



## Effectiveness of the Butterfly Hug Method to the Level of Mental Health Status of Senior Citizens Living in a Selected Healthcare Facility: Basis for Adjunct Therapy

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### ABSTRACT

The Butterfly Hug Method is a non-pharmacological therapeutic intervention that is used to return the hyperaroused mind into a relaxed state. However, a small number of studies have been conducted to examine the effects of the butterfly hug method to the mental health status of senior citizens. This study aimed to determine the Effects of the Butterfly Hug Method on the Mental Health Status of Senior Citizens. The study employed quantitative true-experimental research design. The study was conducted in a selected healthcare facility located in Caloocan City, Philippines. Simple random sampling was utilized to select and divide the participants into two groups, experimental group and control group. The sample was composed of 10 participants. Data were collected using the adopted tools, Patient Health Questionnaire - 9 (PHQ-9) and Generalized Anxiety Disorder - 7 (GAD-7). Data collected were analyzed using descriptive statistics, particularly mean and standard deviation. Inferential statistics was utilized, particularly using paired t-test and independent sample t-test. There is no significant difference between the post test results of the control group and the experimental group. Both interventions, Standard of Care (Physical Activity) and Butterfly Hug Method, were effective in reducing the levels of anxiety and depression in senior citizens. Both interventions were able to reduce the level of anxiety and depression in senior citizens. Regardless that there is no significant difference between the effectiveness of the standard of care in the control group and the butterfly hug method in the experimental group, it has been established that the score and level of depression and anxiety of the participants in the experimental group was reduced. Thus, the Butterfly Hug Method is beneficial to senior citizens in improving the levels of their mental health status.

### KEYWORDS

Butterfly Hug Method, Mental Health, Senior Citizens, Adjunct Therapy

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## 1. BACKGROUND

With the population reaching about 80 million today, the older persons population

has likewise steadily increased due to developments in health care and consequently increasing life expectancy.

Over the past two decades, the percentage of Filipino elderly in the population has expanded, rising to 8.5 percent in 2020 from 5.9 percent in 2000. It is said that the number of senior citizens doubled to 9.2 million in 2020 from 4.5 million 20 years ago (Philippine Statistics Authority, 2022).

As people age, they may experience certain life changes that impact their mental health, such as coping with a serious illness or losing a loved one. Although many people will adjust to these life changes, some may experience feelings of grief, social isolation, or loneliness (Sare et al. 2021). Many of the traditional life sustaining and fostering influences of the senior citizens are disappearing as our population increases. Our changing society seems to leave them without any meaningful social role within the family or in the community (Parkar, 2019). Often, the senior citizens are socially isolated, and many live in geriatric facilities where their only social connections are with other inmates and other similarly alienated people. When these feelings persist, they can lead to mental illnesses such as depression and anxiety (National Institute of Mental Health, 2020). Due to population aging, the number of seniors with mental disorders is expected to double by 2030 (Pan American Health Organization, 2020).

Seniors are 40% less likely to seek or receive mental health treatment than younger individuals, and as many as two-thirds of the elderly with mental health conditions do not get needed treatment (Buckingham, Ali, 2021). Therefore, the Philippines follows the global trend where the mental wellbeing of individuals aged 60 and over are under-diagnosed and, therefore, under-served (World Health Organization, 2018). Two-thirds of seniors with mental health problems do not get the treatment they need, creating a treatment gap in the population (PAHO, 2020).

Adjunct therapy is another means of treating patients. It may be given as a complement to primary or initial therapy in order to maximize their effectiveness. Over the years, many psychotherapy treatments have been used as an adjuvant treatment such as art therapy and music therapy (American Physiological Association, 2022). But there are scarce studies discussing the use of the Butterfly Hug Method for improving mental health status and as an adjuvant therapy for elderly.

The Butterfly Hug is a method of non-pharmacological therapeutic intervention to help relax and calm a hyper-aroused self. The Butterfly Hug was developed by two practitioners, Lucina Artigas, M.A., M.T., and

Ignacio Jarero, Ed.D., Ph.D., M.T. The Butterfly Hug was taught to survivors of hurricane Pauline in Mexico, in 1998 which demonstrated to be highly effective for helping those during this incredibly devastating time (Kromroy, 2022). Following the successful implementation and use, many therapist and theoretical orientations have taken to this successful form on anxiety reduction, primarily those who have suffered traumas. Whilst it is used a lot in dealing with PTSD, it can also be used in day to day situations to lessen anxiety, stress and overwhelming feelings (Sharma, 2021).

