** measures cognitive abilities for recall, language, orientation, attention, calculation, and registration. Scores out of 30 indicate various degrees of cognitive performance, classified as severe cognitive disturbance (0-17), mild cognitive impairment (18-23), and normal cognitive performance (24-30). **Elhusseini, (2008)** translated the MMES into the Arabic version used in this study and approved its validity and reliability (r=0.96). The number of approached, and consented subjects, and participants who completed the study intervention is illustrated in **Figure 1**.

The recruited 80 participants were randomly assigned to two equal groups of 40 older adults each:

Group 1: (study group): included older adults who received the planned study interventions (the ERNI).

Group 2: (control group): included older adults who received the seniors' clubs usual services.

Outcome Measures

Three tools were utilized for gathering the research data, as described below.

Tool I: The Socio-Demographic Profile of Older Adults Structured Interview Schedule

The researchers developed this tool for this study to evaluate the older adults' general socio-demographic data. It included demographic items such as age, sex, social status, level of education, and monthly income.

Tool II: Brief Version of the Difficulties in Emotion Regulation Scale (DERS-16)

The original 36-item DERS was developed by **Gratz & Roemer, (2004)** to measure typical levels of emotion dysregulation. The DERS-16 items were derived from the original by **Bjureberg et al., (2016)** based on both item-total correlations and content validity considerations and reported that it has excellent internal consistency, good test-retest reliability, and convergent and discriminant validity. It contains five domains as follows: (1) Goals (3 items), focused on difficulties engaging in goal-directed behavior; (2) Clarity (2 items), concerning lack of emotional clarity; (3) Impulse (3 items), focused on impulse control difficulties; (4) Strategies (5 items), which emphasizes limited access to effective emotion regulation strategies; and (5) Non-acceptance (3 items), indicating non-acceptance of emotional responses.

Respondents are asked to rate the degree to which each statement applicable to them on a five-point Likert scale, ranging from 1 (almost never) to 5 (almost always). Total scores ranged from 16 to 80, with higher scores indicating greater emotional regulation difficulties.

Tool III: Peace of Mind Scale (PoM)

The PoM is a reliable and valid measure of affective well-being, designed by **Lee et al., (2013).** It asks participants to rate how often they experience inner peace and easiness in their daily lives using a five-point Likert scale, with the following possible responses: 1=never, 2=occasionally, 3=frequently, 4=most of the time, and 5=all of the time. The PoM contains seven positive and negative questions (whereby the negatives are scored backward). The total of the item scores represents an overall evaluation of PoM, ranging from 7- 35, with higher scores indicating greater PoM.

Method:

1- After receiving approval from the Research Ethics Committee of the Faculty of Nursing, Alexandria University to carry out this study, fieldwork was initiated.

2- Written approval was issued from the responsible authority at the selected study setting for permission to conduct the study, after clarifying its aim and scope.

3- The researchers developed tool I for this study to evaluate the older adults' general socio-demographic data.

4- Tools II and III were back-translated into Arabic by the researchers to assess older adults' emotional regulation difficulties and peace of mind. Seven experts (Psychiatric and Mental Health Nursing, as well as Gerontological Nursing) evaluated their validity, and the Cronbach Coefficient Alpha test was used to assess their reliability (r= 0.83, r= 0.80, respectively).

5- A pilot study was conducted on 10 older adults who were selected from the study setting to assess the clarity and feasibility of the study tools. They were not included in the study sample.

6- The applied ERNI is based on DBT as formulated by previous studies **(Bellingtier & Neupert, 2018; Delhom et al., 2020)**.

7- The training sessions impart a variety of skills that can be incorporated and practiced into the daily lives of older adults, containing tactics related to understanding and identification of emotions, altering unwanted emotions, decreasing susceptibility to negative emotions, and managing overwhelming emotions.

8- The ERNI's content represents a simple structure that revolves around eight sessions of group activities, delivered in one session per week over eight weeks, lasting approximately 60-90 minutes each (**Table 1**).

9- Based on the inclusion criteria, the researchers addressed the settings to assess the availability and willingness of participants.

10- Participants completed a baseline evaluation of the outcome measures of the researched variables after being found to be eligible for the current study and indicating their willingness to participate voluntarily.

11- ERNI (study) and control groups were randomly assigned to the study participants on a rolling basis; whenever 6–8 participants were recruited; a study or control group was formed and started receiving the ERNI, implemented by the researchers.

12- Participants in the control group received typical seniors' club routine care, which was based primarily on attending seminars about enhancing older adults' health.

