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Influence of Education, Health Complaints, Dependence, and Family Support on The Work Participation of the Population Elderly Age in Denpasar City

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Abstract. The ever-increasing life expectancy rate has shown that there has been economic progress, environmental improvements and advances in science, especially due to advances in medical science. The higher life expectancy shows the increasing number of elderly people, which of course will influence the increase in the absorption of elderly labor itself. The aim of this research is to analyze the influence of education, health complaints, number of dependents, and family support simultaneously and partially on the work participation of the elderly population in Denpasar City. In this study, the number of samples taken was 100 elderly people from 69,323 elderly people in Denpasar City. The sampling method used was a non-probability sampling method with a purposive sampling technique combined with accidental sampling. The data analysis techniques used are descriptive statistical analysis test, classical assumption test, multiple linear regression analysis test, F test and t test. The research results show that education, health complaints, number of dependents, and family support simultaneously and significantly influence the work participation of the elderly population in Denpasar City. Education, number of dependents, and family support partially have a positive and significant effect on the work participation of the elderly population in Denpasar City, while health complaints partially have a negative and significant effect on the work participation of the elderly population in the City of Denpasar.

Keywords: Education, Health Complaints, Number of Dependents, Support Family, Work Participation of the Elderly.

INTRODUCTION

An elderly person is someone who has reached more than the productive age, namely from 15-64 years, while 65 years and above are elderly. However, the elderly category in developing countries, including Indonesia, uses a size of 60 years and over. Based on Law Number 13 of 1998, Indonesia uses the age limit for seniors, namely 60 years and over. This group, which is categorized as elderly, will experience a process called the aging process. The population of the elderly, who are people aged 60 years and over, increases every year in the world's population, including Indonesia. On the one hand, the increasing number of elderly people is a development achievement, but on the other hand, the number of elderly people is a challenge. According to Perpetua et al. (2018), although population aging is seen as one of the great victories in human development because the majority of people now expect to survive to old age, an aging population has implications for, among other things, the labor market, health care, and social security. With a relatively low level of social and economic development and little access to adequate health care, it will of course make it difficult to meet the challenges of

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a large elderly population, especially as traditional family support systems for the elderly begin to collapse (Abanyam, 2013; O koye, 2012).

The existence of elderly people with all their experiences and abilities can be used as an asset in driving development. The elderly population should still be involved in the world of work, because until now the majority of elderly people are still the backbone of their families (WHO, 2002). Apart from that, life experience places elderly people not only as people who are respected in their environment, but can also act as agents of change in their family environment and the surrounding community.

In order to continue to contribute to development, elderly people must be healthy and active. If not, the increase in the number of elderly people will create a demographic "burden" or demographic tax on economic growth (BKKBN, 2020). The increase in the number of elderly people will also increase economic and social demands. The aging process causes the burden of dependency on parents to increase, automatically savings will decrease. The labor force then shrinks so that the ratio of capital to labor rises and investment falls. The elderly are described as a vulnerable population group. It is stated that there are three main factors that make elderly people vulnerable, namely no longer being economically productive, health problems, and needing a companion as a caregiver (Bloom, 2011 in TNP2K 2020). In line with that, it is also stated that there are several problems that can accompany old age, namely physical helplessness which causes dependence on other people, economic uncertainty which requires a total change in their lifestyle, needing new friends to replace those who have died or moved, needing new activities. to fill in more free time and learn to treat children who have grown up (Hurlock, 2002 in BKKBN 2020). In general, today's seniors are more educated, healthier, and more exposed to knowledge and information which is a provision to improve their quality of life compared to seniors in the past (Presidential Regulation of the Republic of Indonesia Number 88 of 2021 concerning the National Strategy for Aging). Therefore, appropriate strategies and policies are needed so that they can create prosperous seniors.

