Lifelong Learning Benefit in Reducing Geriatric Depression


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社会の高齢化は深刻で、インドネシアでも2045年には人口の20％弱が高齢者になり、その14～20％は老年期うつ病を発症するという。その予防における生涯学習の役割を、インドネシアでの取り組みをもとに検証した。

Abstract

Depression is the most common mental health problem in the older people, and is associated with a significant burden of illness that affects patients, their families, and communities. Prevalence studies suggest that 14% to 20% of the elderly living in the community experience depressive symptoms. For some people, changes in the brain due to ageing process can affect mood and result in depression. Several programs have been carried out at the community level to reduce depression levels, one of which is through a lifelong learning program in elderly communities. This study intended to identify the prevalence of geriatric depression after participating in a lifelong learning program.

The research method uses a cross sectional approach with a descriptive analytical comparative study. The research location was in IRL West Java Chapter on May to August 2023. The sample was selected using disproportionate stratified random sampling with a sample size of 384 older people. Measurement of geriatric depression uses the GDS-4 items. Research analysis uses the chi-square test and multiple logistic regression test.

The results of the study showed that there was a significant relationship between the lifelong learning (0.000), ADL (0.003), multi-morbidity (0.010), age (0.018), and loneliness (0.035) with geriatric depression. The analysis showed that the most influence variable on efforts to prevent geriatric depression is lifelong learning (p = 0.000 and OR = 0.330).

This study succeeded in identifying a significant reduction in depression levels in lifelong learning participants, the longer they participated in this program, the lower their chances of experiencing depression.

Keywords older people, geriatric depression, lifelong learning

Introduction

The world population structure, including Indonesia, is currently heading towards an aging population, as evidenced by the increasing number and proportion of older people's population. The global older people population reached 727 million people aged 65 years or older in 2020. The number of older people is estimated to grow by 56 percent to 1.5 billion people by 2050[43]. The BPS data shows that over the last 50 years, the percentage of the elderly population in Indonesia has consistently increased from 4.5 percent in 1971 to 10.75 percent in 2023. This figure is projected to continue rising, reaching 19.9 percent by 2045[3].

The increasing number of older people each year requires serious attention and treatment because older people experience a decline in physical, psychological, and social functions. A deterioration of the physical conditions in older people can lead to vulnerability to various health problems[38].

The social changes that occur in older people are

cognitive and psychomotor decline. The decline of these two functions causes older people to experience psychosocial changes related to their personality, while the psychological changes that occur in older people include short-term memory, frustration, loneliness, fear, anxiety, depression, and death[33]. Depression is the most common mental health problem in older people.

The global prevalence of geriatric depression is 61.6 percent[47]. According to data from Riskesdas (2018), the prevalence of geriatric depression in Indonesia is 6.1 percent of the total population in Indonesia. In 2019 there were 11.4 percent of older people who experienced depression (SILANI, 2019). The symptoms of depression are often disguised by diseases associated with old age or depressive symptoms are considered normal in older people[39]. Geriatric depression is characterized by physical complaints in the form of insomnia, general fatigue, loss of appetite, headaches, anxiety, cognitive impairment, and behavioral disorders. Sometimes the elderly deny their sadness but acknowledge a loss of interest or pleasure in daily activities[37].

The predisposing factors that increase the risk of geriatric depression are loss of job, loss of a partner, income, and social support as they get older[37]. The feeling of loss can lead to loneliness in older people and trigger negative emotions[2]. The research results indicate that higher social support for older people can reduce their depression[34].

The lack of social activity and close friends is a factor associated with depression symptoms in the elderly[26]. Social networks with close friends and engagement in social activities are related, but both their structure and the benefits they provide are different. Close friends are the strongest form of social connection and are considered vital relationships: they provide social support and prevent social isolation and loneliness[26].

The Government of the Republic of Indonesia has an excellent commitment to aging issues with the establishment of Presidential Regulation Number 88 of 2021 concerning the National Strategy for Aging. The presidential regulation emphasizes the importance of fulfilling the rights of the elderly, including religious and mental spiritual services, mental health services, employment opportunities, education and training, ease of use of public infrastructure facilities, legal services and assistance, social protection, and social assistance[29].