13- To avoid contamination between the two groups, researchers completed their work with the control group in both senior clubs before implementing the study interventions to the study group.

14- The ERNI sessions for the study group were conducted in the activity rooms of the seniors' clubs where the researchers met the participants.

15- The ERNI was employed through providing participants with chances to share their feelings and cooperate with others in a social context, utilizing open-ended questions to elicit opinions and feelings from participants, and fostering an environment in which they felt at ease in a small circle group format.

- To ensure continuity between the sessions, they included the same structure, such as **Check-in activities** (10-15 minutes) that consisted of a welcome to the participants, a brief explanation of the names, date, time, and location of the session, a discussion of important items in the previous session, and filling out the weekly reflection sheet. This sheet contained questions that the participants were asked to answer, such as: How was their week? Was there an emotionally difficult situation? Were they able to apply what they had learned during the week? When and how did this happen? Was it useful?

- The **themed constructive emotional management activities** (40-60 minutes) covered a variety of knowledge about

emotional regulation difficulties, emotional myths, and ERNI-related skills, such as techniques of emotional regulation, overcoming emotional pain, and developing positive emotions. For each content item, the researchers gave examples and situations for elaboration.

- **Check-out activities** (10-15 minutes) summed up the main points of each session, collected participants' feedback, and offering printed handout sheets pertaining to the sessions' subjects about the learned ERNI. In addition, the participants were asked to complete the week's skill sheet, which guided the study subjects in planning their skills for each week. It included how they would apply the learned skills in different situations they might face in life, and reminded them of the time of the subsequent meeting.

16- For evaluating the effect of the study intervention:

- Prior to the intervention (at baseline), at time 1 (T1), the participants' scores for the outcome measures covered by the emotional regulation difficulties scale and the PoM scale among the study subjects were recorded.

- To compare the results, a post-test evaluation taken immediately after the intervention's final administration after 8 weeks (T2) and a follow-up examination taken six weeks later (T3) were used.

- After eight weeks following the pretest (T1), the researchers reevaluated the control group to examine any changes in their emotional regulation difficulties and PoM.

17- After the posttest (T2), the researchers delivered the control group an instructional text booklet outlining the significance of and skills for emotional regulation nursing intervention.

18- Appropriate statistical analysis to determine the impact of the proposed study

intervention was used.

Ethical considerations:

All study subjects were informed about the study aim and an informed consent was obtained accordingly from all of them. The confidentiality of the obtained data was guaranteed and upheld and participants' anonymity was preserved. The participants' engagement was completely voluntary and the freedom to withdraw from the study at any time was guaranteed.

