



SPIRITUAL NEUROSCIENCE IN PSYCHOLOGICAL PROBLEMS OF OLDER PEOPLE

MIERRINA, SITI KHORRIYATUL KHOTIMAH & DITA KURNIA SARI

Universitas Islam Negeri Sunan Ampel-Indonesia

✉ mierrinaduma@gmail.com

Abstract: This research is intended to determine the relationship between spiritual neuroscience and the psychological problems of elderly people. The samples in this study were members of the Majelis Ta'lim and Posyandu for the Elderly, pre-elderly and the elderly with an age range of 55-75 years. Taken using a Purposive Random Sampling technique, a total of 35 mothers were members of the Majelis Ta'lim and 37 mothers at the Elderly Posyandu. This research is research with a quantitative approach, to test correlations or relationships. The aim was to see the relationship between spiritual neuroscience and the psychological problems of elderly people, which was carried out in two communities, namely Majelis Ta'lim and Posyandu for the Elderly. Based on the hypothesis proposed, this research uses statistical analysis techniques of the product moment correlation test. The research results show that there is a correlation coefficient (r) of 1 and -0.654. This figure shows that there is a correlation between Elderly Problems and Spiritual Neuroscience (above 0.5), while the '-' sign indicates that the weaker the elderly's spiritual neuroscience, the higher the psychological problems experienced by the elderly, and vice versa, the stronger the elderly's spiritual neuroscience, the fewer psychological problems experienced by the elderly.

Keywords: Spiritual Neuroscience, Psychological Problems, Elder

Abstrak: Penelitian ini dimaksudkan untuk mengetahui hubungan neurosains spiritual terhadap problema psikologis orang lanjut usia. Sampel pada penelitian ini adalah anggota Majelis Ta'lim dan Posyandu Lansia, pra-lansia dan lansia dengan rentang usia 55-75 tahun. Diambil dengan teknik sampling Purposive Random Sampling, sejumlah 35 ibu anggota Majelis Ta'lim dan 37 ibu Posyandu Lansia. Penelitian ini merupakan penelitian dengan pendekatan kuantitatif, untuk menguji korelasi atau hubungan. Bertujuan untuk melihat hubungan neurosains spiritual terhadap problema psikologis orang lanjut usia, yang dilakukan pada dua komunitas yang yaitu Majelis Ta'lim dan Posyandu Lansia. Berdasarkan hipotesis yang diajukan, maka penelitian ini menggunakan teknik analisis statistik uji korelasi product moment. Hasil penelitian menunjukkan terdapat koefisien korelasi (r) sebesar

1 dan -0,654. Angka tersebut menunjukkan adanya korelasi antara Problema Lansia dan neurosains Spiritual (diatas 0,5), sedang tanda ‘-’ menunjukkan bahwa semakin lemah neurosains spiritual lansia maka semakin tinggi problema psikologis lansia yang dialami, begitupun sebaliknya semakin semakin kuat neurosains spiritual lansia maka semakin sedikit problema psikologis lansia yang dialami.

Kata Kunci: Neurosains Spiritual, Problem Psikologis, Lanjut Usia

A. Introduction

According to WHO or the World Health Organization , the proportion in elderly people is above Age 60 years will increase from 11% in 2006 to 22% world population in 2050 .¹ Apart from that, the Indonesian Ministry of Health's Data and Information Center predicts that the global elderly population will continue to increase as shown in the picture. In Indonesia, the elderly population is predicted to experience a higher increase than the world's elderly population after 2100, which can be seen in Figure 1.²

The more elderly people there are, the more complex the problems that elderly people have to face will be. Examining the facts in Indonesia Regarding elderly people , it is a challenge for elderly people to be able to live their lives. Elderly people who depend on other people or are no longer independent, cannot carry out their own activities, need a caregiver, whose cognition and function are starting to decline, have complex psychosocial problems, and have multiple illnesses. Apart from that, there is also violence against the elderly or *elderly abuse*. For example, parents who are neglected or not taken care of.³

In further analysis, getting old is actually not just about increasing age, but rather a process of losing several main physical and psychological functions. Everyone experiences aging and becoming old. This is included in the developmental tasks that each individual goes through. The development of old age is closely related to the task of developing commitment moral. At this time, it is hoped that humans will draw closer to God, commit themselves to the struggle for life both physically, psychologically and economically. This aims to ensure that elderly people are not static and can remain productive , so that they are more confident psychologically, have relatively stable self-esteem , so that they will be able to balance their psychology .⁴

Physiological decline and the psychological or mental decline that accompanies elderly people are related to the slowing down of the process of regeneration of body cells, which are nerve cells or neurons found in the elderly. Therefore, it can be said that the decline in the abilities of elderly people is closely related to neuroscience. In subsequent developments, research from neuroscience has expanded into the domain of religion or

¹ Warburton, DER; Nicol, CW; Bredin, SSD “Health benefits of physical activity: The evidence, in *CMAJ* 2006, 174, 801–809.