According to Ageing and Health in the Philippines, a landmark study from the Economic Research Institute for ASEAN and East Asia, “mental health amongst the older population is a major public health concern that has not yet been fully studied in the country” (Cruz et al. 2019). Thus, this study aims to determine the mental health status of elderly, specifically the geriatric residents in healthcare facility with the use of GAD-7 and GDS-15, and determine the effects of Butterfly Hug Method on improving their mental health status.

## 2. METHODS

### Study Design

This study used the quantitative design with true Experimental approach. Experimental research designs involve collecting quantitative data and performing statistical analysis on them during research. Therefore, making it an example of a quantitative research method.

### Study Setting

The study was conducted in healthcare facility. It is under the Social Welfare and Development Department (SWDD) of Caloocan City. It is the branch of the Caloocan City government that implements programs and services that will address the issues and concerns of various sectors in the individual, group, and community levels.

### Sample

The researchers requested a list of names of all the senior citizens living in healthcare facility that fit the study criteria. After obtaining the master list of eligible study participants, the population was reduced to 15. The researchers came up with 10 participants that were randomly selected using a computer-generated wheel of names to be the study sample. Simple random sampling design involves a single random

selection and requires little advance knowledge about the population. Through this sampling method, each member of the population has an equal chance of being selected. By using randomization, research performed on this sample will have high internal and external validity, as well as lower risk for research biases (Thomas, 2022). The selected participants were composed of Filipino Senior Citizens, aged 60 and above, both male and female who did not have any diagnosed mental health conditions and who were not currently receiving treatment for their mental health, including counseling and other clinical interventions that may indirectly or directly influence or affect the intended outcome of the intervention. Moreover, geriatric residents who did not have knowledge on how to perform Butterfly Hug therapy which was the intervention being measured by the researchers.

After getting a list of names of the samples, the researchers utilized a simple random sampling technique using a computer generated wheel of names to randomly select a participant. Thereafter, the researchers made use of simple random sampling using a computer-generated wheel of names to divide the participants into two groups, an experimental group and a control

group. The effectiveness of the study was determined by the results from the experimental group.

Older adults appear psychologically vulnerable because they are subjected to mental health changes and to progressively diminishing intellectual functioning (Sanchini & Gastmans, 2022). Dementia and depression are the leading mental and neurological disorders among adults over 60 years of age. Depression in the elderly makes it more difficult for seniors to receive adequate treatment, such as specialized care. Various complications can occur due to depression, for example, heart disease, diabetes, 3 and stroke (National Institute of Mental Health, 2018). Older people with mental health problems also experience pain emotionally and socially, and these factors reduce their quality of life (Kracjci et al., 2019).

To ensure the well-being of the participants of the study during the data gathering procedure, the researchers utilized therapeutic communication. Therapeutic communication in nursing is a patient centered communication that focuses on the patient to promote a greater understanding of patients needs, concerns and feelings. The nurse helps the patient explore their own thoughts and feelings,

encourages expression of them and avoids barriers in communication. Therapeutic communication enhances Trust, Genuine interest, empathy, acceptance, positive regard and therapeutic use of self (Vinitha, 2022).

### **Data Collection and Instrument**

The researchers promptly proceeded with the data collection once the approval for the research protocol, from the Ethics Review Board (ERB), was received. Beforehand, the researchers searched and chose a potential private or public geriatric facility that provides care and shelter for senior citizens. Then a letter of inquiry was composed and sent to the directors or action officers of those various potential facilities based in NCR. The researchers presented a letter of inquiry to the head of healthcare facility, North Caloocan to request for approval and assistance in providing an appropriate setting wherein the researchers can administer the study to the selected participants who did not have any diagnosed mental health conditions and who were not currently receiving treatment for their mental health, including counseling, other clinical interventions, the participants' preferred management or activities for enhancing their mental health status.

During the actual data collection, the researchers utilized and administered adopted survey questionnaires and once it was approved, together with the informed consent from the Institutional Review Board (IRB). The informed consent form was thoroughly discussed to the participants of the study. The participants from both groups answered the informed consent form on the first day as well as the pretest questionnaires. Once the participants have accomplished the pretest questionnaire, the butterfly hug method was administered for 2 weeks, every 3 days. The experimental group was excluded from the standard of care being given in the facility, instead they received the Butterfly Hug Method, the researchers instructed the participants from the experimental group to perform the butterfly hug method as instructed by the standard protocol developed by Lucina Artigas and Ignacio Jarero, the developers of the butterfly hug method. As for the control group, they continued to receive the standard of care given at the facility which was the daily morning exercise.

In an instance where a participant refused to answer questions regarding depression and anxiety, the researchers ensured that the participant's informed consent included informing them of the

sensitive nature of some questions that may be asked. Participants were also assured of their anonymity and confidentiality, and their responses would be kept private.