In line with this policy, many efforts have been made to fulfill the rights of the elderly, one of which is the right to education and training, namely by establishing senior schools aimed at improving the well-being of the elderly through integrated and sustainable programs. The Senior School is a prioritized learning program for prospective older people within families and communities. The output of the lifelong learning program is to create older people who are SMART (Healthy, Independent, Active, Productive, and Dignified) through 7 dimensions of resilient elderly, namely physical, spiritual, emotional, intellectual, professional, social, and environmental[9].

The basic concept developed by the senior schools is lifelong learning, that education continues throughout life for every individual[9]. The senior schools align with the principles of active aging, which aim to improve the physical and mental health of older people and reduce health inequalities, enabling people to achieve their full health potential throughout the life course[45].

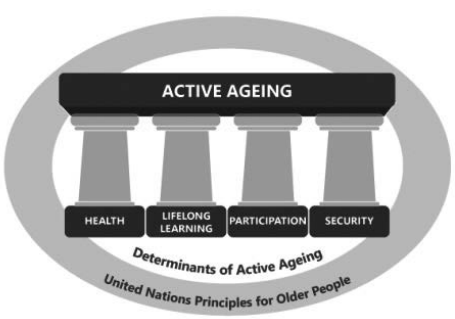

Fig. 1. Four Pillars of Active Aging
Source: ILC-Brazil, 2017. WHO, 2002

Based on the active aging pillar, lifelong learning is the pillar that supports all other active aging pillars. Lifelong learning maintains the health condition of the elderly, keeps them relevant, participates in society, and ensures the safety of older people. Lifelong learning also contributes to inter-generational solidarity[15]. Participation in lifelong learning programs impacts well-being, protection, and mental health recovery,

increasing the capacity to cope with potentially stress-inducing situations that can lead to chronic disease and disability. This effect is mediated by the relatively rapid impact of learning on psychosocial quality, such as self-esteem, self-efficacy, having goals and life expectancy, competence, and social integrity[13].

Based on a baseline study conducted by previous researchers in September 2020 with 401 older people who were participants in the senior school of IRL West Java, it was found that 47 older people, or 11.2% tended to experience depression, characterized by physical weakness, fatigue, sadness, lack of enthusiasm, feeling worthless, decreased appetite, prefer to be alone and feeling powerless[27]. The untreated impact of depression leads to increased use of healthcare facilities and medical services, negatively affecting the quality of life for older people, and raising mortality rates (Smoliner, 2009).

Effective and timely treatment of depression will improve the quality of life for older people, prevent premature death, and enhance the functional status of older people. The level of independence and social relationships of the elderly would be better if they did not experience depression (Duckworth, 2009). Based on the phenomenon and research results conducted by previous researchers, it is necessary to study the impact of lifelong learning programs on preventing depression in senior school participants.

Method

The research method used is a quantitative research method with a cross-sectional approach and uses a descriptive-analytical research design "comparative study". Comparative study is a research method that compares the similarities and differences of existing phenomena and then seeks the factors and conditions that cause these phenomena to occur. Research with a cross-sectional approach is used to see the relationship between the independent variable and the dependent variable which is carried out simultaneously at the same time[32].

This research was conducted to see the effect of lifelong learning programs on depression prevention efforts in senior school participants by comparing time series data to predict the future using historical data. Time series analysis means dividing past data into components and then projecting it into the future (Subekti, 2010). Time series data used includes the preschool group, standard 1, standard 2, and standard 3.

The research locations were carried out in Bandung City, Cimahi City, West Bandung Regency, and Bogor Regency, which are the areas under which Indonesia Ramah Lansia, West Java Province. The time of this research was carried out from May to August 2023. The population in this study was 2200 older people who participated in a lifelong learning program at IRL West Java senior school. The sample in this research was 384 people. The research instrument used the Geriatric Depression Scale 4 items (GDS-4).

Results and Discussion

Demographic Characteristics of Respondents

Univariate analysis is used to describe the demographic characteristic variables of the respondents. All data are analyzed at a significance level of 95% ($\alpha = 0.05$). Variables in categorical form are described using frequency distribution and percentage.

