

# Implementation relationship of occupational activity based on Balinese culture towards increasing elderly cognitive

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**ABSTRACT**---The purpose of this study was to know the relationship of Balinese culture-based occupational therapy to cognitive improvement in the elderly in Gianyar Regency 2019. Cognitive defined as what was known and thought by someone. It was classically interpreted as a high-level mental process. It makes humans aware of objects then able to remember them, make classifications, concepts, symbols, and solve problems in response to objects, or stimuli. This type of research was a randomized pretest and posttest control group design. It used a multistage random method with 215 samples. Data analysis techniques used univariate and chi-square analysis. Univariate was used to determine the distribution of the observed variables. Chi-Square was used to determine the therapeutic relationship of each occupational activity to cognitive changes. The results showed the variable of cultural activity had a relationship to the prevention of dementia was only dancing and sewing with constants values, respectively 2,027 and 2,266. Whereas, Constanta of all other variables was - 5,344. Based on these results the elderly are expected to continue to practice based on hobbies. Therefore, the process of the cognitive decrease can be reduced.

**Keywords**---Balinese culture, cognitive, elderly, hobby, therapeutic.

## I INTRODUCTION

Most of the elderly experience cognitive decrease is as a result of increasing age (one's ability to recognize and interpret one's environment in the form of attention, language, memory, visuospatial, and deciding functions), among others, memory and intelligence (Santoso& Ismail, 2009; Notoatmodjo, 2010; Nugroho, 2009; Pasiak, 2009). Symptoms of cognitive impairment, for example, forgetfulness, disorientation, loss of language and numeracy skills, and poor judgment are not normal aging processes. They must be investigated for the cause (Potter & Perry, 2009; Lu *et al.*, 2010; Clark *et al.*, 1997).

JurnalMedika (2009), published an editorial points out the fact 80% elderly people who come to primary health care facilities experience cognitive impairment. Sidiarto (2007), conducted a survey in Indonesia for 647 elderly, with an average age 58 years. The result was most forms of senility 83% forgetting to put things, 75% forgetting people's names, 58% forgetting they have done something, and at least 28% elderly forget phone numbers was frequently used (Santoso& Ismail, 2009; Direja, 2011; Efendi &Makhfudli, 2009).

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B. M. van Gelder *et al.* (2004) found the fact elderly who decrease the intensity and duration of their activities will experience cognitive decrease more quickly. Hestiet *et al.* (2008), proved elderly with cognitive impairment have a 5.46-fold chance of experiencing balance disorders are risking injury (Ramlan *et al.*, 2019; Mustika & Sudiantara, 2019; Paramita *et al.*, 2018). The type of activity can improve cognitive health status is culture-based occupational therapy. Culture-based occupation is an effort to promote health and well-being at involving participants in work or activities (World Federation of Occupational Therapists) in accordance with the cultural community.

The results of a preliminary study conducted in Gianyar Regency Health Office was found the Posyandu for the elderly at Public Health Unit, Sukawati I, Gianyar Regency, was not running and occupational activities for the elderly had never been done. Occupational activities are commonly carried out by Balinese elderly who are Hindus include making *canang* or *banten*, dancing, playing *gamelan*, farming, gardening, trading, fishing, *makekawin*, making ceremonial tools to become stakeholders or clergy, painting, sculpting, and handyman sweep the temple. Gianyar is an area with a cultural entity that is already very well known. Therefore, various occupational activities are assumed to affect the cognitive of the elderly. Based on the description above, the authors are interested in researching and examining more deeply about the implementation relationship of occupational activity based on Balinese culture to enhancing cognitive elderly in Gianyar Regency 2019.

## II RESEARCH METHOD

This research is an experimental study with a Randomized Pretest and Posttest Control Group Design (in the form of a community trial) (Zainudin, 2014; Sudigdo, 2011; Lee *et al.*, 2015; Maryam, 2008; Lampiasi & Jacobs, 2010). The sampling technique is the probability 'multistage random or simple random stratified sampling technique'. This technique is a sampling technique because a member of the population is considered homogeneous. It is done by lottery, selecting numbers from a random number list from the elderly who have different occupational activities (Sugiyono, 2012; Dewi & Mustika, 2018; Rodriguez *et al.*, 2020; Mustika & Harini, 2017). A total sample of 215 and the type of occupation to be studied and compared is 215 samples. Each occupation had a minimum of 43 people as samples. The type of data collected is primary and secondary data. Primary data were obtained from samples that met the inclusion and exclusion criteria given a questionnaire and then retrospectively traced the history of occupational therapy (Keohin & Graw, 2017; Relin & Rasna, 2018; Putra, 2018). The primary data collection aims to obtain data about cognitive elderly who do occupational therapy and who do not. Secondary data is taken from elderly administration data which is used as a sample in Gianyar Regency. This secondary data collection aims to get data about the number of elderly, age, and gender.

Data analysis is performed after all data is collected and processed. The data analysis technique used is the univariate analysis. This analysis is intended to determine the distribution of the observed variables. It can find a picture of occupational and cognitive activity in the elderly. The analyzed data included the percentage of elderly who did the occupational activity and those who did not, elderly who were cognitively normal and abnormal. Bivariate analysis is to determine the therapeutic relationship of each occupational activity to cognitive changes.