Statistical analysis

To analyze the data entered into the computer, the IBM SPSS software package version 20.0 was used (Armonk, NY: IBM Corp). Numbers and percentages were used to describe qualitative data. The Shapiro-Wilk test was used to determine the normality of distribution. The range (minimum and maximum), mean, standard deviation, and median were used to characterize quantitative data. The significance level for the findings was set at $p \leq 0.05$. Chi-square analysis was used to compare different groups for categorical variables. Chi-square corrected testing was applied using Monte Carlo or Fisher's Exact if more than 20% of cells had an expected count of less than 5. Student t-test was used to compare two groups of normally distributed quantitative variables. Analysis of variance (ANOVA) with repeated measures was used to compare quantitative variables with normally distributed distributions across multiple time periods. Two-way ANOVA with repeated measures was used for calculating the interaction among the study variables in terms of a group-by-time interaction. The Pearson coefficient was used to calculate the correlation between two normally distributed quantitative variables.
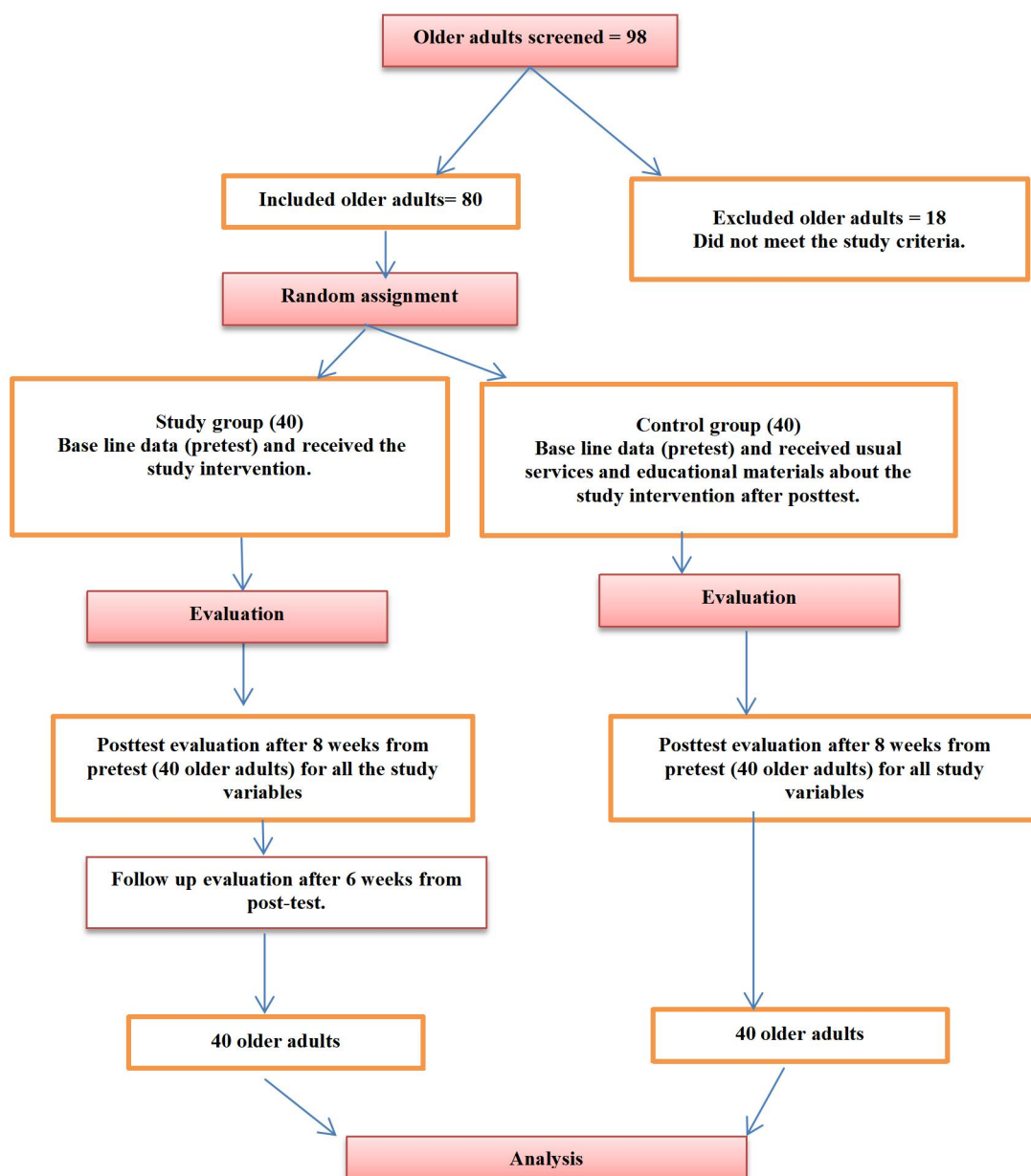
Fig. 1: Flow chart of the study procedure

Table (1): Emotion regulation nursing intervention

Session Serial Specific Objective	Session Actions or tactics
First, understanding and naming emotions: part I	- Introduction and overview of the study interventions and their goals. - Understanding emotions - The role of emotions in older adults' lives
Second, understanding and naming emotions: part II	- What makes emotion regulation difficult? - Emotional Myths. - How to describe emotions, identifying and labeling emotions
Third, changing unwanted emotions: part I	- Verifying facts - Choose between opposite emotional action and problem-solving.
Fourth, changing unwanted emotions: part II	- Problem-solving - Opposite emotional action
Fifth, reducing vulnerability to emotion mind; part I	- Short-term development of positive emotions and experiences - Creating a list of enjoyable activities - Long-term development of positive emotions and experiences
Sixth, reducing vulnerability to emotion mind; Part II	- A list of priorities and principles - Develop mastery and cope a head - Take care of the mind by taking good care of the body - Sleep hygiene
Seventh, managing extreme emotions: part I	- Dealing with difficult emotions - Being aware of one's current emotions and safely letting go of emotional pain
Eighth, managing extreme emotions: part II	- Handling extreme emotions - Emotional management skills review.