Table 1. Demographic Characteristics of Respondents

Respondent characteristics	Frequency N	Percent %
Age group		
< 68 years old	204	53.1
≥ 68 years old	180	46.9
Gender		
Female	305	79.4
Male	79	20.6
Education		
College	45	11.7
Senior high school	95	24.7
Junior high school	53	13.8
Elementary	175	45.6
No school	16	4.2
Work		
Yes	37	9.6
No	347	90.4
Living arrangement		
Living together	313	81.5
Alone	71	18.5
Total	384	100

The research results showed that the majority of older people fall within the age group <68 years, specifically 204 older people (53.1%) while 180 older people (46.9%) are older than 68 years old. Based on gender, the majority of respondents are female, specifically 305 people (79.4%) while only 79 respondents are male (20.6%), with elementary school education (45.6%), unemployed elderly (90.4%) and lived with family (81.5%).

Distribution of respondents based on GDS, Multi-morbidity, Level of Independence and Cognitive Function

Table 2. Distribution of Respondents Based on GDS, Multi-morbidity, Level of Independence and Cognitive

Variable	Frequency	Percent
	N	%
Geriatric Depression		
No	289	75.3
Yes	95	24.7
Multi-morbidity		
No	146	38
Yes	238	62
ADL		
Independent	329	85.7
Dependency	55	14.3
Cognitive Function		
Normal	357	93
Cognitive impairment	27	7
Total	384	100

Based on the research results, it was found that 289 older people were not depressed (75.3%) while 95 other older people were depressed (24.7%). There were 238 older people (62%) who suffered from multi-morbidity or suffered from more than 1 disease. A total of 329 older people (85.7%) have good levels of independence while 55 older people (14.3%) are dependent on other. The cognitive function is more prevalent among normal respondents, with 357 older people (93%) and 27 older people (7%) experiencing a decline in cognitive function.

The prevalence of geriatric depression in Senior Schools of West Java is 24.7%. it was found that many older people have more than 1 disease with the most common complaints being osteoarthritis, dyspepsia, and hypertension. The majority of older people in senior school are older people with a good level of independence and cognitive function.

Prevalence of Depression among the Senior School participants in West Java

Identifying the prevalence of depression in senior school participants based on respondent characteristics, length of time following the lifelong learning program, multi-morbidity, level of independence, and cognitive function.

Table 3. Prevalence of Depression among the Senior School Participants

Characteristic	Geriatric Depression		Total	OR (95% CI)	P value
	No	Yes	N		
Age					
< 68 years old	164	40	204	1,804	**0.018**
≥ 68 years old	125	55	180	1.129 – 2.884	
Gender					
Male	61	18	79	1,144	0.760
Female	228	77	305	0.637 – 2.056	
Work					
No	30	7	37	1,456	0.507
Yes	259	88	347	0.618 – 3.433	
Education					
≥ 9 years	147	46	193	1,103	0.768
< 9 years	142	49	191	0.694 – 1.753	
Living arrangement					
Living together	243	70	313	1,887	**0.035**
Alone	46	25	71	1.083 – 3.286	

The proportion of geriatric depression is more commonly experienced by older people in the age group ≥68 years (30.6%) with a p-value of 0.018. It can be concluded that there is a relationship between age and geriatric depression. This is consistent with the research by Sisi, N, (2019) that as a person's age increases, the risk of depression also increases.

The proportion of elderly women experiencing depression (25.2%) is greater than elderly men. The analysis results show a p-value of 0.760, indicating that there is no relationship between gender and geriatric depression. The prevalence of depression occurs more frequently in women. In theory, women are more prone

to experiencing depression due to unstable female hormones (Mitchell, 2013). This is also because, in this study, the respondent's age starts from 60 years old, perhaps at this time female respondents are in the post-menopausal stage.

Older people who do not work have a higher proportion of experiencing depression (25.9%) compared to older people who work. With a p-value of 0.507, it can be concluded that there is no relationship between occupation and geriatric depression. When older people are no longer able to work, they have a lot of free time which results in a lack of physical activity. This lack of physical activity can lead to feelings of boredom, ultimately resulting in depression (Strawbridge, W.J. 2012).

Depression in older people with less than 9 years of formal education (25.7%) is more common than in those with 9 or more years of formal education. The analysis result of the p-value is 0.768, which means there is no relationship between years of education and geriatric depression. Based on research results and several literature, the researchers can conclude that lack of education may be a factor in the development of depression. Education will influence a person's behavior, someone with a higher education will have more knowledge, making it easier to accept information (Marwiati, 2008).