² <http://www.depkes.go.id/resources/downloadpusdatininfodatininfodatin%20lansia%202016.pdf> , accessed 31 July 2019.

³ Challenges Faced by the Elderly in Indonesia . in <https://www.cnnindonesia.com/gaya-live/20190709091033-255-410379/tantangan-yang-dihadapi-lansia-di-indonesia>

⁴ Johana E. Prawitasari. “Aspek Sosio-Psikologis Lansia di Indonesia”. *Buletin Psikologi*. Volume 1, No: 1, 1994, Hal: 27- 34.



spirituality. The presence of spirituality is associated with reduced physical, mental complaints or other addiction disorders through improving the quality of life of elderly people. Elderly people who have a good spiritual and religious life have good coping skills and will be able to adapt to physical changes.⁵

Excessive activity in the prefrontal brain in the elderly suggests that they utilize additional "executive" resources to support short-term memory maintenance. As cognitive demands increase, older people tend to experience difficulty in remembering or accessing information stored in their memory, which is known as underactivation patterns in the working patterns of the nervous system⁶.

In elderly people there is a decrease in the working pattern of the nervous system which allows cognitive changes to occur, which include a decreased ability to improve intellectual function, decreased efficiency of the brain's nerve transmission (resulting in a slowdown in information processing and loss of a lot of information during transmission), reduced ability to accumulate information new, and difficulty retrieving information from memory. Additionally, the ability to remember past events is usually better than the ability to remember events that have recently occurred⁷.

The human brain consists of around 100 billion nerve cells, called neurons, with complex functions as the control center for all human activities. Neurons or the nervous system also consider the relationship between humans and God. Health refers to a healthy state in physical, mental, spiritual and social terms, enabling each individual to live productively in a social and economic context. The spiritual dimension is the core of human health and well-being, including all aspects related to the spirit or soul⁸. In this case, elderly people generally do activities that lead to spirituality to get closer to God.

Starting from the description above, it is necessary to examine the connection or relationship between the spiritual neuroscience of elderly people and their psychological problems. Therefore, in the end, this research can describe a spiritual neuroscience model for psychological problems that occur in elderly people, especially so that we can find out how elderly people deal with their problems.

Elderly People and Their Psychological Problems

The final stage of development that occurs in elderly people can be seen by a person's failure to maintain a healthy balance and physiological stress conditions. Decreased ability to live and individual sensitivity are also related to old age. Several experts define the definition of elderly as follows: (1) According to Smith (1999): Elderly are divided into three groups, namely: young old (65-74 years); middle old (75-84 years); and old old (more than 85 years); (2) According to Setyonegoro: Elderly people are people over 65 years old. Further divided

⁵ Neal Krause, Kenneth I. Pargament, Peter C. Hill and Gail Ironson. "Exploring religious and/or spiritual identities: part 2 – a descriptive analysis of those who are at risk for health problems". *Mental Health, Religion & Culture*, 2019, VOL. 22, NO. 9, 892–909 <https://doi.org/10.1080/13674676.2019.1709962>.

⁶ Reuter-Lorenz, P.A., & Park, D.C. "Human neuroscience and the aging mind: a new look at old problems", dalam *Journal of Gerontology: Psychological Sciences*, 2010, 65B(4), 405–415, doi:10.1093/geronb/gbq035.

⁷A. Laksmidewi. "Cognitive Changes Associated With Normal Aging" in *The 4th Bali Neurology Update, Neurology in the elderly*, Denpasar 22-24 July 2016.

⁸Rezky A. Yastab, Taufiq Pasiak, & Sunny Wangko. "The Relationship between Brain Performance and Human Spirituality Measured Using the Indonesia Spiritual Health Assessment for Religious Leaders in Central Halmahera Regency", in the *e-Biomedic Journal (eBM)*, Volume 2, Number 2, July 2014, 419-425.



into 70-75 years (young old); 75-80 years (old); and more than 80 years (very old); (3) Elderly According to Law no. 13 of 1998: Elderly is someone aged 60 years and over; (4) According to WHO: Elderly people are men and women aged 60-74 years; (5) According to Sumiati AM: A person can be said to be elderly if they are 65 years or older.

