

# Nostalgia Reminiscence Therapy by Smartphone Improves Gratitude, Nostalgia Function, and Subjective Happiness of Elders

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**How to cite this paper:** Ando, M. (2025). Nostalgia Reminiscence Therapy by Smartphone Improves Gratitude, Nostalgia Function, and Subjective Happiness of Elders. *Psychology*, 16, 1129-1137. <https://doi.org/10.4236/psych.2025.1610065>

**Received:** August 28, 2025

**Accepted:** October 8, 2025

**Published:** October 11, 2025

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## Abstract

**Background:** Digital instruments or Information and Communication Technology are introduced in reminiscence therapy. We need to develop the method more easily. **Purpose:** The purpose of this study was to develop a new reminiscence therapy method: Nostalgia Reminiscence Therapy by smartphone, in which elderly people can conduct life reviews with an application, and investigate the effects on psychological well-being. **Method:** Participants were 20 elders in a community college, and they reviewed orally along questions by the app. They completed questionnaires about the Nostalgia State Scale, Nostalgia Function, Gratitude, and Subjective Happiness pre- and post-intervention. All participants completed the intervention. **Results:** Results showed that Nostalgia State ( $p < .00$ ) and Gratitude ( $p < .05$ ) significantly increased. In subscales of Nostalgia Function, Social Connection ( $p < .01$ ), Self-Continuity ( $p < .05$ ), Meaning of Life ( $p < .05$ ), and Self-Clarification ( $p < .01$ ) significantly increased. Also, subjective well-being significantly increased ( $p < .01$ ). Nostalgia correlated with some subscales of Nostalgia Function and Gratitude. **Conclusion:** These results suggest that Nostalgia Reminiscence Therapy by smartphone is useful for elders, and it promotes nostalgic feelings, social connection, self-continuity, meaning of life, self-clarification and subjective well-being.

## Keywords

Reminiscence Therapy, Nostalgia, Gratitude, Smartphone, Subjective Well-Being

## 1. Introduction

The number of elderly people is increasing all over the world. They often feel depression, a sense of loss because of the death of kin or mental health problems.

Psychological care will be much more needed. One of the most effective forms of care is a life review. Life review is based on Erikson's developmental theory, in which an individual tries to achieve integrity (Butler, 1974). Reminiscence therapy includes both life reviews in which a person reviews his life deeply for integrity, and reminiscence therapy in which a person reviews his life not so deeply.

Bohlmeijer et al. (2007) conducted a meta-analysis on the effects of life review for elders living in the community. Life review has moderate effects on subjective happiness. Sharif et al. (2018) found that life review intervention significantly improved the quality of life of the elderly. Also, Woods et al. (2018) conducted a meta-analysis of the effects of life review on QOL, cognitive function, interaction, behavior, and depression for the elderly with dementia. The effect of life review on QOL is not consistent among studies.

On the other hand, there are studies about Nostalgia (Westerhof & Bohlmeijer, 2014). Nostalgia is regarded as both a positive and negative emotion, and sometimes defined as bittersweet memories. Kusumi (2021) developed the Nostalgia Function scale based on previous studies, consisting of "Social Connection," "Self-Continuity," "Meaning of Life," and "Self-Clarification." He investigated the relationship between nostalgia proneness, nostalgia function, and life satisfaction. Then, positive nostalgia proneness affected nostalgia function, and social connection and self-clarification in nostalgia function affected life satisfaction. That is, there is a relationship between nostalgia and nostalgia function.

Related to nostalgia, Li et al. (2023) conducted a study on college students. They induced nostalgia using a guided autobiographical recall procedure or by showing a nostalgic video to a nostalgia group, compared to a control group. They showed that nostalgia could improve emotional well-being by increasing gratitude but may not alter cognitive well-being, such as life satisfaction. As a limitation, they state that participants were college students, and the results need to be replicated in samples of participants with other backgrounds and ages, especially older adults. We also think that not only gratitude but also nostalgia affects psychological well-being, because not all elderly people feel gratitude. So, we need to investigate relationships including nostalgia function for older adults.