The proportion of depression in older people who live alone (35.2%) is higher than the depression in older people who live with their families. The result of the p-value analysis is 0.035, which means there is a correlation between living arrangements and geriatric depression. This is because the elderly who live alone tend to feel more lonely. The level of loneliness in older people is closely related to the occurrence of depression in the elderly. (Eliyana, 2017). Older people are more sensitive and easily feel lonely. Loneliness means a mental and emotional state characterized by feelings of isolation and a lack of meaningful relationships with other people (Bruno, 2000:65).

Loneliness can lead to depressive conditions such as loss of appetite, insomnia, sadness, depression, sensitivity, and decreased activity levels. These problems can lead to higher levels of depression, specifically severe depression category, without emotional and social support from close people such as caregivers and nurses as well as from home and close friends, the elderly female will find it difficult to get through these problems to overcome it (Basuki, 2015).

Table 4. Prevalence of Depression in Older People Based on Lifelong Learning and Multi-morbidity

Variable	Geriatric Depression		Total	OR (95% CI)	P value
	No	Yes	N		
Lifelong Learning					
≥ 12 month	163	29	192	2,944	**0.000**
< 12 month	126	66	192	1.795 – 4.828	
Standard 3	84	12	96		
Standard 2	79	17	96		**0.000**
Standard 1	68	28	96		
Pre-school	58	38	96		
Multi-morbidity					
No	121	25	146	2,017	**0.010**
Yes	168	70	238	1.207 – 3.368	
Independence					
Independent	257	72	329	2,566	**0.003**
dependency	32	23	55	1.413 – 4.657	
Cognitive					
Normal	270	87	357	1,307	0.704
Impairment	19	8	27	0.553 – 3.090	

Older people who participate in lifelong learning programs for less than 12 months (34.4%) have a higher proportion of experiencing depression. The analysis results indicate a p-value of 0.000, which means there is a relationship between lifelong learning programs and geriatric depression. The analysis results obtained OR = 2,944, mean that older people who participated in lifelong learning programs for less than 12 months have a 2,944 times higher risk of experiencing depression than older people who participated in lifelong learning programs for more than 12 months. This is in line with the results of the BeLL study, of the 8646 respondents who participated in lifelong learning, 70 to 87% experienced positive changes in learning motivation, social interaction, general well-being, and life satisfaction (Manninen et al., 2014). Lifelong learning has a positive contribution for the elderly, as it can increase motivation, self-efficacy, and self-confidence. The benefits experienced at the individual level also impact social groups, families, work-

places, and other social networks (Manninen et al., 2014).

Participation in lifelong learning programs has an impact on well-being, protection, and mental health recovery, increasing the capacity to cope with potentially stress-inducing situations that can lead to chronic disease and disability. This effect is mediated by the relatively rapid impact on psychosocial quality, namely self-esteem, self-efficacy, life goals and life expectancy, competence, and social integrity (Hummond, C. 2004). So this can strengthen the results of research which shows that senior school can reduce the prevalence of depression.

Lifelong learning is very important in achieving active aging because, besides better health, older people involved in lifelong learning programs are found to have positive experiences in enjoying life, self-confidence, self-satisfaction, and awareness (WHO, 2002).

Many older people in the pre-school group experience depression 39.6%. Depression in the older people in Standard 1 was 29.2%, standard 2 was 17.7% and depression in older people in Standard 3 was 12.5%. Table 4 shows that the longer participants at senior school, have a lower prevalence of geriatric depression.

The prevalence of depression in older people with multi-morbidity (29.4%) is higher than in older people without multi-morbidity. The analysis results indicate a p-value of 0.010, which means there is a relationship between multi-morbidity and geriatric depression. The analysis results indicate an OR = 2.017, which means that older people with multi-morbidity have a 2,017 times higher chance of experiencing depression compared to older people without multi-morbidity. There is a significant relationship between multimorbidity and geriatric depression. This is in line with the research results by Singh, S. (2022) which states that individuals with multi-morbidity are at a higher risk of experiencing depression. However, in the study I conducted, a unique phenomenon was found: multimorbidity is not the dominant factor affecting depression reduction when combined with lifelong learning. According to this, it means that multimorbidity is not a risk factor for depression when participating in lifelong learning.

