**STRADA Jurnal Ilmiah Kesehatan**
DOI: 10.30994/sjik.v10i1.699
ISSN: 2252-3847 (print); 2614-350X (online) Vol.10 No.1 May 2021 Page. 1380-1388

# Health Education for the Elderly to Prevent Depression Problems During a Pandemic Through Android Application

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**ABSTRACT**
The COVID-19 pandemic condition causes the elderly to have a higher risk of experiencing psychosocial disorders, especially depression. This study aimed to determine elderly access to health services during a pandemic, which is becoming more difficult, requires health professionals to consider the use of an Android application as a method of approach. The method used in this paper is a case study with the aggregate of the elderly in Depok City. The sampling technique chosen was convenience sampling with a sample size of 38 people. The implementation of empowerment for the elderly is carried out using an android application named "Sadar Depresi Lansia". The paired t test results show that the use of android applications has a positive effect on the elderly's understanding of depression (sig. = 0.000) and depression level in the elderly (sig. = 0.000). The use of innovative android applications to provide education and screening services to elderly people with depression can be one of the methods that can be used by health workers.

**Keywords:** Depression, Elderly, Pandemic, Empowerment

Received March 17, 2021; Revised April 7, 2021; Accepted April 28, 2021

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## BACKGROUND

COVID-19 is a disease caused by a new type of corona virus that causes clinical symptoms such as fever, cough, runny nose, fatigue / lethargy, sore throat, and shortness of breath by transmitting the virus through droplets (droplets of liquid originating from coughing or sneezing).[1] The risk of complications from COVID-19 is higher in some vulnerable populations, especially the elderly, individuals who suffer from debility, or who have several chronic conditions. Important things that are of concern to health workers during the COVID-19 pandemic include: Continuing primary prevention through routine screening and isolation to reduce the spread of disease, using internet-based Counseling, Information and Education (IEC) techniques for the community with the aim of reducing dependency community in primary and secondary health services, creating programs to protect vulnerable groups from infections that occur, and ensuring fast response services and supporting tools in hospitals, especially services for vulnerable groups.[2]

Psychosocial problems in the elderly are a health problem that is quite common in this decade, especially during the COVID-19 pandemic in recent months. According to Miller[3], Psychosocial problems can be caused by changes in physical function, changes in roles and related relationships, the environment in which they live, and the use of inappropriate coping strategies related to changes that occur. Changes in the elderly related to these psychosocial problems include changes in mental status, ability in decision making, affective function, conflict with reality, and social support. Psychosocial problems in the elderly that are common in the elderly during a pandemic include depression.

Depression is a mental disorder characterized by various signs which include flat affect, loss of interest, decreased enthusiasm, low self-esteem, sleep disturbances, eating to concentration problems where these symptoms must appear within 2 weeks.[4] Indonesia Basic Health Research (RISKESDAS)[5] states that in the population aged> 15 years, there are 706,689 (6.1%) people who experience depression, based on age characteristics, as many as 6.5% of the population aged 55-64 years, 8% of the population aged 65-74 years, and 8.9% of the population> 75 years of age experience depression in Indonesia. In West Java Province there are 130,528 people (7.8%) of the population who experience depression, while in Depok City it is estimated that 66.1% of the elderly experience psychosocial stress and 55% experience depression.[6]

The depressive condition experienced by the elderly is still considered a less dangerous condition when compared to the 10 biggest diseases in Indonesia for the community. Some conditions that can make the depressive state worse, include: living in a big city, living alone, experiencing a divorce, losing a job, poverty, and experiencing a persistent illness. The depressive condition experienced is further exacerbated by the stigma of the community who think that depression is a mental disorder. Based on this, the authors develop interventions in the management of depression in the community, especially in the elderly during the COVID-19 pandemic using an android application.

## METHODS

The method used in this paper is a case study with the aggregate of the elderly in Depok City. The criteria for the inclusion of participants who were involved in this practice were elderly people with mild-moderate depression during the COVID-19 pandemic, aged ≥ 60 years, living in the city of Depok. The sampling technique chosen was convenience sampling with a sample size of 38 people. The implementation of this program begins with education and depression screening in the elderly using the Android application “Sadar Depresi Lansia”.

