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Use of A Web-Based Application For Monitoring Changes in Elderly Knowledge on Oral Health Maintenance

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ABSTRACT

The results of the Basic Health Research (2018) stated that the Indonesian population with oral problems aged 55-64 years was 61.9% and aged> 65 years was 54.2%. Some changes in teeth and oral cavity that are often found in the elderly are tooth loss which results in impaired food digestion, pain / pain in the teeth due to periodontal tissue and root caries, reduced vertical dimensions of artificial teeth, gingivitis and various other abnormalities. It is hoped that after being given oral health education through an innovation program in the form of a stroke elderly companion link or what is called "LIPSIAS" can increase the knowledge of stroke elderly on how to maintain their oral health through the help of a companion so that it can have a good influence on their dental hygiene. Research Objectives: Producing a dental and oral health maintenance program through empowering elderly companions in the form of the LIPSIAS Application as a medium for promoting oral health in the Elderly Social Service Home. Using Quantitative methods with pre-experiment research design (one group pretest and posttest design). The sampling technique was purposive sampling consisting of 14 elderly stroke at the Elderly Social Services Home. Results: The results of the statistical test showed P value <0.05, meaning that there was a significant difference in the knowledge of dental and oral health maintenance of stroke elderly before and after being given the LIPSIAS application intervention. Before treatment, the average value of knowledge of stroke elderly was 4.07 (poor category) increased to 8 (good category). The LIPSIAS application is effective in increasing the knowledge of stroke elderly about how to maintain oral health through companion assistance.
Keywords: Elderly, Stroke, Dental health maintenance knowledge

Introduction

Health is a state of good physical, mental, spiritual, and social health that allows everyone to live a productive life socially, and economically [1]. Elderly (elderly) any individual aged 60 years or more physically looks different from other age groups and is vulnerable to stroke [2].

Problems in stroke patients not only cause death but also stroke is the main cause of disability which results in decreased motor skills and causes stroke patients to experience limitations in moving their bodies so that stroke patients have difficulty in carrying out activity daily living (ADL) [3]. One of them is limitations in oral hygiene care. With the limitations possessed by stroke patients, they become dependent on the family so that in performing oral hygiene care requires assistance from the family on an ongoing basis so that gradually stroke patients can still perform oral hygiene care[4].

The results of the Basic Health Research (2018) stated that the Indonesian population with oral problems aged 55-64 years was 61.9% and

aged >65 years was 54.2%. In Central Java province there are 56.7% of the population who experience dental and oral problems [5]. Dental problems that often occur in Indonesia are cavities, missing or extracted teeth, filled teeth, and loose teeth [6]. The age group 55-64 years who experienced cavities amounted to 48.5%, missing or extracted teeth amounted to 29%, patched teeth amounted to 4.2%, and unsteady teeth amounted to 15.9%, and age >65 years who experienced cavities amounted to 38.6%, missing or extracted teeth amounted to 30.6%, patched teeth amounted to 3.1%, and unsteady teeth amounted to 15.5% [7].

The elderly often neglect oral hygiene and often complain of dental pain such as loose teeth, cavities or swollen gums. Elderly knowledge about oral health is one of the important factors affecting oral hygiene and health [8]. Some changes in teeth and oral cavity that are often found in the elderly are tooth loss which results in impaired food digestion, pain / pain in the teeth due to periodontal tissue and root caries, reduced vertical dimensions of artificial teeth, gingivitis and various other abnormalities [7].

The enhancement of knowledge can be achieved through counseling, where counseling activities involve a two-way communication process between the communicator (counselor) and the communicant within an interaction. To achieve the goal of increasing knowledge and changing behavior, it is essential to choose an appropriate counseling method [9].

An effort is needed to address the existing problem, namely improving knowledge about dental and oral health maintenance, which can be achieved through dental and oral health education with the help of an assistant. Dental and oral health education is a planned and directed effort to create an environment where individuals or groups in the community are willing to change old behaviors that are less beneficial for their dental health into more beneficial ones [10]. The goal of dental and oral health education is to bring about behavioral changes, including knowledge, attitudes, and actions that promote a healthy lifestyle[11].