The researchers utilized an adopted questionnaire in collecting the data from the selected geriatric participants, to determine the effectiveness of the Butterfly Hug Method on improving their mental health status. The questionnaire, to be administered to the participants of the study in the geriatric facility, included the PHQ-9 and the GAD-7. The Patient Health Questionnaire (PHQ) is a self-administered version of the PRIME-MD diagnostic instrument for common mental disorders (Kroenke et al. 2001). This tool would be vital to the researchers in order to determine the participant's level of depression before and after administering the intervention. The PHQ-9 has several other features that make it attractive for use with older adults in primary care settings, including being substantially shorter than most other depression screening measures; having been originally developed and tested for use with medical patients, who are likely (as are elderly) to have high rates of physical symptoms consistent with either chronic medical illness or depression; having excellent test-retest reliability, excellent

criterion and construct validity, and responsiveness, or the capacity of an instrument to detect meaningful change over time (Debnath et al. 2023). The PHQ-9 was initially developed for primary care patients, however, it has since proven to be a valid tool for the general population. It is now widely used for screening depression in the general population and in the primary care setting (Shin et al. 2020). Moreover, according to Kayser et al. (2022), the PHQ-9 performed comparably regardless of gender or race and somewhat better for younger elders and for those with less chronic illness. It also represents a reasonable alternative to the GDS, particularly in situations where referral to a mental health provider for definitive diagnostic evaluation is neither an option nor desired by the patient. The Generalized Anxiety Disorder Assessment or the GAD-7, on the other hand, is a seven-item instrument that is used to measure or assess the severity of generalized anxiety disorder (Spitzer et al. 2006). Furthermore, according to the study of Hirao et al. (2023), the GAD-7 has been validated for primary care patients, general population, and adolescents with GAD. It was found that GAD-7 scores may be used to assess anxiety symptoms and to differentiate between mild and moderate GAD in adolescents. By measuring the levels

of anxiety and depression of the participants of the study with the questionnaire, the researchers were able to establish the effectiveness of the Butterfly Hug Method in improving the mental health status of the senior citizen residents.

**Data Analysis**

The data collected was classified, tallied, computed and distributed by the researchers after the questionnaire had been distributed and retrieved from the participants. A normality test, particularly the Shapiro-Wilk test, was performed to determine the parametric test used in addressing the research objectives. The p-values were greater than 5%, therefore, the researchers will use the parametric tests.

Statistical treatment was used to utilize the data of the participants in an organized manner. The researchers used frequency, percentage, and mean. The variables were the profile of participants as to age and year of birth. To answer

questions 2,3, 4, and 5. The researchers used descriptive statistics, particularly mean and standard deviation to determine the level of depression and anxiety of the study participants, before and after the intervention of the Butterfly Hug Method. To answer the statement of problem number 6, the researchers used Paired T-Test. The independent sample t-test was also used to answer the statement of problem number 7.

**Ethics**

Adhering to ethical principles is an important part of a research study in order to protect the dignity, rights and welfare of the research participants. As such, all research involving human beings should be reviewed by an ethics committee to ensure that the appropriate ethical standards are being upheld. This research has been declared ethically feasible from Manila Central University, Philippines.

**3. RESULTS AND DISCUSSION**

**The profile of the participants age**

Table 1. The distribution of the participant’s age

Age	f	%
64	1	10 %
66	1	10 %
67	1	10 %
70	1	10 %
71	1	10 %

72	2	20 %
73	1	10 %
77	1	10 %
82	1	10 %

Table 1 presents the frequency and percentage distribution of the participants in terms of their age. It is shown that the youngest participant is a 65-year-old while the oldest participant is an 82-year-old.

Globally, the number and proportion of people aged 60 years and older in the population are increasing. In 2019, the number of people aged 60 years and older was 1 billion. This number will increase to 1.4 billion by 2030 and 2.1 billion by 2050. By 2050, 80% of all older people will live in low-

and middle-income countries (Rudnicka et al. 2020). The incidence of mental health problems is expected to increase among adults in general as well as in older populations in particular (Zenebe et al. 2021). Signs of depression are mentioned more frequently by people under age 64 than people aged 65 and over. These include “a change in eating habits” (29% vs. 15%), “a change in sleeping habits” (33% vs. 16%) and “sadness” (28% vs. 15%) (Mental Health America (MHA), 2022).