It is analyzed using a non-parametric test that is Chi-Square with a degree of significance  $\alpha = 0.05$ . This test was chosen because the two variables in this study were nominal. Bivariate analysis results are considered to have a meaningful relationship if p-value  $<0.05$ . This test was chosen because the two variables were nominal. Bivariate analysis results are considered to have a significant relationship if p-value  $<0.05$ . To find out the strength of the relationship between risk factors which in this case was occupational activities based on Balinese culture and cognitive elderly, Odds Ratio (OR) is used (Sastroasmoro& Ismael, 2002; Utomo&Pudjiastuti, 2003; Setiadi&Dermawan, 2007).

### III RESULTS AND DISCUSSION

The general characteristics of the elderly are in Public Health Unit, Sukawati I in Sukawati Subdistrict can be seen in Table 1.

**Table 1:** The elderly characteristics on gender, education, and occupation in 2019

No	Characteristics	Frequency distribution	
		Frequency	Percentage (%)
1	Gender		
	Male	75	34,9
	Female	140	65,1
	Total	215	100
2	Education		
	None	55	25.6
	Primary school	80	37.2
	Junior high school	29	13.5
	Senior high school	44	20.4
	Scholar	7	3.3
	Total	215	100
3	Occupation		
	None	14	6,5
	Domestic Work	76	35,3
	Farmers	18	8,4
	Labor	24	11,2
	Civil servants	8	3,7
	Private	27	12,6
	Entrepreneur	48	22,3
Total	215		

Based on Table 1 above, it can be explained the number of elderly women is (65.1%). The number is more than the elderly man, which is 34.9%. Elderly education is mostly elementary schools (37.2%) and at least undergraduate education (3.3%). The elderly work mostly works domestically or do light domestic work (35.3%), and only a small proportion work as civil servants including civil servants (3.7%). The central age tendency and MMSE score of the elderly in Public Health Unit, Sukawati I in Sukawati Subdistrict can be seen in Table 2.

**Table 2:** Age central tendency data and MMSE scores for the elderly in 2019

No	Characteristics	Average
1	Age	
	Average	65.89 year
	Max	80 year
	Min	60 year
	Primary school	4.84
2	MMSE score	
	Average	24.3
	Max	30
	Min	9
	Primary school	5.28

Based on Table 2 above, it displays the average age of the elderly in Sukawati Subdistrict, Gianyar Regency is 65.89 with the youngest age 60 years and the oldest 80 years with a standard deviation + 4.84. The results of an analysis of MMSE scores found the mean MMSE score of the elderly at the Public Health in Gianyar was 24.3 with the lowest score 9 and the highest 30 and a standard deviation + 5.28. The frequency distribution of elderly cultural activities in Sukawati I, Public Health Unit in Sukawati Subdistrict can be seen in Table 3.

**Table 3:** Distribution of Cultural Activities Frequency elderly in 2019

No	Cultural activities	Frequency	Percentage
1	Dancing		
	Yes	151	70.2
	No	64	29.8
2	Sewing		
	Yes	164	76.3
	No	51	23.7
3	Drawing		
	Yes	54	25.1
	No	161	74.9
4	<i>Menabuh</i>		

	Yes	48	22.3
	No	167	77.7
5	<i>Pesantian</i>		
	Yes	24	11.2
	No	191	88.8

Based on the analysis of cultural activities carried out by the elderly in Gianyar Regency, it can be seen the majority of the elderly have the habit of dancing both past and present at 70.2%. The most activities carried out by the elderly are sewing 76.3%. Other activities tend to be low, among others: drawing only 25.1%, *menabuh* 22.3% and *pesantian* 11.2%. The relationship between cultural activities and the occurrence of *dementia* can be seen in Table 4.

**Table 4:** Relationship of cultural activities with dementia incidence in elderly in 2019

Activities	Dementia incidence		Analysis			
	Yes	No	Chi-Square			
			P-Value	OR	CI 95 %	
					Upper	Lower
<b>Dancing</b>						
Yes	7	144	0.006	3.810	1.380	10.515
No	10	54				
<b>Sewing</b>						
Yes	7	157	0.00	5.470	1.962	15.250
No	10	41				
<b>Drawing</b>						
Yes	4	50	0.875	1.098	0.342	3.522
No	13	148				
<b>Tabuh</b>						
Yes	3	45	0.629	1.373	0.378	4.989
No	14	153				
<b>Pesantian</b>						
Yes	15	176	0.935	0.0938	0.201	4.375
No	2	22				

In Table 4 above, it can be seen those who actively danced remained dementia totaling 7 people (3.26), those who danced did not dementia 144 people (66.98), who did not dance dementia 10 people (4.65) and those who did not dance but no dementia 54 people (25.12). The results of the analysis found p-value = 0.006 (p <0.05) with OR: 3.81 95% CI (1,380 - 10.52). It means there is a relationship between dance activities with no dementia. Dancing has an opportunity to prevent dementia 3.81 times compared to elderly people who don't

dance. The elderly who actively sew 7 people suffer from dementia while 157 do not dementia, the elderly who do not do sewing activities 10 people suffer from dementia while 41 people who do not sew still do not experience dementia. Sewing is closely related to dementia prevention  $p = 0.00$  ( $p < 0.05$ ) Elderly who are actively sewing have no chance of experiencing dementia with OR: 4.47. That means the elderly who actively sew 5 times more likely to not experience dementia 95% CI (1.96-15.25). Logistic regression analysis of elderly activities is presented in Table 5.