Results

Table 2 illustrates that the majority (57.5%) of participants were females. In relation to age categories, the table notes that 30.0% of participants aged 60 to 65 years old, 37.5% aged 65-70, and 32.5% were 70 and above. The age distribution of older adults ranged from 62 to 75 years old, with a mean age of 67.13± 3.23. Also, the table notes that 52.5% of participants were married. The majority of participants were secondary education graduates, housewives, and had inadequate monthly income (55.0 %, 51.3%, and 62.5%, respectively). The table shows that there is no statistically significant distinction between the study and control groups in terms of socio-demographic traits, indicating that there is a general similarity between the groups.

Table 3 shows the emotional regulation difficulties scores before and after the implementation of ERNI. It can be seen that participants had a high mean percent score for general emotional regulation difficulties at T1, as reflected in the overall scores for the study group (73.59±5.99) and the control group (72.23±6.72). The emotional regulation difficulties sub-domains also show high scores. Additionally, there was no discernible difference between the groups at T1 in terms of overall emotional regulation difficulties (t=0.961, P=0.340), However, the study group's

T2 score (19.18±8.0), showed a statistically significant reduction from the T1 score in overall emotional regulation difficulties, indicating better emotional regulation (P<0.001). However, neither the overall nor subdomain scores for study participants in the control group's emotional regulation difficulties significantly changed from T1 to T2 (t=1.691, P=0.099). Compared to T2, the study group's overall mean percent score for emotional regulation difficulties significantly increased at T3 (53.32±6.59, P<0.001), however, it remained significantly lower than at T1 (P<0.001).

Table 4 compares the PoM scores before and after the implementation of the ERNI. The study group's PoM mean percent score significantly increased at T2 (24.91±0.56) compared to T1 (11.70±7.84), with a highly statistically significant difference of P<0.001 between the two times. In comparison to T2, the mean percent score for PoM had significantly increased by T3 to (40.09±7.43, P<0.001). **Table 4** shows that there was no statistically significant difference in the control group's PoM scores between T1 and T2, (13.93±5.35, 6.07±5.0; t=1.911, P=0.060). At T1 the study and control groups' mean percentage scores for overall PoM were 11.70±7.84 and 13.93±5.35 (t=1.487, P=0.142), indicating no statistically significant difference between them,

but a highly significant difference had emerged at T2, when they scored 24.91±0.56 and 6.07±5.0 (t=23.686, P<0.001) (respectively).

Table 5 shows that there was no significant correlation between emotional regulation difficulties overall score and PoM among the study subjects during the pre-test (r=0.013, P=0.910). However, a negative significant correlation between the clarity domain of emotional regulation difficulties and PoM was observed (r=-0.237, P=0.034), and negative but insignificant correlations were found between the goals and non-acceptance domains of emotional regulation difficulties and PoM (P>0.05).

Table 6 illustrates that lower level of education was significantly associated with lower mean percent score of emotional regulation difficulties among participants (f=3.390, P=0.039). Furthermore, the table reflects that study subjects with better health conditions (i.e., lower numbers of chronic illnesses and

consumption of lower number of daily medications) reported statistically significant greater mean percent scores of PoM than others (P<0.05).

Table 7 shows the results of the 2-way ANOVA (with corrected F value). The output is split into sections that refer to each of the effects in the model and the error terms associated with these effects. The interesting part is the significance values of F-ratios; if these values are less than 0.05, the effect is significant. Looking at the significance values in the table, it is clear that there is a highly significant main effect of factor 1 (time) and a highly significant time and group interaction.

Table 8 summarizes the analysis of 2-way ANOVA for the dependent variables. The rows of interest are that labelled group. The P values indicate that there is a highly significant difference between the study and control groups (p < 0.05 in each case).

Table 2: Sociodemographic distribution of the studied subjects (n = 80)

Sociodemographic data	Total (n = 80)		Study group (n = 40)		Control group (n = 40)		Test of Sig.	p
	No.	%	No.	%	No.	%		
Sex							$\chi^2=$ 1.841	0.175
Female	46	57.5	26	65.0	20	50.0		
Male	34	42.5	14	35.0	20	50.0		
Age in years							$\chi^2=$ 0.287	0.866
60> 65	24	30.0	12	30.0	12	30.0		
65> 70	30	37.5	14	35.0	16	40.0		
70≤	26	32.5	14	35.0	12	30.0		
Min. – Max.	62.0 – 75.0		62.0 – 75.0		63.0 – 71.0			
Mean ± SD.	67.13 ± 3.23		67.20 ± 3.61		67.05 ± 2.84		t= 0.207	0.837
Median	67.0		67.0		67.0			
Marital status							$\chi^2=$ 3.208	0.073
Married	42	52.5	17	42.5	25	62.5		
Widow	38	47.5	23	57.5	15	37.5		
Educational level							$\chi^2=$ 5.393	MC p= 0.069
Primary	6	7.5	4	10.0	2	5.0		
Secondary	44	55.0	26	65.0	18	45.0		
University	30	37.5	10	25.0	20	50.0		
Occupation prior to retirement							$\chi^2=$ 4.361	MC p= 0.119
Housewife	41	51.3	25	62.5	16	40.0		
Employee	35	43.8	13	32.5	22	55.0		
Unskilled worker	4	5.0	2	5.0	2	5.0		
Monthly income							$\chi^2=$ 3.413	0.065
Enough	30	37.5	19	47.5	11	27.5		
Not enough	50	62.5	21	52.5	29	72.5		