Population aging is a demographic phenomenon that cannot be ignored. Almost every country in the world is currently entering a period of population aging, where the elderly population is experiencing a very drastic increase both in number and proportion. Based on data from the UN or United Nations regarding world population aging in 2019, the total elderly population was 705 million people or 9.18% of people in the world (Tribun News, 2019). The number of elderly people is expected to continue to increase to reach 2 billion people by 2050 (Nations, 2015). Not only is the number and proportion of elderly people increasing, in fact

along with increasing life expectancy, the proportion of elderly people (60 years and over) will also increase, even from 2020 to 2050 it is estimated that it will triple to reach 426 million.

Just like what happens in other countries in the world, Indonesia is also experiencing an aging population. Since 2021, Indonesia has entered an aging population structure, where around 1 in 10 residents are elderly or more than 10%. Indonesia's life expectancy has increased from 71.2 years in 2018 to 71.85 years in 2022. This figure of course illustrates that at least every resident born in 2022 hopes to live until they are 71-72 years old (Figure 1.1). This aging population phenomenon can be a second demographic bonus, namely this second demographic bonus is described as the condition of a country or region when the proportion of its population that is old increases, but is still productive and can still contribute to the country's economy (Heryanah, 2015). The difference between the first and second demographic bonus periods is that during the first demographic bonus period the main development role was carried out by the productive age population, while during the second demographic bonus period the role was carried out by the non-productive age population, namely the elderly (Rapih, 2019 in Hakim 2020). According to Ha, Jiyeon & Juah Kim (2019), life expectancy has increased along with advances in medical science and technology. Given the global trend in an aging population, future seniors will likely work longer after retirement for reasons such as an increase in healthcare providers. This surge in the elderly population is inevitable when the number of those of productive age is currently abundant, but in the next few years they will enter old age or retire.

Average life expectancy in Bali Province tends to increase for both men and women. Based on BPS data, it shows that there is a trend towards increasing life expectancy, as a consequence the number of elderly people is increasing (Sudibia et al. 2014). Life expectancy is a tool for evaluating the government's performance in improving the welfare of the population in general, and improving health status in particular. Low life expectancy in an area must be followed by health development programs and other social programs including environmental health, adequate nutrition and calories, including poverty eradication programs. BPS data from Bali Province (BPS, 2022) shows that life expectancy at birth, which represents the dimension of longevity and healthy living, continues to increase from year to year. In 2018, life expectancy at birth in Bali was 71.68 years and in 2022 it will reach 72.60 years. In general, Badung Regency is the district with the highest life expectancy in Bali Province, while Karangasem Regency has the lowest life expectancy. This condition is mainly due to the fact that Badung Regency is the district with the highest regional income in Bali Province. Increasing economic well-being as a result of increasing longevity is very important. In

comparing levels of welfare between social groups, it is very important to look at life expectancy, as well as annual income levels. Bali is one of the provinces with the phenomenon of increasing numbers of elderly people. This shows that the life expectancy of the Balinese population is increasing.

An increase in life expectancy does indicate the success of human development, but if this life expectancy is not accompanied by changes in the quality of the population it will cause a burden on development (Zulfikar, 2014). According to the Bali Province Central Statistics Agency (2021), Bali is ranked fourth with the largest number of elderly people in Indonesia. The proportion of elderly people in Bali Province is 11.30%, even higher than the proportion of the national elderly population, namely 10.05% and it is predicted that the number of elderly people in Bali Province will continue to increase, reaching 11.50% of the total. population of Bali Province in 2020.

Table 1. Projection of Population of Bali Province Aged 60 Years and Over, (Thousand People) 2018-2022

Age group	2018	2019	2020	2021	2022
60-64	174.8	182.3	192.3	199.9	208.2
65-69	128.8	134.1	146.5	152.2	157.9
70-74	90.6	94.1	99.6	104.4	109.8
75+	98.6	102.8	117.6	122.2	127.0
Amount	**492.8**	**513.3**	**556**	**578.7**	**602.9**

Source: Bali Province Central Statistics Agency, 2023 (processed data)

Table 1 shows that there is an increase in elderly people every year in Bali Province, this shows that national development has moved towards success. The highest number of elderly people will be in 2022, reaching 602.9 thousand people. The high number of elderly people in Bali Province certainly raises various kinds of problems, such as what level of welfare the elderly population has and what factors influence it. Especially Denpasar City, as a municipality and a center of economic growth and health services, the majority of its population can be said to be better than other city districts in Bali Province, and most people in big city areas are busy with their own work and family members rarely pay attention to their parents. who should be able to enjoy their old age with their family, from this it is very interesting to know how the welfare of the elderly is whether they are happy, happy or not with several variable indicators, namely mental and psychological support, health support, informational support, and instrumental support.