**Table 5:** Results of logistic regression analysis with the backward method

Activities	B	S.E.	Wald	df	Sig.	Exp(B)
Dancing	2.027	.611	11.013	1	.001	7.592
Sewing	2.266	.606	13.972	1	.000	9.644
Drawing	.101	.650	.024	1	.876	1.107
<i>Nabuh</i>	.570	.715	.635	1	.426	1.768
<i>Persantian</i>	.134	.852	.025	1	.875	1.143
Nstant	-5.344	2.176	6.031	1	.014	.005

Based on Table 5 above, it can be seen the variable of cultural activity has a relationship to the prevention of dementia is only dancing and sewing with constant values, respectively 2,027 and 2,266. Whereas, Constanta for all variables is -5,344. It is seen from Table 5. It shows the UPT Sukawati I in Gianyar Regency, elderly women (65.1%), more than the elderly male (34.9%). Elderly education is mostly elementary school (37.2%) and the least has a bachelor's degree (3.3%). The elderly work mostly works domestically or do light household work (35.3%), and only a small proportion work as civil servants (3.7%). The prevalence of dementia is only 7.9%. Having seen from the proportion of characteristics, the elderly shows the proportion of elderly women is higher than men. This is very much in accordance with the demographic picture of the elderly in Indonesia. Wherein, the elderly proportions are women and men (3: 2).

Based on the results of analysis related to dementia, it was found dementia prevalence in the elderly in Gianyar was 7.9%. This figure is much lower compared to the dementia data in several places in Indonesia such as in Yogyakarta 20% and Bali 30% (Suastini *et al.*, 2018; Kwan *et al.*, 2018; Ismail, 2007; Junaidi, 2011). The low number of dementia in Gianyar is closely related to some positive behaviors are associated with elderly culture in Gianyar Regency, included dancing and sewing. The results of a single analysis of the relationship between dancing activity and the occurrence of dementia found OR 3.8 CI 95% (1.38-10.515). it means dancing activity is able to prevent dementia up to 3.8 times compared with elderly who do not dance, with a range of potential preventive 1.38 to 10,515 times. The results of this study are in line with those Ho, Rainbow & Fong, Ted & Chan, Wai-Chi & Kwan, Joseph & Chiu, Patrick & Yau, Joshua & Lam, Linda. (2018), who found dancing improves mood, prevents loneliness, optimizes the modulation of cortisol which is a dementia-preventing biomarker (Gamberini *et al.*, 2006; Graff *et al.*, 2006).

Sewing activity from a single analysis of the relationship between sewing and dementia found that elderly who were active in doing sewing activity had the potential to avoid dementia 5.47 times compared with those who did not do sewing activity with a prevention potential range between 1.96 to 15.25. From the results of the analysis, the combination of dancing and sewing activities contributed to the prevention of depression up to 36.8 times. This means dancing combined with sewing can reduce the risk of dementia 37 times. The combination of dancing as physical activity and comprehensive sports and sewing as a hand and cognitive skill that has physical, cognitive, spiritual and economic impacts is a combination of activities. They are mostly carried out by the elderly of Bali as cultural activities have a preventive effect on dementia, after being controlled by other cultural activities, for example, *mesanti*, *matetabuh* and drawing. *Mesanti*, *matetabuh* and drawing, in general, have a good impact on cognitive. However, due to the limitations of the elderly who carry out these activities. Thus, the analysis does not show a relationship that is too meaningful but still needs to be developed as another part of the cultural activities of the elderly.

#### IV CONCLUSION

Most of the elderly have the habit of dancing which was carried out from childhood to the present at 70.2%. The most activities carried out by the elderly are sewing, namely 76.3%, while other activities tend to be low, among others drawing only 25.1%, *menabuh* 22.3% and *pesantian* 11.2%. Those who actively danced remained dementia by 7 people (3.25%), those who danced did not dementia by 144 people (66.98%), those who did not dance dementia by 10 people (4.65%) and those who did not dance but did not dementia by 54 people. (25.12%). The results of the analysis found p-value = 0.006 (p < 0.05) with OR: 3.81 95% CI (1,380 - 10.52). Cultural activity variables have a relationship to the prevention of dementia are only dancing and sewing with constants, respectively 2,027 and 2,266. Whereas Constanta for all variables is -5,344. Bali culture-based occupation activities for the elderly are expected to be carried out with dancing and sewing activities. The great opportunity for the elderly to be free from dementia if the elderly are actively dancing and sewing with a score 38.6%

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