  t: Student t-test   MC: Monte Carlo   SD: Standard deviation

χ^2: **Chi-square test**   p: p-value for comparing between the two studied groups.
*: Statistically significant at p ≤ 0.05

Table 3: Comparing the emotional regulation difficulties scores among the study and control groups prior to and following the emotion regulation nursing intervention.

Emotional regulation difficulties	Study group (n = 40)			Control group (n = 40)		t (p₁)	t (p₂)
	Pre	**Post**	**Follow up**	**Pre**	**Post**		
	Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.		
Clarity (2 – 10)						1.411 (0.163)	12.371* (<0.001*)
Total Score	8.20 ± 1.20	3.18 ± 0.98	6.08 ± 0.66	7.88 ± 0.82	7.25 ± 1.84		
% score	77.50 ±15.03	14.69±12.30	50.94 ± 8.20	73.44 ±10.28	65.63±22.95		
Test of Sig (p₀)	F=336.564* (<0.001*)			t=1.955 (0.058)			
Goals (3 – 15)						1.595 (0.115)	25.512* (<0.001*)
Total Score	11.40 ± 1.01	5.33 ± 1.12	9.25 ± 0.98	11.75 ± 0.95	11.60±11.60		
% score	70.0 ± 8.40	19.38 ± 9.32	52.08 ± 8.17	72.92 ± 7.95	71.67 ± 9.01		
Test of Sig (p₀)	F=421.631* (<0.001*)			t=0.703 (0.486)			
Impulse (3 – 15)						0.939 (0.351)	20.252* (<0.001*)
Total Score	11.93 ± 1.51	5.23 ± 1.40	9.55 ± 1.36	11.65 ± 1.08	11.60 ± 1.41		
% score	74.37 ±12.57	18.54±11.71	54.58±11.31	72.08 ± 8.96	71.67±11.75		
Test of Sig (p₀)	F=252.033* (<0.001*)			t=0.211 (0.834)			
Strategies (5 – 25)						0.671 (0.504)	22.218* (<0.001*)
Total Score	19.53 ± 2.0	8.83 ± 1.71	15.65 ± 1.83	19.20 ± 2.32	19.20 ± 2.41		
% score	72.63 ± 10.0	19.13 ± 8.54	53.25 ± 9.17	71.0 ± 11.61	71.0 ± 12.05		
Test of Sig (p₀)	F=426.180* (<0.001*)			t=0.000 (1.000)			
Non-acceptance(3 – 15)						0.856 (0.394)	15.516* (<0.001*)
Total Score	12.05 ± 1.40	5.73 ± 1.52	9.60 ± 1.22	11.75 ± 1.72	11.55 ± 1.83		
% score	75.42 ±11.63	22.71±12.66	55.0 ± 10.13	72.92 ±14.34	71.25±15.21		
Test of Sig (p₀)	F=177.259* (<0.001*)			t=0.555 (0.582)			
Overall DERS (16 – 80)						0.961 (0.340)	36.007* (<0.001*)
Total Score	63.10 ± 3.84	28.28 ± 5.12	50.13 ± 4.22	62.23 ± 4.30	61.20 ± 2.69		
% score	73.59 ± 5.99	19.18 ± 8.0	53.32 ± 6.59	72.23 ± 6.72	70.63 ± 4.20		
Test of Sig (p₀)	F=719.110* (<0.001*)			t=1.691 (0.099)			
Sig. bet. Groups	p₃<0.001*, p₄<0.001*, p₅<0.001*						

t: Student t-test, t: Paired t-test, F: F test (ANOVA) with repeated measures, Sig. bet. periods was done using **Post Hoc Test** Bonferroni, p₀: p value for comparing between the two studied periods in each other groups, p₁: p value for comparing between the two studied groups in **pre** period, p₂: p value for comparing between the two studied groups in **post** period, p₃: p value for comparing between **pre and post** in study group, p₄: p value for comparing between **pre and follow up** in study group, p₅: p value for comparing between **post and follow up** in study group, *: Statistically significant at p ≤ 0.05.