Elderly people who are still entering the workforce are considered to have decreased productivity, so that in general their income is lower than that received by people of productive age. A common problem experienced by older people related to productivity is that they are vulnerable to various diseases, due to reduced body resistance in dealing with external influences (Nugroho, 2011). The aging process causes a decline in all physiological conditions of the body. This decrease in physiological conditions will have an impact on productivity in the elderly (Maryam, 2008). As seniors get older, their ability to carry out daily activities decreases. Seniors should have the same opportunity to work. This means that almost half of the elderly are still actively working to meet their living needs or as a form of self-actualization. There are still many elderly people who work, indicating that elderly people still have the same opportunity to work and are still able to carry out productive activities. Factors that can influence the elderly population in working are one of the main factors because the majority of the elderly population are in households with low economic conditions which result in the elderly population still playing a role in fulfilling their family's living needs (Fitri and Basri, 2012).

Table 2. Projection of the Elderly Population Per Regency/City Aged 60 Years and Over in Bali Province (Thousand People) in 2022

Regency/City	Gender		Amount
	Man	Woman	
Badung	33.16	35.70	68.86
Bangli	18.70	20.49	39.19
Gianyar	37.02	40.78	77.80
Jembrana	20.82	23.43	44.25
Karangasem	31.56	36.52	68.13
Klungkung	15.05	17.24	32.29
Tabanan	40.77	44.15	84.92
Buleleng	48.28	56.11	104.39
Denpasar	39.82	39.31	79.13
Amount	**285.18**	**313.73**	**598.91**

Source: Bali Province Central Statistics Agency, 2023 (processed data)

Based on the data in Table 2, it can be seen that the number of elderly people in each district/city in Bali Province is quite high. A total of nine districts/cities in Bali Province, including Badung, Bangli, Gianyar, Jembrana, Karangasem, Klungkung, Tabanan, Buleleng, and Denpasar City, have an elderly percentage of more than 10 percent, which is above the provincial average. Based on the results of the 2018 Bali Dementia Study, Bali Province has

entered the era of an old population structure. This condition places Bali Province as the region with the highest number of elderly residents outside Java. Buleleng Regency occupies the first position in terms of the number of elderly residents in Bali Province, where the elderly population in Buleleng Regency is 104.39. Denpasar City is in third place, where the elderly population in Denpasar City is 79.13. This figure is of course high compared to the other six districts/cities in Bali Province.

The city of Denpasar is not immune to the increase in the number of elderly people. This is marked by an increase in the life expectancy of the population as depicted in. The city of Denpasar has a fairly high life expectancy rate and has experienced a significant increase in the last 5 years, marked by an increase from 74.38 years in 2018 to 75.30 years in 2022. The life expectancy rate continues to increase. shows that there is economic progress, environmental improvements, and advances in science, especially due to advances in medical science (Kartika & Sudibia, 2014). The higher life expectancy shows the increasing number of elderly people. The increasing number of elderly people requires attention from all parties in anticipating various problems related to population aging.