**The level of mental health status of the control group that are currently receiving the standard of care**

**Table 2.** Level of Depression of the control group currently receiving standard of care (Pretest)

Scores of levels of Depression	Level of Depression		Interpretation of Level of Depression
	f	%	
0	3	60%	None
1 - 4	1	20%	Minimal
5 - 9	1	20%	Mild
10 - 14	0	0%	Moderate
15 - 19	0	0%	Moderately Severe
20 -27	0	0%	Severe

Table 2. summarizes the control group’s mental health status levels in terms of Depression based on the administered pretest. Participant scores were computed by adding the response coefficients from

both scales and were classified based on the prescribed range of values. It is revealed that three participants (60%) from the control group have no indication of depression, while one participant has a minimal level



(20%) of depression while another has a mild level of depression (20%).

Approximately 68% of adults aged 65 and over know little or almost nothing about depression. Only 38% of adults aged 65 and over believe that depression is a “health” problem. If suffering from depression, older adults are more likely than any other group to “handle it themselves.” Only 42% would seek help from a health professional. About 58% of people aged 65 and older believe that it is “normal” for people to get depressed as they grow older (MHA, 2022). Older people

may be reluctant to define their distress as a mental health problem because of the perceived stigma associated with the label ‘depression’, and thus be reluctant to consult, not considering their emotional health as a subject worthy of their physician’s attention (Checkland et al. 2021). Due to stigma, misinformation, and false beliefs about aging, they frequently go without adequate care for depression and other psychiatric illnesses and psychological problems (Sewell, 2019).

**Table 3.** Level of Anxiety of the control group currently receiving standard of care (Pretest)

Scores of levels of Anxiety	f	%	Interpretation of Level of Depression
0 - 4	3	60%	Minimal
5 - 9	2	40%	Mild
10 - 14	0	0%	Moderate
15 - 21	0	0%	Severe

Table 3 summarizes the control group’s mental health status levels in terms of Anxiety. As shown in the table, three participants (60%) who took GAD-7 questionnaire were found to have minimal levels of anxiety while two participants (40%) have mild levels of anxiety. Older adults are particularly vulnerable for poor mental health and neurological conditions like depression, anxiety and dementia due to the additional stressors such as loss in capacities and decline in functional ability

(Krishnamoorthy et al. 2020). Anxiety in elderly people refers to the state where one is overly anxious, forgetful with problems sleeping, feelings of distraught accompanied by the symptoms of autonomic nervous system overload, which eventually lead to heart palpitations, shortness of breath, sweating, numbness in hands or feet, abdominal tension, etc (Surakarn et al. 2018).

The burden of anxiety in later life is extensive including impairments in quality of

life, limitations in daily activities, increased risk of developing dementia, and an excess in health-care costs (Welzel et al. 2021). Experiences of impending death, illness and

physical limitations due to an inevitable aging process are as well as not being met at a deep human level, common reasons for existential loneliness (Sjöberg et al. 2019).

**The level of mental health status of the participants before conducting the Butterfly Method sessions in the experimental group**

**Table 4.** Level of depression of the experimental group before the butterfly hug method (pretest)

Scores of levels of Depression	f	%	Interpretation of Level of Depression
0	0	0%	None
1 - 4	3	60%	Minimal
5 - 9	1	20%	Mild
10 - 14	1	20%	Moderate
15 - 19	0	0%	Moderately Severe
20 -27	0	0%	Severe

Table 4 summarizes the experimental group’s mental health status levels in terms of Depression before undergoing the Butterfly Hug Method. It is found that three participants (60%) have minimal levels of depression, one participant has a mild level (20%) while another has a moderate level of depression (20%).

Detecting depression in good time is an important requirement for the aged, depression tends to be discovered late or not treated adequately due to various reasons, such as a lack of awareness of one's depression, the complex manifestation of depression, and a decrease in the interest of close acquaintances and family members. However, if geriatric depression is neglected without being properly treated, the

individual will suffer from unnecessary mental and social pain, which can lead to serious outcomes such as suicidal ideation (Conejero et al. 2018)

Across cultures and regions, the prevalence of depression among older adults ranges between 11.4–36.7%, while the incidence of anxiety is between 14.2–39.4% (Lu et al. 2023). While depression is not a normal part of the aging process, there is a strong likelihood of it occurring when other physical health conditions are present and unfortunately, symptoms of depression are often overlooked and untreated when they coincide with other medical illnesses or life events that commonly occur as people age (e.g., loss of loved ones) (MHA, 2022). A study found a significantly higher incidence

of depression in male (63%) and anxiety among female (42%) respondents.

**Table 5.** Level of Anxiety of the experimental group before the Butterfly Hug Method (Pretest)

Scores of levels of Anxiety	f	%	Interpretation of Level of Depression
0 - 4	2	40%	Minimal
5 - 9	3	60%	Mild
10 - 14	0	0%	Moderate
15 - 21	0	0%	Severe

Table 5 summarizes the experimental group's mental health status levels in terms of Anxiety before undergoing the Butterfly Hug Method. As shown from the table, two participants (40%) were found to have minimal levels of anxiety while three participants (60%) have mild levels of anxiety.