Table 4: Comparing the peace of mind scores among the study and control groups prior to and following the Emotion regulation nursing intervention.

Overall Peace mind (7 – 35)	Study group (n = 40)			Control group (n = 40)		t (p₁)	t (p₂)
	Pre	**Post**	**Follow up**	**Pre**	**Post**		
	Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.	Mean ± SD.		
Total Score	10.28 ± 2.20	13.98 ± 0.16	18.23 ± 2.08	10.90 ± 1.50	8.70 ± 1.40	1.487 (0.142)	23.686* (<0.001*)
% score	11.70 ± 7.84	24.91 ± 0.56	40.09 ± 7.43	13.93 ± 5.35	6.07 ± 5.0		
Test of Sig (p₀)	F=252.868* (<0.001*)			t=1.911 (0.060)			
Sig. bet. groups	p₃<0.001*, p₄<0.001*, p₅<0.001*						

t: Student t-test   t: Paired t-test
F: F test (ANOVA) with repeated measures, Sig. bet. periods was done using **Post Hoc Test** Bonferroni
p₀: p value for comparing between the two studied periods in each other groups p₁: p value for comparing between the two studied groups in **pre** period.
p₂: p value for comparing between the two studied groups in **post** period p₃: p value for comparing between **pre and post** in study group.
p₄: p value for comparing between **pre and follow up** in study group p₅: p value for comparing between **post and follow up** in study group
*: Statistically significant at p ≤ 0.05

Table 5: The correlations of DERS-16 and peace of mind among the study subjectsduring the pre-test (n=80)

DERS-16	Peace mind	
	R	P
1. Clarity	-0.237*	0.034*
2. Goals	-0.034	0.765
3. Impulse	0.025	0.823
4. Strategies	0.186	0.099
5. Non-acceptance	-0.065	0.564
Overall score	0.013	0.910

r: Pearson coefficient
*: Statistically significant at $p \leq 0.05$

Table 6: Relation between sociodemographic characteristics of the studied subjects andtheir scores of DERS-16, and peace of mind during the pre-test (n = 80)

Sociodemographic characteristics	DERS-16 % Score	Peace mind % Score
	Mean ± SD.	Mean ± SD.
Sex		
Male	73.25 ± 6.34	14.08 ± 5.89
Female	72.66 ± 6.44	11.88 ± 7.26
Test of Sig, p	t = 0.413, p = 0.681	t = 1.446, p = 0.152
Age in years		
60>65	74.54 ± 7.56	15.03 ± 7.45
65>70	73.18 ± 6.60	12.74 ± 5.52
70≤	71.09 ± 4.31	10.85 ± 7.03
Test of Sig, p	F = 1.921, p = 0.153	F = 2.472, p = 0.091
Marital status		
Married	73.62 ± 6.78	13.52 ± 6.72
Widow	72.12 ± 5.85	12.03 ± 6.82
Test of Sig, p	T = 1.055, p = 0.295	t = 0.984, p = 0.328
Educational level		
Primary	66.67 ± 2.91	11.31 ± 4.75
Secondary	73.65 ± 6.02	12.91 ± 6.94
University	73.07 ± 73.07	12.98 ± 6.99
Test of Sig, p	F = 3.390*, p = 0.039*	F = 0.158, p = 0.854
Occupation before retirement		
Employee	73.71 ± 6.82	13.67 ± 6.85
Housewife	72.52 ± 6.19	12.11 ± 6.77
Unskilled worker	69.92 ± 2.67	12.50 ± 6.84
Test of Sig, p	F = 0.786, p = 0.459	F = 0.504, p = 0.606
Monthly income		
Enough	73.91 ± 6.12	12.14 ± 7.54
Not enough	72.31 ± 6.49	13.21 ± 6.30
Test of Sig, p	T = 1.086, p = 0.281	t = 0.684, p = 0.496
Number of chronic illnesses		
One	71.88 ± 5.95	15.31 ± 6.14
Two	72.99 ± 6.97	12.34 ± 7.85
three and more	74.22 ± 6.13	10.83 ± 5.89
Test of Sig, p	F = 0.862, p = 0.427	F = 3.441*, p = 0.037*
Number of consumed prescribed medications daily:		
One	71.47 ± 4.64	16.40 ± 6.44
Two	73.50 ± 7.98	12.36 ± 7.37
three and more	73.80 ± 5.98	9.66 ± 4.63
Test of Sig, p	F = 1.061, p = 0.351	F = 8.005*, p = 0.001*