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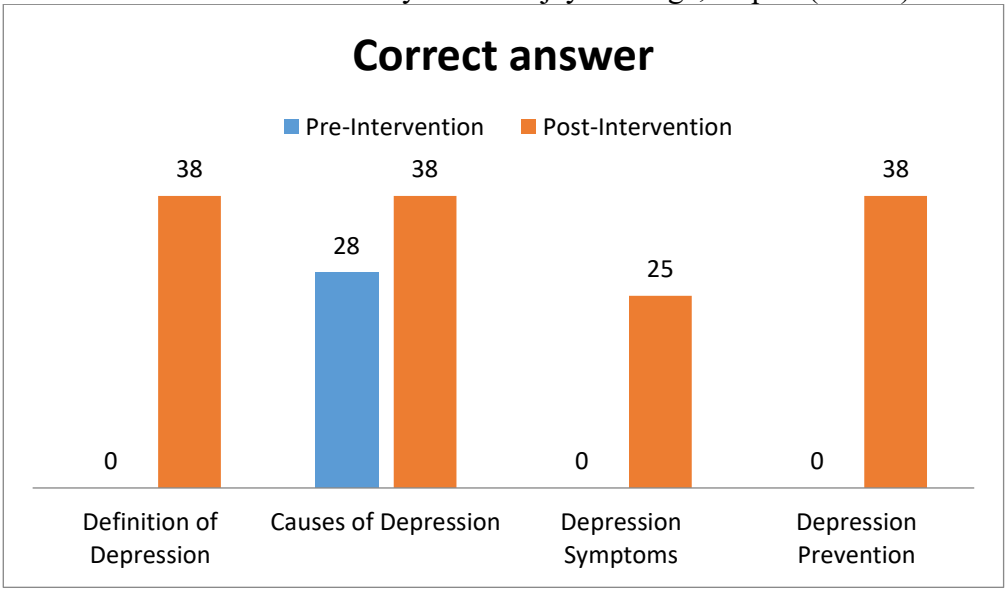
## RESULTS

The results of the implementation of innovation activities for 4 months of monitoring obtained data as many as 38 elderly people who still routinely carry out activities taught through innovation therapy. The results of the knowledge of the elderly about depression experienced can be seen in table 2.7 which includes 4 outcome criteria, namely definition, cause, 5 signs of symptoms, and 5 prevention of depression using a scale of 0-1 (0: Wrong answer, 1: Correct answer).

Diagram 2.1
The frequency of the results of the pre and post intervention depression knowledge assessment in the elderly in Mekarjaya Village, Depok (n = 38)




**Paired T Test Results**

| No. | Variable (Pre & Post) | Mean | df | Sig. (2 Tailed) |
|---|---|---|---|---|
| 1 | Definition of Depression | -1.00 | 37 | .000 |
| 2 | Causes of Depression | -0.26 | 37 | .001 |
| 3 | Depression Symptoms | -0.66 | 37 | .000 |
| 4 | Depression Prevention | -1.00 | 37 | .000 |

(The data were processed using SPSS 21)

Based on diagram 2.1, at the time of the pre-intervention assessment as many as 100% of the elderly answers were wrong for the criteria for definition, symptoms, and prevention, while 73.7% of the elderly were able to answer correctly for the causes of depression. Meanwhile, as many as 100% of the elderly answered the definition, causes, and prevention correctly, and 65.8% of the elderly answered correctly for symptomatic signs. Meanwhile, the paired T test between pre and post shows the effect of using android applications on the knowledge of the elderly on the definition of depression (Sig. = 0.000), causes of depression (Sig. = 0.001), signs of depressive symptoms (Sig. = 0.000), and prevention of depression. (Sig. = 0.000).