Too many older adults neglect to seek help for their anxiety due to shame and a lack of understanding about mental illness (National Council on Aging, 2022). The elderly developing depressive disorder tend to dwell on sadness and the feelings of hopelessness, negativity, low self-esteem and self-blame. These feelings will last for a considerable period and often relate to the patients' personal losses (Saenubol et al.

2018). Once joined by the symptoms of anxiety, the succeeding conditions often include distraction, agitation, sleeplessness, jumpiness, distress and forgetfulness, which are sometimes accompanied by other indications of autonomic nervous system overload such as palpitations, excessive sweating, breathing difficulty, numbing of hands and feet, abdominal distention, etc., which lessens the ability to perform activities or roles in everyday life (Charupheng et al. 2018). Moreover, anxiety was associated with having physical health problems and physical dependence of the respondents. Senior citizens with anxiety tend to have depression too and vice versa. (Sharma et al. 2021).

#### **The level of mental health status of the participants in the control group after the continuation of the standard of care**

**Table 6.** Level of Depression of the control group after continuation of standard of care (Posttest)

Level of Depression	Scores	Pretest	%	Posttest	%	Interpretation
None	0	3	60%	2	40%	Decreased
Minimal	1 - 4	1	20%	2	40%	Increased

Mild	5 - 9	1	20%	1	20%	No Change
Moderate	10 - 14	0	0%	0	0%	No Change
Moderately	15 - 19	0	0%	0	0%	No Change
Severe	20 - 27	0	0%	0	0%	No Change

Table 6 summarizes the control group’s mental health status levels in terms of Depression based on the administered posttest. It is found that two participants (40%) from the control group have no indications of depression, two participants have minimal levels (20%) while another has a mild level of depression (20%).

High-intensity exercise releases the body's feel-good chemicals called endorphins, resulting in the "runner's high" that joggers report. But for most people, the real value is in low-intensity exercise sustained over time. That kind of activity spurs the release of proteins called

neurotrophic or growth factors, which cause nerve cells to grow and make new connections. The improvement in brain function makes you feel better (Miller, 2022). According to the National Institute for Health and Care Excellence (2022), group exercises should be recommended as an option for people with mild to moderate depression. Many studies have examined the efficacy of exercise to reduce symptoms of depression, and the overwhelming majority of these studies have described a positive benefit associated with exercise involvement (Lage et al. 2021).

**Table 7.** Level of Anxiety of the control group after continuation of standard of care (Posttest)

Level of Anxiety	Scores	Pretest	%	Posttest	%	Interpretati on
None	0 - 4	3	60%	4	80%	Increased
Mild	5 - 9	2	40%	1	20%	Decreased
Moderate	10 - 14	0	0%	0	0%	No Change
Severe	15 - 21	0	0%	0	0%	No Change

Table 7 summarizes the experimental group’s mental health status levels in terms of Anxiety based on the administered posttest. As shown from the table, two participants (40%) were found to have minimal levels of anxiety while three participants (60%) have mild levels of

anxiety. Physical activity appears to be protective against anxiety disorders in clinical and nonclinical populations. Exercise, a subset of physical activity, has been shown to significantly reduce the symptoms of anxiety (Kandola & Stubbs, 2020). Exercise may improve individuals’ ability to tolerate

negative affect or high levels of arousal through paced breathing (Smith & Merwin, 2020). Researchers found that the participants felt more content, more awake and calmer after being physically active compared to after periods of inactivity. They also found that the effect of physical activity on mood was greatest when the mood was initially low.

Participation in regular physical activity can increase our self-esteem and can reduce stress and anxiety. It also plays a role in preventing the development of mental health problems and in improving the quality of life of people experiencing mental health problems (Mental Health Foundation, 2022).

### The level of mental health status of the participants in the experimental group after conducting the Butterfly Hug sessions

**Table 8.** Levels of Depression of the experimental group after Butterfly Hug Method (Posttest)

Level of Depression	Scores	Pretest	%	Posttest	%	Interpretation
None	0	0	0%	0	0%	No Change
Minimal	1 - 4	3	60%	5	100%	Increased
Mild	5 - 9	1	20%	0	0%	Decreased
Moderate	10 - 14	1	20%	0	0%	Decreased
Moderately	15 - 19	0	0%	0	0%	No Change
Severe	20 - 27	0	0%	0	0%	No Change

Table 8 summarizes the experimental group's mental health status levels in terms of depression based on their posttest scores. It is found that performing the Butterfly Hug Method reduced two participants' depression levels with all five experimental participants (100%) now having minimal levels of depression.