SD: **Standard deviation   t: Student t-test F: F for ANOVA test *:** Statistically significant at $p \leq 0.05$

Table 7: Tests of Within-Subjects Effects (Sphericity Assumed)

Variables	Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
DERS1	factor1	319.225	1	319.225	216.189	0.000	0.735
	factor1 * Groups	193.600	1	193.600	131.112	0.000	0.627
	Error(factor1)	115.175	78	1.477			
DERS2	factor1	387.506	1	387.506	472.735	0.000	0.858
	factor1 * Groups	351.056	1	351.056	428.268	0.000	0.846
	Error(factor1)	63.938	78	0.820			
DERS3	factor1	455.625	1	455.625	303.361	0.000	0.795
	factor1 * Groups	442.225	1	442.225	294.439	0.000	0.791
	Error(factor1)	117.150	78	1.502			
DERS4	factor1	1144.900	1	1144.900	273.765	0.000	0.778
	factor1 * Groups	1144.900	1	1144.900	273.765	0.000	0.778
	Error(factor1)	326.200	78	4.182			
DERS5	factor1	425.756	1	425.756	146.561	0.000	0.653
	factor1 * Groups	375.156	1	375.156	129.143	0.000	0.623
	Error(factor1)	226.588	78	2.905			
Total DERS	factor1	12852.225	1	12852.225	908.552	0.000	0.921
	factor1 * Groups	11424.400	1	11424.400	807.616	0.000	0.912
	Error(factor1)	1103.375	78	14.146			
Peace mind	factor1	22.500	1	22.500	12.681	0.001	0.140
	factor1 * Groups	348.100	1	348.100	196.184	0.000	0.716
	Error(factor1)	138.400	78	1.774			

Table 8: Tests of Between-Subjects Effects

Variables	Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
DERS1	Intercept	7022.50	1	7022.50	4001.86	0.000	0.981
	Groups	140.63	1	140.63	80.14	0.000	0.507
	Error	136.88	78	1.75			
DERS2	Intercept	16060.06	1	16060.06	11869.57	0.000	0.993
	Groups	438.91	1	438.91	324.38	0.000	0.806
	Error	105.54	78	1.35			
DERS3	Intercept	16321.60	1	16321.60	7431.90	0.000	0.990
	Groups	372.10	1	372.10	169.43	0.000	0.685
	Error	171.30	78	2.20			
DERS4	Intercept	44555.63	1	44555.63	9137.21	0.000	0.992
	Groups	1010.03	1	1010.03	207.13	0.000	0.726
	Error	380.35	78	4.88			
DERS5	Intercept	16871.56	1	16871.56	7125.45	0.000	0.989
	Groups	305.26	1	305.26	128.92	0.000	0.623
	Error	184.69	78	2.37			
Total DERS	Intercept	461390.40	1	461390.40	24063.29	0.000	0.997
	Groups	10272.03	1	10272.03	535.73	0.000	0.873
	Error	1495.58	78	19.17			
Peace mind	Intercept	19228.23	1	19228.23	6990.45	0.000	0.989
	Groups	216.23	1	216.23	78.61	0.000	0.502
	Error	214.55	78	2.75			

Discussion

Our work aimed to determine the effect of ERNI on emotional regulation difficulties and

PoM among older adults. As expected, the overall findings demonstrated the credibility and applicability of the intervention in older adults. Particularly, the findings showed that participants who attended the training sessions showed improvement in emotional regulation and PoM scores from pre- to post-intervention.

The reported improvement in overall emotional regulation skills among the participants affirms the findings of recent studies, including one which reported that older adults who participated in emotional intelligence skills demonstrated higher levels of emotional wellbeing, life satisfaction, and resilience **(Pandya, 2021)**. Similarly, another study found that emotional intelligence interventions improved older adults' emotional repair, and commensurately reduced feelings of hopelessness and depressive symptoms **(Delhom et al., 2022)**. In this venue, the feasibility of our work could be partly attributed to the skills acquired through the training sessions. The participants were allowed to gradually learn how to manage their emotions in a healthy, simple way, how to identify and understand their feelings, and how to take proper action to go through negative emotions and let go of painful ones.