The proportion of depression in older people with low levels of independence (41.8%) is greater than in independent older people. The analysis results indicate a p-value of 0.003, which means there is a relationship between independence level and geriatric depression. The proportion of depression in older people with decreased cognitive function (29.6%) is higher than in older people with good cognitive function. The analysis results indicate a p-value of 0.704, which means there is no relationship between cognitive function and geriatric depression in senior school participants. This shows that older people with good levels of independence have a good psychological status as evidenced by the GDS scores, most of which fall into the normal category. However, even though there are older people with poor levels of independence it does not necessarily mean they also have poor psychological status, as shown by research results. There were no older people who experienced severe depression.

Table 5. Lifelong Learning Benefits in Reducing Geriatric Depression

Variable	OR	95% CI	P value
Lifelong learning	0.330	0.198 – 0.550	0.001
Age	1,713	1.053 – 2.787	0.026
Gender	1,594	0.859 – 2.958	0.039
Education Level	0.903	0.553 – 1.473	0.050

The analysis results indicate that the most dominant variable or influence in preventing depression among the elderly is the lifelong learning program (p-value = 0.001 and OR 0.330). There is a significant relationship between lifelong learning programs and depression prevention efforts in the elderly ($p<0.05$). The obtained odds ratio is 0.330, which means that the lifelong learning program become a protective factor for depression, after adjustive with age, gender, and education level.

The resulting model demonstrates the significance of the model, as evidenced by the omnibus test p-value ($p<0.001$). Based on the Odds ratio results, it can be concluded that if older people participate in lifelong learning programs become a protective factor for geriatric depression. If the age of older people increases by 1 year, depression decreases by 1.713 times. If the level of education increases by 1 then depression decreases by

0.903 times.

These results offer further evidence that demonstrates how lifelong learning in non-formal settings can contribute to the psychological well-being of older people (Narushima, 2018).

Conclusions and Recommendations

Conclusion

1. There is a relationship between the lifelong learning program, age, living arrangement, level of independence, and multi-morbidity with geriatric depression. However, there was no relationship between gender, education, work, and cognitive function with geriatric depression.
2. The prevalence of depression in older people who have participated in a lifelong learning program for less than 12 months is higher compared to older people who have participated in a lifelong learning program for less than 12 months.
3. The most dominant factors in efforts to prevent depression are lifelong learning programs, living arrangements, level of independence, and multi-morbidity.
4. The lifelong learning program become a protective factor for depression, after adjustive with age, gender and education level. Which means that the lifelong learning program influences efforts to prevent geriatric depression.

Recommendations

1. Elderly

   Senior school participants are expected to continue taking part in lifelong learning programs to prevent depression and older people who have not yet taken part in lifelong learning programs are expected to be able to take part in lifelong learning programs to prevent depression.
2. Elderly Family

   Families with older people are expected to provide more support and attention to older people, especially elderly women, aged over 68 years, older people who live alone, have a low level of independence, and suffer from more than 1 disease (multi-morbidity).
3. Senior School Management Institution

   Senior schools as lifelong learning programs need to facilitate older people who experience depression by providing integrated counseling using a special approach. It is hoped that institutions managing older schools can create a special curriculum about geriatric depression to increase understanding and prevention of geriatric depression.
4. Future Researchers

   There is a need for cohort research that analyzes differences in depression scores in older people before and after participating in a lifelong learning program. Future researchers will replicate this research in different settings so that they can provide a more comprehensive picture that contributes to efforts to prevent geriatric depression.