It is hoped that after providing dental and oral health education through an innovative program in the form of a companion link for elderly stroke patients, known as "LIPSIAS," the knowledge of elderly stroke patients on how to maintain their dental and oral health will improve, thereby positively impacting their dental hygiene.

Methods

The method used in this study is a quantitative approach with a pre-experimental research design (one-group pretest and posttest design). The sampling technique is purposive sampling, consisting of 14 elderly stroke patients at the Social Service Center.

The implementation of the activity went through several stages, namely:
a. Preparation Stage
   Selection of population and samples, preparation of research tools and materials such as research instruments, licensing, and division of duties of the research team.
b. Implementation Stage
   1) Training for elderly companions in the use of the LIPSIAS application
   2) Initial data collection of elderly stroke knowledge Retrieval
c. Evaluation Stage
   Taking the final data on the knowledge of Stroke Elderly related to how to maintain their dental health.

Results and Discussion

Tabel 1
Data on the characteristics of elderly stroke

Variable		N	%
Gender	Male	8	57,1
	Female	6	42,9
	Total	14	100

Tabel 2
Normality test of data score of knowledge of oral health maintenance of stroke elderly people

Variable		P-*value*
Pretest	0,048	0,048
Postest	0,002	0,002

Tabel 3
Results of the test for the difference in oral health knowledge before and after the LIPSIAS application intervention

Knowledge	N	Mean	P-value
Pre test	14	4,07	0,001
Post test	13	8	

The study conducted at the Potroyudan Elderly Social Service Center from October 23 to 30, 2023, used the LIPSIAS "Elderly Stroke Companion Link" website-based application as an aid to provide dental and oral health education to elderly stroke patients. During the implementation, the following data were obtained:

Table 1 shows the frequency distribution data of the characteristics of research subjects who are male by 57.1% (8 people) and female by 42.9% (6 people).

Based on table 2 shows the results of the normality test of pretest and posttest data on knowledge of oral health maintenance in stroke elderly obtained p value <0.05, meaning that the data is not normally distributed so that the effectiveness test is analyzed using non-parametric tests.

Table 3 shows that the test results using the Wilcoxon test obtained a p-value of 0.001 ($p < 0.05$) so it can be concluded that there is a significant difference in the knowledge of dental and oral health maintenance of stroke elderly before and after being given the LIPSIAS application intervention. Before treatment, the average value of knowledge of stroke elderly was 4.07 which was included in the "less" category increased to 8 which was included in the "good" category

Research activities were carried out at the Potroyudan Jepara Elderly Social Service Home on October 23-27, 2023 with empowerment activities for stroke elderly companions using the LIPSIAS application as an effort to increase companion knowledge on how to maintain oral health of stroke elderly.

Given the magnitude of the influence of behavior on the degree of oral health, a special approach is needed in shaping positive behavior towards dental health [12]. A positive attitude will affect the intention to participate in activities related to this and one's attitude is closely related to the knowledge he receives, especially dental health [13]. Knowledge is the basis for the formation of a behavior. A person is said to lack knowledge if he is unable to recognize and explain and analyze a situation. If the level of knowledge is higher, dental health attention will be high and vice versa, if knowledge is lacking dental care attention is also low [14].

Based on the results of interviews with the Head of the Potroyudan Jepara Elderly Social Home in the problem identification process on October 03, 2023, it was concluded that the low knowledge of Stroke Elderly towards maintaining their dental health and the absence of a routine oral health program at PPSLU Potroyudan Jepara. In accordance with the existing problems, the LIPSIAS Program was created in the form of empowering assistants by conducting training for assistants so that they can provide education or counseling on how to maintain oral health such as brushing teeth, the right time to brush teeth, good and bad foods for elderly dental health using the LIPSIAS application which can be accessed via QR barcode scans.

Naturally, humans will experience the aging process, which is a decline in physiological and cognitive functions that can result in the vulnerability of individuals to various health problems [15]. However, not all changes in tissues, organs and systems are considered physiological. There are many factors that influence changes that are not part of aging in general [16]. There are several physiological changes caused by aging and can cause disorders, including vision, hearing, body temperature regulation, skin, cardiovascular system, respiratory system, digestive system, genitourinary system, nervous system, and oral health. The oral health condition of the elderly is generally poor with an increase in tooth decay, gum disease, and tooth loss [17].