Albeit the overall emotional regulation difficulties score among the study group had improved at follow-up, it remained lower than the pre-test score. This may be due to the decreased interaction between the researchers and study group after ending the intervention, which might have restricted their commitment to the learned activities during the sessions. Another plausible explanation is the absence of an emotional regulation culture in the society where the older adults live, a factor that could impede the older adults from finding conducive milieus to support continuity of practice.

Our hypothesis related to improving the PoM among the older adults who attended the ERNI was accepted. This can be elaborated on by the reported improvement in emotional regulation, which may help the participants be more satisfied, internally relaxed, and free from negative thoughts and feelings. Also, study subjects who recognized their abilities to handle their emotions might perceive more control over their environment and be empowered to face any stressors, thereby enhancing their PoM. This result is consistent with a previous study's findings that emotion regulation skills interventions enhance resilience, PoM, and psychological well-being of older adults, characterized by increased happiness, and decreased depressive symptoms **(Smith & Hanni, 2019)**.

The Pearson coefficient showed an insignificant correlation between emotional regulation difficulties and PoM among the study subjects. However, these findings are inconsistent with those of previous studies which found that emotional regulation had a significant positive correlation between emotion regulation and PoM **(Cambridge, 2019; Naragon-Gainey et al., 2017; Smart & Segalowitz, 2017)**. Our finding may be related to the nature of the socio-cultural and religious context of the participants, wherein people tend to be more fatalistic (i.e., accepting things that had happened in their lives and being satisfied with the results), which is a factor that is deemed significant for PoM. In this case, it is more beneficial to accept the natural changes that come with aging than to view them as a sign of decline and adding burden to society.

The study results signified that the lower the educational level, the lower the emotional regulation difficulty scores. One possible explanation for this is that the study subjects with low educational levels may have had highly demanding lives in low-paid and arduous occupations, inuring them to the suffering felt more keenly by those of more privileged socio-economic status by forcing them to adopt coping strategies for emotional difficulties earlier in life. However, other studies conversely reported that more educated people had lower emotional regulation difficulties scores and risk of depression **(Lou et al., 2022)**. Consequently, interpretative caution is warranted as the current study does not capture the type of employment of the studied subjects. Thus, this result calls for more research to assess the impact of socio-economic factors like educational and employment status on older adults' emotional regulation profile.

The study findings also reflected the high score of PoM scored by those who had fewer illnesses and consumed fewer medications. This could be related to the negative impacts of multiple chronic diseases and medications on

older adults` health. They may gradually lose their sense of power and independence, and their coping reserve may be reduced. As a result, their ability to regulate and manage their emotions may be diminished, and their PoM may be harmed. This result is compatible with the speculation of a previous study that there is a possible connection between more severe emotional control issues, the existence of chronic disease, and decreased physical function, and PoM **(Wierenga et al., 2017)**. Other research also found a relationship between physical health and inner psychological peace **(Cloitre et al., 2019)**.

Conclusion

Considering the current study's results, it can be concluded that H1 and H2 are generally supported. For illustration, the current findings showed that the ERNI used generated a significant reduction in older adults' emotional regulation difficulties and an improvement in their PoM.

It can be drawn from the current findings that a lower level of education was significantly associated with lower emotional regulation difficulties among participants. Furthermore, it can be concluded that a significant relation between greater PoM and better health conditions among the study subjects was found.

Recommendations

The present study finding provides support for:

1- The creation of a skill-based training program for all nurses who work with older adults in all settings about the importance of ERNI and how to implement them for older adults.

2- Implementation of ERNI as part of the services provided in the community-based settings for older adults who attend these settings especially for those with emotional regulation difficulties.

3- Collection of outcome data should be carried out by the gerontological nurses on a regular basis to sustain the use of ERNI and show its value in improving emotional regulation and peace of mind.

Future research:

Given the findings of this study, future research studies are recommended to evaluate the applicability, practicability, and effectiveness of ERNI for other cohorts, such as illiterate older adults, those who reside in assisted-living facilities, or those who are rural dwellers (where seniors' clubs may be unavailable).

Limitations

This study used a relatively small sample size, which might affect the inferences obtained from its outcomes, and further investigation with a larger sample is warranted. Further studies are required to evaluate the applicability, practicability, and effectiveness of ERNI for other cohorts, such as illiterate older adults, those who reside in assisted-living facilities, or those who are rural dwellers where seniors' clubs do not exist. Limited availability of seniors' clubs might restrict the social activities available to older adults and thus their well-being.

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