The Butterfly Hug method combines the basic benefit of soothing yourself with the bilateral stimulation that helps reduce the charge of emotional or traumatic stress and hyperarousal (Rutstein, 2020). It is

carried out by crossing both hands on the chest and then clapping both hands like the flapping wings of a butterfly all while breathing deeply. (Agusti et al. 2021). The movement of the extremities across the midline of the central nervous system stimulates two hemispheres of the brain simultaneously. The brain is divided into two hemispheres, the right brain and the left brain. The right brain controls the left side of the body and is responsible for emotions and creativity. The left brain, on the other hand, is associated with logic and controls

the right side of the body. The ambidexterity, caused by the crossing of both arms, can reduce stress and help the brain function optimally because both hemispheres of the brain and both sides of the body are simultaneously simulated (Koopman, 2015).

According to Mahan (2023), touch provides Delta Waves which bring serotonin and oxytocin into our system, thereby calming the amygdala and allowing us to

process in real time. Furthermore, we humans respond to touch. Gentle, affectionate touch helps calm the nervous system and can trigger the release of oxytocin, the attachment hormone. Our bodies do not differentiate between when someone we love touches us and when we are touching or holding ourselves as both circumstances trigger the calming release of oxytocin (Rutstein, 2020).

**Table 9.** Levels of Anxiety of the experimental group after Butterfly Hug Method (Posttest)

Level of Anxiety	Scores	Pretest	%	Posttest	%	Interpretation
None	0 - 4	2	40%	5	100%	Increased
Mild	5 - 9	3	60%	0	0%	Decreased
Moderate	10 - 14	0	0%	0	0%	No Change
Severe	15 - 21	0	0%	0	0%	No Change

Table 9 summarizes the experimental group's mental health status levels in terms of Anxiety based on their posttest scores. It is found that performing the Butterfly Hug Method reduced three participants' anxiety levels with all five experimental participants (100%) now having zero levels of anxiety.

The Butterfly Hug Method was used by many psychiatrists to reduce anxiety, especially for trauma patients. In addition to trauma, anxiety is often experienced by elderly people (Widiyati et al. 2020). It is an

alternative solution to overcome anxiety in lonely elderly people (Girianto et al. 2021). The use of the Butterfly Hug in session with the therapist can be a self-soothing experience for many clients (Artigas & Jarero, 2020). Additionally, the Butterfly Hug Method is an alternative solution to calm the mind by using suggestions that can provide comfort and tranquility for the elderly. This method can be used easily and can be done at any time by the elderly (Girianto et al. 2021).

## A significant difference between the level of mental health status of study participants in the experimental group before and after conducting the Butterfly Method sessions for 2 weeks

**Table 10.** The level of Depression between the Experimental Group's Pre & Post test Scores

Domain	df	t-score	Sig. (1-tailed)	Significant	Decision
Depression	4	4.129*	0.007	Yes	Reject Ho1

Table 10 summarizes the analysis performed using t-test for dependent sample means on the experimental group's pretest and posttest scores which tested if the Butterfly Hug Method can reduce the participants' level of Depression. The test is significant at right-tailed 0.025 level with degrees of freedom (df) of 4. The computed statistics and p-values for the level of depression is ( $t = 4.129$ ,  $p = 0.007 < 0.025$ ). Since the test is significant at 0.025 level, it can be concluded that the Butterfly Hug Method reduced the participants' Depression levels. Thus, the null hypothesis for this test will be rejected.

The Butterfly Hug is used as part of EMDR therapy, as it can help people to recollect their trauma without attaching the negative emotions to it that are adversely affecting their current well-being. Using the Butterfly Hug alongside other positive mental health techniques can help people to

gradually change their unhelpful thought patterns and responses to past trauma (Tappana, 2022). Moreover, the Butterfly Hug method allows individuals to re-regulate their mind and body during an intense moment of distress. This method is an effective tool that distracts the mind from its panicked state and connects with the nervous system as the mind becomes more concentrated on the alternate rhythmic tapping. Allowing the individual to feel less anxious or panicked, and feel more grounded and composed (Salerno, 2023). The butterfly hug is one way of manual tapping where you cross your arms and tap on the sides of your arms. Manual tapping can be akin to the soothing feeling of rocking or swaying back and forth. Bilateral Stimulation is thought to facilitate the processing of distressing psychological experiences by reducing emotional over activation (Mazzei, 2021).