Moreover, these days digital instruments are used in reminiscence therapy. Huang & Yang (2022) showed the long-term effects of immersive virtual reality reminiscence in people with dementia. However, it is too expensive and ordinary people cannot use it easily. Ando et al. (2024) used the software of Real Time Translator which translates from voice to words and made life history books in reminiscence therapy easily by translating ICT. Then we think that smartphones are much more available to many people.

The purpose of this study is to develop Nostalgia Reminiscence Therapy by smartphone, examine the effects of it on Nostalgia, Nostalgia Function, Gratitude, and Subjective Happiness, and examine the relationships among these variables.

## 2. Method

### 2.1. Participants

Participants were 20 elderly people who attended a community college for the elderly.

When we hypothesized that the effect size was 0.63, power analysis was 0.8, alpha was 0.05, and a paired t-test, the sample size was 23. However, the period of recruitment of the community college was limited, and a total of 20 elderly people participated. The number of males was 8 and the number of females was 12. They lived in Kyushu in Western Japan. The mean age was 77 years old. The education level was varied, and they were all totally healthy.

### 2.2. Nostalgia Reminiscence Therapy by Smartphone

We made the Nostalgia Reminiscence application (app) in consultation with an information technology company. Nostalgia was induced by videos of nostalgic photos or illustrations with music.

Firstly, a participant answered the questionnaires using Google Forms. The app consists of the following (Table 1). The app asked each question, and the participant answered it orally. The voice was translated into words.

**Table 1.** The contents of the Nostalgia Reminiscence Therapy by smartphone.

Thema	Contents or questions in the app
Introduction of nostalgia	To introduce a nostalgic mood, participants viewed the video related to nostalgic photos or illustrations with nostalgic music for about 5 minutes.
Hometown	Remember nostalgic memories like the landscape in your hometown, and please narrate freely.
Important person	Remember a person for whom you feel nostalgia and please narrate freely.
Important memories or events	Remember all through your life and feel nostalgic memories or events, and please narrate freely.
Evaluation for life	How do you want to live from now on in your life? Please narrate freely.

### 2.3. Questionnaires

We used the following questionnaires.

1) Nostalgia States Scale (Sedikides et al., 2015): It consisted of 3 questions measured from 1 point (not at all) to 6 (very true).

2) Nostalgia Function Scale (Kusumi, 2021): It is based on Cheung et al. (2013) or Sedikides et al. (2016). It consists of 4 factors: Social Connection, temporal Self-Continuity (Self-Continuity), Meaning of Life, and Self-Clarification. There are 16 question items measured from 1 point (not at all) to 5 (well true).

3) Japanese version of the trait Gratitude scale (Shiraki & Igarashi, 2014). It is translated from the original by McCullough, Emmons, & Tsang (2002). There are 5 question items measured from 1 (not at all) to 7 (all).

4) Subjective Happiness Scale (Matsubayashi et al., 1992). We created a visual analog scale measured from 0 to 10 for elders to answer easily.

## 2.4. Procedure

We recruited participants through a community college for elders, which was set beside NishiKyusyu University in Western Japan. Participants received documents explaining this research. The researcher explained this research and obtained informed consent from those who were interested in the research. The reminiscence therapy consisted of a session. The duration of the session is about 60 minutes. A participant met the researcher in a private room. The researcher explained how to use the app, and the participants began the Nostalgia Reminiscence. The researcher attended the intervention and helped when the participant had trouble.

## 2.5. Data Analysis

We conducted 1) basic statistics and *t*-test between pre and post, and 2) correlation analysis among each questionnaire. To conduct *t*-test, we tested normality and we confirmed that *t*-test was useful.

## 2.6. Ethics

This study was approved by the ethical board of Nisikyusyu University.