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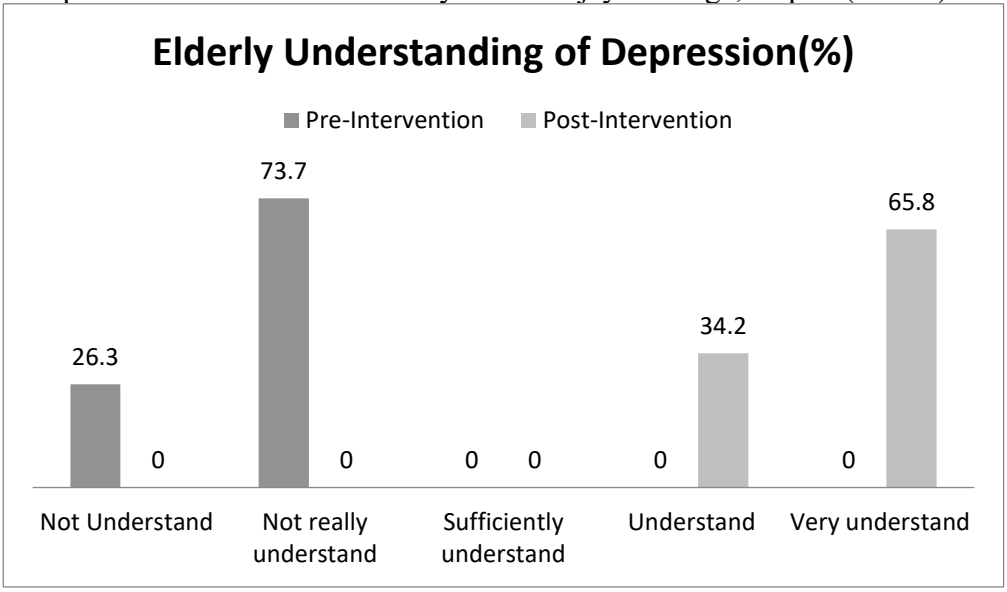
Diagram 2.2
The difference in the results of measuring the level of understanding of depression pre and post intervention in the elderly in Mekarjaya Village, Depok (n = 38)




| No. | Variable | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| | Measurement score | | | | |
| 1 | Before | 0 | 1 | 0.74 | 0.446 |
| 2 | After | 3 | 4 | 3.74 | 0.446 |

**Paired T Test Results**

| No. | Variable | t | df | Sig. (2 Tailed) |
|---|---|---|---|---|
| 1 | Depression Score | -28.506 | 37 | .000 |

(The data were processed using SPSS 21)

Measuring the level of understanding of depression before and after using a Likert scale from a score of 0-4 (0: Don't understand, 1: don't understand, 2: understand, 3: understand enough, 4: Very understand). Based on table 2.2, the comparison between understanding pre and post intervention in the elderly is clear for the differences that arise. The mean score was -3.00 with the score before intervention was 0.74 while after intervention was 3.74. Based on the table above, it is known that the significance value is 0.000 <0.005, so it can be concluded that there is an effect of using android applications on the elderly's understanding of depression in Depok City, West Java.

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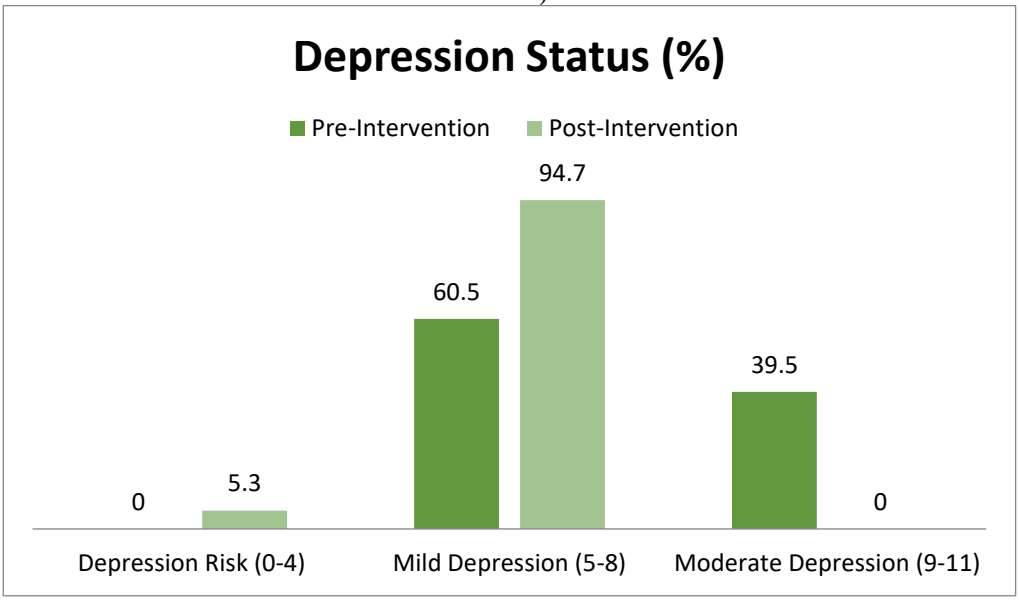
Diagram 2.3
Differences in the results of pre- and post-intervention depression status for the elderly in Mekarjaya Village, Depok (n = 38) (Measurement using the Geriatric Depression Scale / GDS)