**Table 11.** The difference in the level of anxiety between the experimental group's pretest and posttest scores

Domain	df	t-score	Sig. (1-tailed)	Significant	Decision
Anxiety	4	7.483	0.001	Yes	Reject Ho1

Table 11 summarizes the analysis performed using t-test for dependent sample means on the experimental group's pretest and posttest scores which tested if the Butterfly Hug Method can reduce the participants' level of Anxiety. The test is significant at right-tailed 0.025 level with degrees of freedom (df) of 4. The computed statistics and p-values for the level of Anxiety is ( $t = 7.483, p = 0.001 < 0.025$ ). Since the test is significant at 0.025 level, it can be concluded that the Butterfly Hug Method reduced the participants' Anxiety levels. Thus, the null hypothesis for this test will be rejected.

As indicated by Girianto et al. (2020), their study resulted in a change in the level

of anxiety of all participants. Most of the participants admitted that they were comfortable when doing the Butterfly Hug Method. Complaints of anxiety and worry that are felt slowly disappear. Other participants showed optimistic thinking or did not tend to think about bad things that would happen in the future. This agrees with the research that the Butterfly Hug Method provides benefits for the formation of a better mood, so that the elderly who regularly participate in activities will always feel comfortable. Indeed, the Butterfly Hug Method plays a role in changing the level of anxiety in the elderly (Girianto et al. 2020).

### A significant difference between the level of mental health status of study participants in the experimental group post Butterfly Hug Method sessions and the level of mental health status in the control group post standard of care

**Table 12.** The difference in the level of depression between the experimental and control group's posttest scores

Domain	df	t-score	Sig. (2-tailed)	Significant	Decision
Depression	8	0.552	0.596	No	Accept Ho2

Table 12 summarizes the analysis performed using t-test for independent means which tested if there is a significant difference between the posttest scores of the two sample groups in relation to their Depression levels. The test is significant at

two-tailed 0.05 level with degrees of freedom (df) of 8. The computed statistics and p-values for the level of Depression is ( $t = 0.552, p = 0.596 > 0.05$ ). Since the test is not significant at 0.05 level, it can be concluded that there is no significant



difference between the sample groups' posttest scores of their depression levels. Thus, the null hypotheses for this test will be accepted.

Physical activity is consistently reported as having antidepressant effects (Schuch et al. 2018). Physical exercise, a subcategory of physical activity, protects older adults from depression due to its positive effects on biological and psychological processes (social support, self-esteem, and the social relations inherent to exercise participation) (Lage et al. 2020). Several systematic reviews have found that exercise can reduce the symptoms of depression with a moderate-to-large effect size and can be a useful addition to

pharmacotherapy and psychotherapy (Kandola, 2019). A recent meta-analysis of 49 prospective cohort studies including 1,837,794 person-years found that people with high levels of physical activity had 17% lower odds of depression (OR = 0.83, CI = 0.79, 0.88) than people with low physical activity (Schuch et al. 2018). In addition to trauma processing, Bilateral Stimulation can be used to generate relaxation. Using calming or safe place visualizations along with Bilateral Stimulation allows the autonomic nervous system, or parasympathetic system, to induce the relaxation response (Mazzei, 2021).

**Table 13.** The difference in the level of anxiety between the experimental and control group's posttest scores

Domain	df	t-score	Sig. (2-tailed)	Significant	Decision
Anxiety	8	1.066	0.318	No	Accept Ho2

Table 13 summarizes the analysis performed using t-test for independent means which tested if there is a significant difference between the posttest scores of the two sample groups in relation to their Anxiety levels. The test is significant at two-tailed 0.05 level with degrees of freedom (df) of 8. The computed statistics and p-values for the level of Anxiety is (t = 1.066, p

= 0.318 > 0.05). Since the test is not significant at 0.05 level, it can be concluded that there is no significant difference between the sample groups' posttest scores of their anxiety levels. Thus, the null hypotheses for both tests will be accepted.

Physical Activity (PA) is defined as any bodily movement produced by skeletal muscles that result in energy expenditure.

PA encompasses exercise, sports, and physical activities performed as part of daily living, occupation, leisure, or active transportation (Langhammer et al. 2018). Exercise has also been proven effective as a method to improve mental disorders such as stress reduction, anxiety, and depression (Gimenez-Meseguer et al. 2020). Additionally, exercise is associated with improved mental health, delay in the onset of dementia, and improved quality of life and wellbeing (Langhammer et al. 2018). Furthermore, a study conducted by Girianto et al. (2021), says most of the participants admitted that they were comfortable when doing the Butterfly Hug Method. All participants said they were happy to participate in activities because there were new activities that could provide a feeling of comfort and safety and create a sense of joy and togetherness among the elderly. Therefore, the Butterfly Hug Method also plays a role in changing the level of anxiety in the elderly (Girianto et al. 2021).