Based on longitudinal studies of psychological aging, there are 4 (four) individual classification patterns in the aging process (Schaie & Hofer, 2001; Schaie, 2008) ⁹, namely:

1. Elderly people who have reached a relatively high level of cognitive function, even though they become physically weak, will remain independent until they approach death.
2. Elderly people who can only achieve a modest trend in cognitive development, but on the other hand are accompanied by the aging process, they need to receive greater support and are more likely to experience a period of institutional care.
3. Elderly people can experience cognitive decline on a scale greater than the norm. They will show memory loss or possible dementia.
4. Elderly people diagnosed with dementia.

Many people feel worried and afraid to face life in old age. This worry is a problem in itself for every elderly person which sometimes arises because of the emotional tension that increases in old age along with several changes that occur with age as a characteristic of someone entering old age. Problems or problems found in elderly people are seen as a result of the changes they experience that accompany the aging process as well as reactions to these changes and also vary depending on the personality of the individual concerned.

Increased emotional tendencies make them experience these changes as a problem, which ultimately results in several mental health disorders such as anxiety and fear of facing them. In general, Mc Ghie (1996) ¹⁰, there are several forms of problems in old age, namely:

- a. The problem of work is that with their powers slowing down, elderly people feel they are not needed in their work and are not appreciated.
- b. The problem of interest, in trying new things, elderly people are quicker to feel apathetic and bored.
- c. Isolation and loneliness, declining intellectual quality make it difficult for elderly people to be able to position themselves in a way of thinking and style new from the younger generation. The stretching of family ties and the family's indifference towards the elderly means that they are forced to live alone in nursing homes.
- d. Disinhibition, the older a person gets The less they have the ability to control their feelings and the less they can restrain themselves in doing things, so they easily get emotional and even get angry over small things.
- e. Mood changes are caused by physiological changes in the brain and nervous system that occur in elderly people is one of the causes of changes in mood and changes in several aspects of behavior.

⁹ Warner Schaie and Sherry L. Willis K. Warner Schaie. "Handbook of The Psychology or Aging. Theoretical Perspectives for the Psychology of Aging in a Lifespan Context". (Elsevier Inc., 2016).

¹⁰ Mc Ghie, A. *Application of Psychology in Nursing*. Translated by Ika Pattinasarany. (Yogyakarta: Andi Offset, 1996).



- f. The role of faith, namely fear in looking at the end of the world, even though it is a time when religious awareness must be increased, not all of them feel peaceful and have psychological readiness.

Spiritual Neuroscience

Neuroscience is a science of the future, which studies how the brain works, aiming to explain human behavior from the perspective of the activities that occur in the brain. Neuroscience studies consciousness and brain sensitivity from the perspective of biology, perception, memory, and also its relationship to learning. Neuroscience has a connection between cognitive processes located in the brain and physical human behavioral processes.¹¹The study of the brain is a basis for understanding how we feel, interact with the outside world and especially what humans experience and how humans can influence others.¹²

The last decade has seen the emergence of a neuroscience of spirituality. Spiritual neuroscience research has the main aim of using neuroscientific methods (for example, brain imaging, stimulation, psychopharmacology, and electrophysiological recording) in exploring the neural mechanisms that support a religious/spiritual/mystical experience which is related to activity in areas of the brain. During meditation, religious rituals, prayer, and other spiritual practices (see Azari, 2006; McNa mara, 2009; McNamara & Butler, 2013; Paloutzian, Swenson, & McNa mara, 2006; Wildman, 2011). Supporters of this approach say that the roots of religion are related to a nervous system.¹³

of spiritual neuroscience concerns, for example, meditation, prayer, forgiveness, love, hope, rituals and myths, all of which are seen from the brain's point of view ("what happens in the brain because of these events") and the implications they cause (holistic health effects of spirituality, the anti will be referred to as *Spiritual Health*). Spiritual neuroscience focuses on the internalization of certain values, and then the externalization of these values into a life with a health dimension. N spiritual euroscience in more detail is a combination of three approaches (main pillars): (1) *neuroscience*, neurospiritual operators and neuroplasticity; (2) *hierarchy of mind*; and (3) *experience of God* or "experienced God".¹⁴

In measuring neural mechanisms in the dimension of spirituality, measurements are needed on spiritual behavior and neurospiritual mechanisms. The description of the indicators in the behavioral dimension of spirituality is as follows:

1. Meaning of Life, with indicators of helping spontaneously, keeping promises, forgiving (self and others), behaving honestly, being an example for others, prioritizing harmony and togetherness.
2. Positive Emotions, with indicators of being happy with other people's lives, enjoying with the awareness that everything was created for a specific purpose/taking lessons from it.
3. Spiritual Experience, with indicators of feeling closeness to the universe, finding God in every event, feeling God's presence in everyday life, feeling God's rebuke when you make a

¹¹ Schneider, Harry D. *Neuroscience*. (on line). 2011. (<http://www.harrydschneidermd.com/html/neuroscience.html> (accessed January 10, 2018))

¹² Butler, et al. Kalodner, 2007.pdf. 2006 (accessed 10 January 2018)

¹³Raymond F. Paloutzian. "Invitation to the PSYCHOLOGY OF RELIGION". (New York: The Guilford Press, 2017).

¹⁴Taufiq Pasiak. " *God in the Human Brain-Realizing Spiritual Health Based on Neuroscience*". (Bandung: Mizan Publishers, 2012).



mistake, feeling a special impression in every event through friendship with the universe, and experiencing a feeling of being one with God.

4. Rituals, with indicators of praying, saying prayers, visiting places of worship, giving alms, being actively involved in religious communities.¹⁵

Furthermore, based on BSA (*Brain System Assessment*), indicators related to brain system mechanisms or neuroscience aspects are as follows:

- a. Prefrontal Cortex, with indicators of impulsivity, short attention span , low planning and self-regulation, tends to conflict, and tends to make mistakes.
- b. Limbic System, with indicators of mood swings, low motivation, sensitivity , negative thoughts and feelings.
- c. Basal ganglia, with indicators of motor problems , worry-anxiety - panic, excessive and slow, and obsessive-compulsive tendencies.
- d. Gyrus Cingulatus, with indicators of flexibility in thinking, friendliness (*respect*), and attachment.
- e. Temporal Lobe, with indicators of paranoid tendencies, hallucinatory tendencies, emotional regulation.

Furthermore, based on the results of studies of various theories and research results, the hypothesis in this research is: There is a relationship between spiritual neuroscience and the psychological problems of elderly people.

B. Method

This research method uses a quantitative approach. The quantitative approach is a research method based on the philosophy of positivism, this approach is used in researching a certain population or sample, sampling is generally carried out randomly. The data collection technique used in this research is through research instruments, quantitative or statistical data analysis. has the aim of testing a predetermined hypothesis. ¹⁶The research was carried out using the Product Moment correlation test, to test the relationship between the two variables, namely spiritual neuroscience and the psychological problems of elderly people.

The population in this study were elderly members of the Majelis Ta'lim An Nurriyah Deltasari Sidoarjo Housing and the Bougenville Griyo Mapan Santoso Sidoarjo Elderly Posyandu. Next, using the sampling technique used was *Purposive Random Sampling*, a sample of 35 elderly people from Majelis Ta'lim An Nurriyah and 37 elderly people from Posyandu Lansia Bougenville were found. From the samples that have been obtained, data is then

¹⁵Taufiq Pasiak. " *God in the Human Brain-Realizing Spiritual Health Based on Neuroscience*". (Bandung: Mizan Publishers, 2012).

¹⁶Sugiyono. " *Research Methods - Quantitative, Qualitative and R&D*". (Bandung: Alfabeta, 2016).

extracted using 2 (two) questionnaires, namely a questionnaire about the Psychological Problems of elderly people and a questionnaire about Spiritual Neuroscience.

Researchers developed a tool for measuring the psychological problems of the elderly with a total of 15 items, with indicators for 6 aspects of psychological problems, namely: (a) Work problems, (b) Interest problems, (c) Isolation and loneliness, (d) Disinhibition, (e) Changes in mood, and (f) The role of faith. Also a spiritual neuroscience measuring tool with a total of 43 items, which is a combination of spiritual dimensions which include (a) the meaning of life; (b) positive emotions; (c) spiritual experience; and (d) ritual; with the working mechanism of the brain as an aspect of neuroscience which includes the working system of (a) Prefrontal Cortex; (b) Limbic System; (c) Basal Ganglia; (d) Cingulatus Gyrus; and (e) Temporal Lobe.

C. Results and Discussion

The results of this research show that there is something $r = -0.654$. This figure shows that there is a correlation between Elderly Problems and Spiritual Neuroscience (above 0.5), while the '-' sign indicates that the weaker spiritual neuroscience of the elderly, the higher the psychological problems experienced by the elderly, and vice versa, the stronger they become spiritual neuroscience of the elderly, the fewer psychological problems the elderly experience.