Improving oral health through effective early treatment can prevent gum disease and improve quality of life in old age [18]. The oral health status of the elderly will be better along with good knowledge, attitudes, and behavior towards maintaining oral hygiene [19]. Preventive measures for oral and dental diseases such as promotive efforts need to be given to the elderly. The intended promotive effort is to increase knowledge about oral health in the elderly through counseling. This is because one of the important

factors affecting oral health in the elderly is knowledge about oral health [4].

In elderly stroke patients who experience decreased mobility function, it can hinder daily activities so that stroke patients who have a level of dependence on Activity daily living (ADL) have an effect on oral hygiene care, because if oral hygiene care is carried out with the help of a companion, it will help patients to be able to perform oral hygiene care which will prevent other dental and oral diseases [20].

Conclusion

The cause of the problem of low dental health status in the elderly is due to low knowledge of how to maintain oral health and oral health, causing a decrease in oral cavity function in the form of chewing ability and swallowing ability. With the LIPSIAS innovation, there was an increase in the knowledge of the elderly from the criteria of 4.07 to 8.00, this proves that the LIPSIAS application is effective in increasing the knowledge of stroke elderly people about how to maintain oral health accompanied by a companion.

For policy makers, the Potroyudan Elderly Social Service Home is expected to be able to utilize the LIPSIAS application as a guide in conducting oral health promotion in stroke elderly.

References

[1] S. D. Krisna Triyono and Y. K. Herdiyanto, "Konsep Sehat Dan Sakit Pada Individu Dengan Urolithiasis (Kencing Batu) Di Kabupaten Klungkung, Bali," *J. Psikol. Udayana*, vol. 4, no. 02, p. 263, 2018, doi: 10.24843/jpu.2017.v04.i02.p04.

[2] D. R. Prima, A. A. Safirha, S. Nuraini, and N. Maghfiroh, "Pemenuhan Kebutuhan Lansia Terhadap Kualitas Hidup Lansia Di Kelurahan Grogol Jakarta Barat," *J. Kebidanan*, vol. 8, no. 1, pp. 1–7, 2019, doi: 10.35890/jkdh.v8i1.115.

[3] D. Widyastuti and Ayu, "Tingkat Ketergantungan Lansia Berdasarkan Usia Dan Jenis Kelamin Di Panti Sosial Trsena Werda Nirwana Puri Samarinda," *Borneo Nurs. J.*, vol. 1, no. 1, pp. 1–15, 2019, [Online]. Available: https://akperyarsismd.e-journal.id/BNJ

[4] I. Susanti, Anang, and E. Kamelia, "Pengaruh Asuhan Kesehatan Gigi Dan Mulut TerhadapPengetahuan Keluarga Dan Oral Hygiene Pasien StrokeDi Ruang Rawat Inap," *JDHT J. Dent. Hyg. Ther.*, vol. 5, no. 1, pp. 32–38, 2024, doi: 10.36082/jdht.v5i1.1512.

[5] Kementerian Kesehatan Republik Indonesia, *Laporan Nasional Riskesdas 2018*. Jakarta: Badan Penelitian dan Pengembangan Kesehatan, 2019.

[6] N. E. Satuti, L. Aidannahar, Jumiati, Sukini, and N. Chibtiyah, "Promosi Kesehatan Gigi dan Mulut Lansia Melalui Aplikasi Asuhan Kesehatan Gigi dan Mulut," *J. Pengabdi. Masy. Kesehat. Gigi*, vol. 1, no. April, pp. 14–16, 2023.

[7] M. Sari and N. F. Jannah, "Gambaran Pengetahuan Kesehatan Gigi Mulut, Perilaku Kesehatan Gigi Mulut, dan Status Gigi Lansia di Panti Wreda Surakarta," *J. Surya Masy.*, vol. 3, no. 2, p. 86, 2021, doi: 10.26714/jsm.3.2.2021.86-94.

[8] N. Wayan Yuditami, N. Wayan Arini, I. Nyoman Wirata, M. JKG Poltekkes Denpasar, and D. JKG Poltekkes Denpasar, "Hubungan Pengetahuan Tentang Pemeliharaan Kesehatan Gigi dan Mulut dengan Jumlah Gigi yang Berfungsi pada Lanjut Usia di Panti Pelayanan Lanjut Usia Wana Seraya Biaung Denpasar," *J. Kesehat. Gigi*, vol. 3, no. 2, p. 70, 2015, doi: https://doi.org/10.33992/jkg.v3i2.521.