References

1) Abdullah, S. (2022) Improving Diagnosis of Functional Cognitive Impairment in Younger Adults in Primary Care: Validation of Cognitive Screening Tools and the 4-item Geriatric Depression Scale. PMID: 35253757 DOI: 10.3233/JAD-215552.
2) Aran, M.L.B., Guru, Y.Y., & Ayupir, A. (2019) Hubungan Kesepian dengan Depresi pada Lansia di Seksi Kesejahteraan Sosial Lanjut Usia pada Wau Maumere Kabupaten Sikka. Jurnal Keperawatan dan Kesehatan Masyarakat, VI (1), 70-78.
3) Badan Pusat Statistik. (2022) Statistik Penduduk Lanjut Usia 2022. Jakarta: Badan Pusat Statistik
4) Basuki, W. (2015) Faktor-faktor Penyebab Kesepian terhadap Tingkat Depresi pada Lansia Penghuni Panti Sosial Tresna Werdha Nirwana Puri Kota Samarinda. Psikoborneo.
5) Budson, A. (2017) Memory Loss, Alzheimer's Disease, and Dementia (Second Edition). Elsevier. ISBN: 978-0-323-28661-9.
6) Castelo, M., Coelho-Filho, J., Carvalho, A., Lima, J., Noleto, J., Ribeiro, K., & Siqueira-Neto, J. (2010) Validity of the Brazilian version of the Geriatric Depression Scale (GDS) among primary care patients. International psychogeriatrics, 22(1), 109-113. Doi:10.1017/S1041610209991219
7) Condorena, et al. (2021) Accuracy of the Geriatric Depression Scale (GDS)-4 and GDS-5 for the screening of depression among older adults: A systemaric review and meta-analysis.
8) Devita, et al. (2022) Recognizing Depression in the elderly: Practical Guidence and Challenges for Clinical Management. Neuropsychiatric Disease and Treatment 2022. 19 2867-2880.
9) Direktorat Bina Ketahanan Keluarga dan Lansia Rentan BKKBN. (2021) Panduan Sekolah Lansia di Kelompok BKL. Jakarta: BKKBN
10) Departemen Kesehatan Republik Indonesia. (2012). Profil Kesehatan Indonesia Tahun 2012.
11) Eliyana. (2017) Tingkat Kesepian dengan Depresi pada Lansia di

Dukuh Trayeman, Bantul, Yogyakarta.

12) Greenberg, S. (2023) The Geriatric Depression Scale (GDS). General assessment series. Unterberg Shool of Nursing and Health Studies.

13) Hummond, C. (2004) Impacts of lifelong learning upon Emotional Resilience, Psychological and Mental Health: Fieldwork Evidence. Taylor & Francis, Ltd. Vol. 30 No.4 (Dec., 2004) pp. 5551-568

14) Hummond, C. (2008) The Impact of lifelong learning on Gappiness and Well-being. Institution of Education London

15) ILC-Brazil. (2017) Active ageing: A Policy Framework in Response to the Longevity Revolution. Ageing through Austerity, https://doi.org/10.2307/j.ctt1t89hrb.10

16) Kementerian Kesehatan republic Indonesia. (2019) Kurikulum Pendampingan Lanjut Usia Bagi Caregiver. Pusat Pelatihan SDM Kesehatan, 322.

17) Kementerian Kesehatan Republik Indonesia. (2020) Pedoman Penyelenggaraan Kesehatan Jiwa di Fasilitas Kesehatan Tingkat Pertama. Direktorat Jenderal Pencegahan dan Pengendalian Penyakit. Jakarta

18) Kil, M., Motschilnig, R., & Thone-Geyer, B. (n.d.). What Can Adult Education Accomplish? The Benefits of Adult Learning – The Approach, Measurement and Prospects.

19) Lafont, C. et al. (2021) Diagnostic Performance of the 4-item Geriatric Depression Scale for Depression screening in Older Patents with Cancer: The ELCAPA Cohort Study. Oncologist. 2021 June; 26(6): e983-e991. Doi: 10.1002/onco. 13746

20) Li,Z., Jeon, Y., Low, L., Chenoweth, L., O'Connor, D., Beattie, E., & Brodaty, H. (2015). Validity of the geriatric depression scale and the collateral source version of the geriatric depression scale in nursing homes. International Psychogeriatrics, 27(9), 1495-1504. Doi:10.1017/S1041610215000721

21) Lubis, N.L. (2016) Depresi Tinjauan Psikologis. Jakarta: KENCANA

22) Marwijk, HW. (1995) Evaluation of the feasibility, reliability and diagnostic value of shortened versions of the geriatric depression scale. British Journal of General Practice. 1995. 45, 195-199.