| No. | Variabel | Min | Max | Mean | SD |
|---|---|---|---|---|---|
| | Depression score | | | | |
| 1 | Before | 5 | 11 | 7.84 | 1.569 |
| 2 | After | 4 | 8 | 5.76 | 0.971 |

**Paired T Test Results**

| No. | Variable | t | df | Sig. (2 Tailed) |
|---|---|---|---|---|
| 1 | Depression score | 10.169 | 37 | .000 |

(The data were processed using SPSS 21)

Based on table 2.3, the frequency of the greatest depression score in the pre-intervention elderly for 8 months was 9 (26.3) while for post-intervention 5 (38.5%). The mean score of depression pre-intervention was 7.84 and post-intervention was 5.76 with a decrease of +1.08. Based on the table above, it is known that the significance value is 0.000 <0.005, so it can be concluded that there is an effect of using android applications in reducing the level of depression experienced by the elderly in Depok City, West Java.

## DISCUSSION

The period of the 4.0 technological revolution, which encourages everyone to change with the times, can be a challenge for the elderly who can have difficulty taking part in it. The rapid growth in the use of technological devices, such as smartphones, tablet PCs and smart watches, has encouraged people to easily report health status without the need to come to health services. The various benefits of this communication technology include: reducing errors in measuring health status, being able to cross the boundaries that arise due to the use of traditional technology (use of paper / web), making it easier for elderly people with psychosocial disorders to report health status.[7] The use of the application is intended to make it easier for families and the elderly to access education and screening as well as to facilitate

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the collection of data on the results of the screening that has been implemented. With various advantages, including a broader level of community access, smartphone application-based depression management has great potential in improving psychosocial health status in the community.[8]

Depression experienced by the elderly in the community is mostly due to the high social isolation experienced and high expectations from family and society to the elderly related to the perfect picture of an elderly who must appear wise, without problems and spend more time at home considering that their physical abilities are not as good as while still working. The behavior shown by the community related to the concept of elderly without problems previously presented can increase symptoms of depression in the elderly, this is supported by research results which show that the elderly in the community have a higher risk and high potential for depression due to functional / functional performance in the community. low in the elderly.[9]

The increasing need for mental health services in the population poses significant challenges for the health system. Therefore, it is important to identify new approaches to providing sustainable and measurable care in terms of reach and impact on health.[10] In addition, the potential benefits of developing a mobile-optimized depression screening application can be maximized based on the main features of the smartphone application such as storage, portable accessibility, and real-time notifications / notifications.[7] Therefore, the author developed the application "Sadar Depresi Lansia" which aims to facilitate education and depression screening using the Geriatric Depression Scale (GDS) format which can be accessed in the application.