This research also shows that there are differences in spiritual neuroscience and psychological problems of the elderly between the An Nurriyah majlis ta'lim group and the Bougeville elderly posyandu. Using the Wilcoxon Signed Ranks test on the psychological problems of the elderly, it shows that a z value of -5.189 and an *Asymp. Sig. (2-tailed)* is 0.000, then $0.005/2 = 0.0025$. Because the value of *Asymp. Sig. (2-tailed)* < real level ($\alpha/2 = 0.05$), then this means that there are differences in the level of problems experienced by majlis ta'lim members and elderly posyandu members. Thus, it can be concluded that the level of psychological problems among elderly posyandu members is higher than that of majlis ta'lim members.

Likewise, the Wilcoxon Signed Ranks test on spiritual neuroscience shows a z value of -5.154 and an *Asymp. Sig. (2-tailed)* is 0.000, then $0.005/2 = 0.0025$. Because the value of *Asymp. Sig. (2-tailed)* < real level ($\alpha/2 = 0.05$), then this means that there is a difference in the level of spiritual neuroscience between majlis ta'lim members and elderly posyandu members. Thus it can be concluded that the level of spiritual neuroscience of majlis ta'lim members is higher than that of elderly posyandu members.

The findings above show that the level of a person's spiritual neuroscience related to the dimensions of meaning in life, positive emotions, spiritual experiences and rituals will definitely be different for each individual. Apart from that, in the neurospiritual aspect of a person which involves the performance of the prefrontal cortex, limbic system, basal ganglia, cingulate gyrus and temporal lobe, although functionally the executives are actually relatively the same, the level of disturbance that appears in each individual or elderly person will definitely be different from one another. This is closely related to the dimensions of spiritual behavior of elderly people which vary from one person to another, as a result of life experiences throughout their life span. This also includes their

interpretation of the values of the life they have lived, as well as their self-acceptance related to their emotional reactions to the physical changes or setbacks they experience.

This research also shows that the level of involvement of elderly people in religious communities has a positive influence on reducing neurospiritual disorders, or in other words, the involvement of elderly people in religious activities and communities will increase their spiritual neuroscience aspects, which include dimensions of spiritual behavior and neurospiritual aspects. they. In the research, it was found that majlis ta'lim members had a higher level of spiritual neuroscience than elderly posyandu members. Likewise, the psychological problems experienced by elderly people show that the level of psychological problems experienced by elderly posyandu members is higher than that of majlis ta'lim members.

This shows that the involvement of elderly people in religious institutions allows them to get used to and interpret transcendence to God through spiritual experiences and rituals carried out with members of the majlis ta'lim, in a routine and structured manner. This is what differentiates it from the psychological condition felt by elderly posyandu members, in this case they are not structured in an activity that leads to transcendence to God, and they are more filled with anxiety about the physical illness they suffer.

D. Conclusion

The findings in this research indicate that the involvement of elderly people in religious institutions allows them to get used to and interpret transcendence to God through spiritual experiences and rituals carried out with members of the majlis ta'lim, regularly and in a structured manner. Which then also differentiates it from the psychological conditions felt by elderly posyandu members, in this case they are not structured in activities that lead to transcendence to God, and they are more filled with anxiety about the physical illness they suffer.

Due to the findings in the research which shows a correlation coefficient in the medium category ($r = -0.654$), although the relationship between the two variables shows that there is a relationship, it also indicates that the psychological problems of the elderly are not completely influenced by spiritual neuroscience, but are also influenced by the complexity of factors. other internal organs in elderly people.

Family factors are also very important factors for elderly people in building meaning in life, positive emotions, spiritual experiences and rituals. When family factors in a person's life provide positive things related to these four dimensions, of course there is relatively little chance of causing psychological problems for elderly people. The absence of stressful conditions felt by elderly people has implications for minimizing disturbances in the neurospiritual system in the brain, which means family conditions or factors that function as a support system for elderly people, allowing them to experience fewer problems. psychological. On the other hand, if family factors do not function as a support system or support for elderly people, it is possible for them to feel depressed, which has implications for the emergence of disorders in their neurospiritual system, which will have an impact on increasing psychological problems felt by elderly people.

This research still has several limitations, because it only involved samples of female gender, namely mothers who were members of the majlis ta'lim and mothers who were members of the elderly posyandu. So that there is a relationship between the two spiritual neuroscience variables and the psychological problems of elderly people, which analyzes the differences that emerge between the two populations. It would be better for the next study to have a wider population involving male samples. Apart from that, the aspect of variations in religious beliefs needs to be widened further, not only for members of the majlis ta'lim, or in other words, not only for samples who are Muslim, but widened to samples with religions other than Islam.

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