## 3. Results

We showed the mean scores of questionnaires and the results of *t*-tests (**Table 2**). To confirm the reliability of each scale, we calculated Cronbach's alpha using data after the therapy: Nostalgia State (0.98), gratitude (0.88), Social connection (0.92), Self-Connection (0.83), Meaning of life (0.86), Self-Clarification (0.74). Subjective Happiness was one item, and an alpha was not calculated.

**Table 2.** Scores of questionnaires pre- and post-remembrance therapy.

Questionnaires	Pre	Post	<i>p</i>
Nostalgia state scale	3.45	5.17	0.00
Gratitude	5.67	6.19	0.05
Nostalgia function			
Social connection	3.83	4.15	0.01
Self-continuity	4.08	4.34	0.05
Meaning of life	4.06	4.25	0.05
Self-clarification	3.46	3.78	0.01
Subjective happiness	7.65	8.35	0.01

The scores of the Nostalgia State scale, Gratitude scale, subscales of Nostalgia Function, Gratitude Scale, and Subjective Happiness scale significantly increase. We refer to these variables as Nostalgia, Nostalgia Function, Gratitude, and Subjective Happiness, respectively.

Mean score of Social Connection and Self-Clarification was a little lower than other variables. In the session, feeling of Social Connection depended on each person. Some felt social connection greatly and some did not do so. The idea and question of Self-Clarification seemed to be difficult. Feeling of Self-Clarification might be difficult for participants and scores might be low.

Next, we conducted correlation coefficient analysis (Table 3). Nostalgia correlated with Gratitude, Social Connection, Self-Continuity, and Meaning of Life. Correlation coefficients of Self-Clarification were totally small. The correlation coefficient between Nostalgia and Meaning of Life ( $r = .68$ ) or that between Gratitude and Self-Continuity ( $r = .67$ ) were high. On the other hand, correlation between Self-Clarification and other variables was low.

**Table 3.** Correlation coefficients among variables.

	Nostalgia	Gratitude	Connection	Continuity	Meaning	Clarification	Happiness
Nostalgia	-						
Gratitude	.60**	-					
Connection	.47*	.45*	-				
Continuity	.64**	.67***	.34	-			
Meaning	.68*	.49*	.54**	.64	-		
Clarification	.19	.19	.23	.41*	.40**	-	
Happiness	.05	.53**	.19	.39*	-.06	.10	-

\*:  $p < .05$ , \*\*:  $p < .01$ , \*\*\*:  $p < .001$ .

Connection: Social Connection, Meaning: Meaning of Life, Clarification: Self-Clarification, Happiness: Subjective Happiness

## 4. Discussion

### 4.1. Utility of the Nostalgia Reminiscence Therapy by Smartphone

The significant increase in the Nostalgia State scale after intervention shows that this method could introduce nostalgic feelings in elders and suggests that the Nostalgia Reminiscence Therapy was effective in introducing these feelings. Many people use smartphones, and this method will be available to many people in the future. Using ICT for reminiscence therapy was suggested by Haron et al. (2017).

Moreover, the completion rate was 100%, and all participants completed. The reason for this rate is that a participant found it easy to participate in this therapy because there was only one session, and they could narrate their lives easily and freely to a smartphone. We will investigate the effects of session times, including the completion rate.

## 4.2. Effects of Nostalgia Reminiscence Therapy by Smartphone

Regarding the feeling of nostalgia, since the Nostalgia State Scale score significantly increased, Nostalgia Reminiscence Therapy via smartphone improved nostalgia. We will investigate the levels of nostalgia induced by various video content.

Regarding the subscales of Nostalgia Function, Social-Connection, Self-Continuity, Meaning of Life, and Self-Clarification, all significantly increased after the intervention. When a person remembers significant events' memories, they also remember significant people related to the events. Then they recognize social connection. This supports a previous study that Nostalgia can facilitate social connection (Polletta & Callahan, 2017).