23) Maryam, R. Siti dkk. (2011) Mengenal Usia Lanjut dan Perawatannya. Jakarta: Salemba Medika

24) Manninen, J., Sgier, I., Fleige, M., Thone-geyer, B., Kil, M., Mozina, E., Mallows, D., Duncan, S., Merilainen, M., Diez, J., Sava, S., Javrh, P., Vrecer, N., Mihajlovic, D., Kecap, E., Zappaterra, P., Kprnilow, A., Ebener, R., & Operti, F. (2014) Benefits of lifelong learning in Europe: Main Results of the BeLL-Project Research Report Benefits of lifelong learning in Europe: May.

25) Matyas, N., Keser Aschenberger, F., Wagner, G., Teufer, B., Auer, S., Gisinger, C., Kil, M., Klerings, I., & Gartlehner, G. (2019) Continuing education for the prevention of mild cognitive impairment and Alzheimer's-type dementia: A systematic review and overview of systematic reviews. BMJ Open, 9(7). https://doi.org/10/1136/bmjopen-2018-027719

26) Miller, L.M., Steele, J.S., Wu, C., Kaye, J., Dodge, H. H., Gonzales, M.M., & Lyons, K.S. (2022) Depressive symptoms in older adult couple: Associations with dyadic physical health, social engagement, and close friends.

27) Nugraha, S (2021) Algoritma Penilaian Resiko Jatuh Bagi Lansia di Lingkungan Masyarakat. Universitas Indonesia

28) Permenkes RI. (2016) Peraturan Menteri Kesehatan Republik Indonesia No 25 Tahun 2016

29) Perpres RI (2021) Strategi Nasional Kelanjutusiaan. 1 - 10

30) Prochaska, J. (1997) The transtheoritical Model of Health Behaviour Change. AM J Health Promot

31) Riset Kesehatan dasar (2018)

32) Riyanto, A. (2011) Aplikasi metodologi penelitian kesehatan. Yogyakarta; Nuhamedika.

33) Rohmawati. (2017) Hubungan interaksi social dengan tingkat kesepian dan depresi pada lansia di Balai Pelayanan Sosial Tresna Werdha Unit Budi Luhur Yogyakarta. Thesis (Post-Doctoral). Repository Unjaya

34) Saputri (2011) Hubungan antara Dukungan Sosial dengan Depresi pada Lanjut Usia yang Tinggal di Panti Werdha Wening Wardoyo Jawa Tengah. Jurnal Psikologi Undip

35) Setiawati, T.I. (2020) Hubungan Pekerjaan dan Pendidikan dengan Skor Depresi pada Lansia di Posyandu Lansia Wilayah Kerja Puskesmas Wonorejo Samarinda. Borneo Student Research

36) Sjoberg L. et al. (2017) Prevalence of depression comparisons of different depression definition in population-based samples of older adults. Elsevier. Volume 221, 15 October 2017, pages 123-131. https://pubmed.ncbi.nlm.nih.gov/28645024/

37) Soejono, C.H. (2006) Pedoman pengelolaan kesehatan pasien geriatric: untuk dokter dan perawat. Jakarta: Balai Penerbit FK UI

38) Suardiman, S. (2011) Psikologi Usia Lanjut. Yogyakarta: Gadjah Mada University Press

39) Taylor, Kenneth L, Lichstein, dkk. Epidemiology of insomnia, depression, and anxiety. Sleep Med Rev. 2005;28:1458-64

40) Umamah. (2017) Pengaruh terapi tertawa terhadap skor depresi pada lansia di Panti UPTD Griya Wreda Surabaya. Jurnal Ilmiah Kesehatan

41) Undang-undang No 18 Tahun 2014. Kesehatan Jiwa

42) UNESCO (2014) Never too Late to Complete School. UNESCO Institute for Statistics. http://www.unesco.org/open-access/terms-use-ccbysa-en

43) United Nations (2020)

44) Vohringer. PA. et al. (2013) Detecting Mood Disorder in resource-Limited Primary Care Settings: Comparison of a self-administrated screening tool to general practitioner assessment. J Med Screen. 118-24

45) World Health Organization. (2002). Active ageing: A policy framework. Spain

46) World Health Organization (2012) Depression: a global public health concern

47) World Health Organization (2017) Depression and Other Common Mental Disorder

48) Yoder-Wise, P.S. (2021) Lifelong learning: Part 1. SLACK Incorporated, 52(7), 303. https://doi.org/10.3928/00220124-20210611-01