Based on the results of the study, what instructional material can be recommended that the Butterfly Hug Method be used as an adjunct therapy to help improve the level anxiety and depression of Senior Citizens in the facility. According to the study of Chicca & Chunta (2020), Infographics represent

visual stories which engage and guide audiences to the realization of patterns, relationships, and conclusions. Infographics help capture attention and make complex knowledge understandable, making them a useful teaching-learning strategy. Furthermore, images are more quickly recognized than words, and visualizations can help audiences understand complex data sets (Brigham, 2018).

Infographics may be developed for many purposes, however, they are particularly useful as a teaching-learning strategy because of their potential for explanatory power. In other words, infographics can help educators guide students, transforming complicated material into more easily digested, engaging, and visually appealing information. The use of visual imagery to convey meaning has been successfully used in educational settings to assist in learning, understanding, and memory of challenging concepts (Rothwell et al. 2022).

The researchers developed a detailed infographic that contains the instructions, developed by therapists Lucina Artigas and Ignacio Jarero, on how to perform the Butterfly Hug Method in order to promote this method as adjunct therapy in lessening the levels of anxiety and depression in senior

citizens or for anyone who wishes to use the intervention. Each step of the Butterfly Hug Method is indicated in the infographics. Furthermore, the researchers also included the benefits of the use of Butterfly Hug intervention and further explanation on the purpose of the Butterfly Hug Method.

The butterfly hug is a method of direct bilateral stimulation (such as eye movement or pressure) to reduce anxiety and calm oneself. This method was developed by therapists Lucina Artigas and Ignacio Jarero during their work with survivors of Hurricane Pauline (Jarero et al. 2018). As stated in the study of Widayati et al. (2021), elderly people will usually experience anxiety due to being left by their family and others. So the elderly need action to overcome the anxiety they experience and the Butterfly Hug method is an alternative solution to calm the mind by using suggestions that can provide comfort and tranquility for the elderly.

The primary objective of this research was to identify if the Butterfly Hug Method is effective in being used to lessen the level of anxiety and depression in senior citizens who are residing in a selected geriatric facility. The study employed the quantitative design method of true experimental research design. The researchers used a questionnaire to gather the necessary data

from the participants, these were the adopted tools known as Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder Assessment (GAD-7). These were used to measure the levels of anxiety and depression of the participants. The researchers went to the Caloocan City Hall to obtain permission from the head of the local social welfare office to conduct the intervention in a facility, whereupon they received permission to conduct the study. From the masterlist requested from the head of the facility, ten (10) participants, who were eligible for the study, were gathered randomly and were further separated into two groups using the simple random sampling technique. The sample consisted of Filipino Senior Citizens, aged 60 and above, both male and female who do not have any diagnosed mental health conditions and who are not currently receiving treatment for their mental health, including counseling and other clinical interventions that may indirectly or directly influence or affect the intended outcome of the intervention. They conducted the intervention thrice a week, every Monday, Wednesday, and Friday, for the duration of 2 weeks.

#### **4. Conclusions**

The Experimental Group had five participants with varying levels of depression. Three had minimal levels, one had mild levels and one had moderate levels of depression. Additionally, two participants had minimal levels of anxiety and the remaining three had mild levels of anxiety based on the GAD-7 assessment. In the Control Group, three out of five participants had no depression, one had minimal depression, and one had mild depression. Additionally, three participants had minimal anxiety while the other two had mild anxiety. The researchers found that both the experimental group and control group had similar results in their post-tests, indicating that both interventions were effective in lessening the levels of depression and anxiety in both groups. Regardless that there was no significant difference between the posttest scores of both groups, it was established that the score and level of depression and anxiety of the participants in the experimental group was reduced. Thus, the Butterfly Hug Method was beneficial to senior citizens in improving the levels of their mental health status.

The following recommendations are hereby proposed Butterfly Hug Method is recommended as an adjunct therapy to the facility's standard of care. To the Senior

Citizens experiencing depression and anxiety, doing the Butterfly Hug Method can be encouraged. To the institution, this may serve as a combined exercise or therapy to their existing standard of care to manage and improve the resident's mental health status. To the community, this may serve as an exercise or adjunct therapy for individuals who are manifesting signs and symptoms of depression and anxiety, and as a method of prevention and keeping the mental health status healthy.

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Substantial contributions to conception, data collection, analysis, and writing: Mariah Samantha F. Cagaoan, Antoinette Celine D. Dayrit, Alysson Claire R. Dela Vega. Supervisor: Michael John V. Flores. Manuscript revisions: Mariah Samantha F. Cagaoan.

#### **CONFLICT OF INTEREST**

The authors declared no potential conflicts of interest with respect to the

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#### DATA AVAILABILITY STATEMENT

The data are not publicly available due to privacy or ethical restrictions.

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