Moreover, as participants review their lives from the past to the present time, they may feel self-continuity. It supports Sedikides et al. (2008), in which nostalgia is associated with self-continuity.

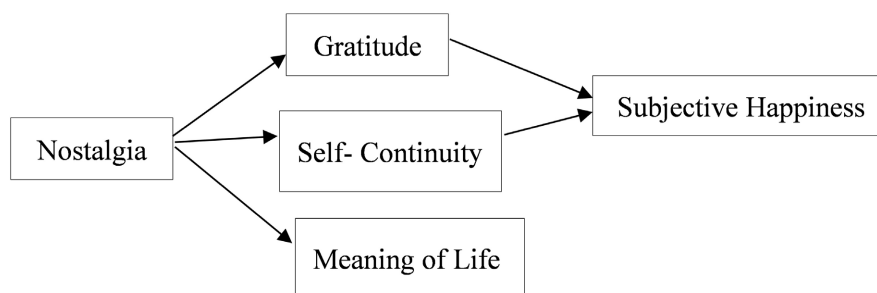
About gratitude, nostalgia improved gratitude. In the session, many participants expressed their gratitude or thanks to their families or people around them. They seemed to recognize that a person could not live alone, and they were helped by others. Thus, nostalgia improved gratitude. When individuals recall past events, they probably think of the assistance and support received from significant others, which leads them to a sense of gratitude for what they have (Puente-Diaz & Cavanos-Arroyo, 2021).

## 4.3. Correlation among Variables

We referred to characteristic points. Nostalgia correlated with Gratitude and Nostalgia Function. Particularly, the correlation score between Nostalgia and Meaning of Life ( $r = 0.68$ ) is high in this study, and it suggests that Nostalgia contributes to making meaning of their lives. This result supports Routledge et al. (2012), in which nostalgia was associated with existential meaning, or Sedikides & Wildschut (2018), in which they showed that nostalgia increased meaning of life.

Significant relation between Nostalgia and Self-Continuity ( $r = .64$ ) in the present study supports Sedikides et al. (2008). Also, there were significant correlations between Gratitude and Subjective Happiness ( $r = .53$ ), and Self-Continuity and Subjective Happiness ( $r = .39$ ). From these results, we suggest that Nostalgia affects Gratitude, Meaning of Life, and Self-Continuity. And Gratitude and Self-Continuity affect Subjective Happiness. Thus, we can present a model like Figure 1. This idea can add the finding (Li et al., 2023) such that gratitude affects relationships between nostalgia and subjective well-being. The reason for this is that elderly people feel not only gratitude to others but also meaning of life or self-continuity and feel subjective happiness. We need to analyze this model statistically in the future.

About Subjective Happiness, there was no significant correlation directly between nostalgia and subjective happiness. The reason for no relation is as follows:



**Figure 1.** The model of variables from the correlation coefficient.

Diener et al. (1999) showed that subjective well-being includes two components: one is emotional experience and life satisfaction, which is the judgment of one's personal life overall (Li et al., 2016). Since the subjective happiness as well-being in this study is to measure emotional experience and does not measure life satisfaction, there was not a significant relation between nostalgia and well-being. If we include life satisfaction as a measure of well-being, there may be significant relations.

## 5. Conclusion

We developed a new reminiscence therapy method called Nostalgia Reminiscence Therapy by smartphone for elderly people, in which they viewed nostalgic videos and reviewed their lives. This method improves Nostalgia, Nostalgia Function, Psychological Function, Gratitude, and Subjective well-being. In the future, we need to investigate relationships among variables as a resolution of mechanisms.

## 6. Limitation

There are some limitations. 1) We didn't set the control group, so it is no wonder the results in the present study have validity, though statistical data analysis was significant. So, we need to set a control group for the future. 2) We did not include the life satisfaction scale in the present scale, but reminiscence therapy may be more useful for life satisfaction. We need to include it in the next study. 3) From sample size estimation, we required a few more participants. We need to include many more participants to confirm generalizability.

## Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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