The use of the GDS format in the screening process using the application "Sadar Depresi Lansia" which is carried out on elderly people who experience depression in the City of Depok is supported by research Aktürk, Aktürk, & Erci[11] who stated that the use of GDS in screening the elderly in Turkey showed a 32% higher effectiveness in screening the physical activity of depressed elderly when compared to other screening forms. Other studies have also shown that the GDS-15 (with 15 main questions) is an instrument with a higher proportion of both the GDS-30 and GDS-5 in the screening process for the elderly with depression.[12] The use of appropriate screening methods such as GDS-15 can make it easier for nurses to obtain data on depression conditions in the elderly in their work area, because prevention of depression starts with the efforts of nurses who accurately determine the depression status from the results of screening to determine whether the elderly need to be referred to health services or sufficient. assisted by existing non-pharmacological interventions.

The use of the android application "Sadar Depresi Lansia" is also intended to facilitate health workers in reducing depression problems experienced by the elderly. Problems that often arise regarding the management of depression in the Depok City area are related to the priority of treating depression as well as the lack of resources available in the scope of primary care. Depression in Depok City is not one of the priority program problems that must be handled by the Health Office, besides that the lack of health personnel available in this area also exacerbates efforts to reduce depression problems. This is as described by Gatson[13] that efforts to identify depressive symptoms in the elderly who live in the community are a separate problem for health institutions due to the lack of adequate resources and training for health workers. In addition, it was also stated that increasing the knowledge of health cadres as health practitioners and families has positive implications in reducing depressive symptoms experienced by the elderly.

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The innovation is made so that the health management behavior of depressed elderly can be more adaptive and experience improvement in their depressive status. Management behavior in individuals with depression is influenced by personal health conditions, belief in illness, health care seeking behavior and understanding in the prevention of chronic conditions.[14] The provision of therapy for the elderly in the area of Depok City is aimed at those who are at the level of showing symptoms, from mild to moderate depression. This is in accordance with the research conducted by Vaid[15] , which states that for the elderly who experience mild depression and tend not to be life threatening, non-medical interventions can be given.

The results of the implementation of innovation in the elderly group for 4 months showed a positive change related to the depression status of 38 elderly people who participated in full activities. After carrying out health education related to depression, the data showed a 100% increase in understanding regarding the definition of depression, while related to the causes of depression there was an increase of 26.3%. Regarding the understanding of the elderly about the signs of depression symptoms, there was an increase of 65.8% and for the prevention of depression as much as 100% of the elderly were able to say it correctly. Some of the things above show that old age does not mean hindering the ability of the elderly to learn new things, as research conducted by Chao et al.[16] said that the process of learning and understanding new knowledge not only helps the elderly expand their previous knowledge, but can also increase self-esteem and increase the joy of life of the elderly.

Depression status in the elderly is one that is measured in the intervention for elderly people who experience depression. The results of the evaluation of the depression status screening process using the Geriatric Depression Scale (GDS) format during the intervention showed a change in the depression status of 38 elderly people who participated in routine activities. The measurement results showed that the mean score of pre-intervention depression was 7.84, which entered into mild depression tending to be moderate, while after participating in the activity, the mean score data was 5.76 or mild depression. Meanwhile, regarding the pre-intervention measurement, the minimum depression status score was 5 and the maximum was 11, while at the post-intervention measurement, the depression score was at least 4 and the maximum was 8.

Research conducted by Clasen, Fisher, & Beevers[17] shows that depressed elderly people have a tendency to withdraw from social interactions which can result in decreased access to health services. Therefore, the active role of health workers, especially those in primary care, can greatly affect the depression status of the elderly. The results of the assessment in Depok City show that the composition of the number of health workers is not in accordance with the workload that must be completed, this can cause a decline in the quality of health services for the elderly, especially those with depression.

## CONCLUSION

The increasing need for psychosocial services for the elderly is essential during the COVID-19 pandemic. The use of innovative android applications to provide education and screening services to elderly people with depression can be one of the methods that can be used by health workers. The importance of government and health professionals' attention to the depressive conditions experienced by the elderly, especially during the pandemic period, can be one of the reasons for using Android-based applications.

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**ACKNOWLEDGEMENTS**
This work is supported and funded by STIKes Mitra Keluarga.

**CONFLICT OF INTEREST**
The autors have no conflict of interest to declare.

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ISSN: 2252-3847 (print); 2614-350X (online) Vol.10 No.1 May 2021 Page. 1380-1388

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