[9] D. I. Prayogo, A. Widyasari, N. Azizah, and F. Munaya, "Penyuluhan Kesehatan tentang Perilaku Hidup Bersih," *Semin. Nas. Pengabdi. Masy. LP UMJ*, pp. 1–7, 2022, [Online]. Available: https://jurnal.umj.ac.id/index.php/semnaskat/article/download/14517/7598

[10] S. Sukarsih, A. Silfia, and A. Asio, "Edukasi Pemeliharaan Kesehatan Gigi Dan Mulut Pada Murid Sekolah Dasar," *J. BINAKES*, vol. 2, no. 2, pp. 60–69, 2022, doi: 10.35910/binakes.v2i2.555.

[11] J. P. Kesehatan *et al.*, "Screening Candida Albicans Penyebab Kandidiasis Oral Dan Edukasi Oral Hygiene Pada Lansia di Panti Sosial Tresna Werha Wana Seraya Bali," *J. Pengabdi. Kesehat.*, vol. 3, no. 1, pp. 28–40, 2020.

[12] S. Sulistiani, S. Wahyudi, and W.- Nurwanti, "Senam Wajah Terhadap Kecepatan Aliran Saliva Pada Lansia Sebagai Upaya Pencegahan Xerostomia," *JDHT J. Dent. Hyg. Ther.*, vol. 2, no. 2, pp. 58–61, 2021, doi: 10.36082/jdht.v2i2.337.

[13] L. Prihastari, P. M. Siregar, R. I. Nur, S.

Mentari, and Z. Taftyanti, "Survey Epidemiologi: Hubungan Antara Perilaku Kesehatan Gigi Mulut Dengan Indeks Dmf-T Lansia Usia 45-65 Tahun Di Kecamatan Kronjo, Kabupaten Tanggerang," *ODONTO Dent. J.*, vol. 4, no. 2, p. 101, 2017, doi: 10.30659/odj.4.2.101-107.

[14] D. Sari, Sandra, Y. M. D. Arina, and T. Ermawati, "Hubungan Pengetahuan Kesehatan Gigi Mulut Dengan Status Kebersihan Rongga Mulut Pada Lansia," *J. IKESMAS*, vol. 11, no. 1, pp. 44–51, 2015.

[15] A. P. L. Girsang, R. Sulistyowati, and N. P. Sulistyowati, *Statistik Penduduk Lanjut Usia 2022*. Jakarta: Badan Pusat Statistik, 2022.

[16] C. López-Otín, M. A. Blasco, L. Partridge, M. Serrano, and G. Kroemer, "The Hallmarks of Aging," *Cell*, vol. 153, no. 6, pp. 1194–1217, 2013, doi: 10.1016/j.cell.2013.05.039.

[17] J. A. Gil-Montoya, A. L. F. de Mello, R. Barrios, M. A. Gonzalez-Moles, and M. Bravo, "Oral health in the elderly patient and its impact on general well-being: A nonsystematic review," *Clin. Interv. Aging*, vol. 10, pp. 461–467, 2015, doi: 10.2147/CIA.S54630.

[18] Ö. Gokturk and F. U. Yarkac, "Oral health-related quality of life in elderly and young patients with periodontal diseases," *Acta Odontol. Turc.*, vol. 38, no. 2, pp. 28–34, 2021, doi: 10.17214/gaziaot.777153.

[19] N. J. Aritonang, Y. L. Siahaan, S. Restuning, T. Sirait, and I. Supriyanto, "Gambaran Gigi Yang Berjejal Dan Gigi Tidak Berjejal Terhadap Karang Gigi Pada Siswa Kelas Iv Dan V Sekolah Dasar," *Dent. Ther. J.*, vol. 4, no. 1, pp. 10–15, 2022, doi: 10.31965/dtj.v4i1.725.

[20] S. Cahyani, P. Azali, and M. Listrikawati, "Gambaran Kebersihan Mulut pada Pasien Stroke di Wilayah Kerja Puskesmas Teras Boyolali," vol. 88, pp. 1–15, 2023.