Table 3. Number of Elderly Population Per District Based on Gender in Denpasar City in 2022

Subdistrict	Gender		Amount
	Man	Woman	
South Denpasar	8,914	9,199	18,113
North Denpasar	8,940	9,321	18,261
West Denpasar	9,396	9,880	19,276
East Denpasar	6,619	7,054	13,673
Amount	**33,869**	**35,454**	**69,323**

Source: Denpasar City Population and Civil Registration Service, 2023

Denpasar City has four sub-districts, namely South Denpasar District, North Denpasar District, West Denpasar District, and East Denpasar District. According to Table 1.2, it shows that the number of elderly residents in Denpasar City in 2022 will be 69,323 people, of which 33,869 male elderly people and 35,454 female elderly people. As a result of sustainable development, the elderly population continues to increase both in terms of number and proportion. Improvements in the fields of health, access to education, employment, quality of life, as well as various other socio-economic aspects, have had an impact on reducing mortality rates and increasing life expectancy. The increase in the absorption of elderly labor is

influenced by educated elderly workers who are still remaining in the world of work. The elderly population and its increasing growth from year to year influence the increase in the absorption of elderly labor itself. This is because workers who are less productive at a young age tend to leave the workforce and they tend to choose to invest in school, so that their old age will be more productive with the provision of higher education (Burtless, 2013). According to BPS (2018), a working elderly person is someone aged 60 years and over who does work with the aim of obtaining or helping to obtain income or profits or to measure their value to society, their family and themselves. The large number of elderly people working is due to relatively large economic needs, and these elderly people are still mentally and physically strong enough to carry out daily activities.

THEORETICAL STUDY

According to research conducted by Skirbekk and Wiśniowski (2019), poor health conditions are associated with decreased work participation in older people. They found that older adults in poor health were more likely to retire early or drop out of the workforce altogether. Coe & Zamarro (2020) suggest that elderly people with poor health have a lower probability of continuing to work after reaching retirement age. They concluded that poor health may be an important factor in determining older people's work participation. According to the results of research conducted by Yanti & Sudibia (2019), it was found that health conditions had a negative effect on the work participation of the elderly population. This is because in research, the health of elderly people is measured using health complaints experienced by the elderly population, the worse the health condition of the elderly person, so it can affect their daily activities and this can indirectly affect their work participation. .

RESEARCH METHODS

The research design uses a quantitative research design in associative form. The aim of quantitative research is to develop and use mathematical models, theories and hypotheses with the phenomena being investigated (Sugiyono, 2007:11). Associative form, namely research that examines the influence of one variable on other variables or determines the relationship between or more variables.

RESEARCH RESULTS AND DISCUSSION

General Description of Denpasar City

Denpasar City is an area or one of the cities located in the middle of Bali Island which is also the capital city and also the center of government, education and economy in the Province of Bali. Previously, Denpasar City was still part of Badung Regency, in 1992 Denpasar City was separated and became the central government city of Bali Province. The name Denpasar City comes from the words 'Den' which means north and 'Pasar' which means market, so the overall meaning is 'North of the Market'.Denpasar City is divided into 4 sub-districts, namely South Denpasar District, North Denpasar District, West Denpasar District, and East Denpasar District. The location of Denpasar City borders Badung Regency (Mengwi, Abiansemal and Kuta Districts) on the north and west, Gianyar Regency (Sukawati District) and the Badung Strait on the east side, and Badung Regency (Kuta District) on the south side.

The city of Denpasar is at an altitude of 0 - 75 meters above sea level, located in a position8° 35' 31" - 8° 44' 49" South Latitude (South Latitude) and 115° 10' 23" - 115° 16' 27" East Longitude (East Longitude). Meanwhile, the area of Denpasar City is 127.78 km² or 2.18% of the areaBali province. Of the land use, 2,768 Ha is paddy land, 10,001 Ha is dry land and the remaining 9 Ha is other land. The average rainfall level is 244 mm per month, with quite high rainfall occurring in December. Meanwhile, the average air temperature is around 29.8 °C with the lowest average being around 24.3 °C.

Denpasar City as the capital of Bali Province which is the center of the economy certainly has a big influence on various fields in Denpasar City. Progress in various fields such as health and education where Denpasar City already has good health service facilities in Bali Province, there are 3hospitalGovernment-owned hospitals include Sanglah Hospital Denpasar, Wangaya Hospital and Udayana Hospital as well as 13 private hospitals. The Denpasar City Government has also built 10 community health centers and 26 supporting community health centers, with a ratio of community health centers per 100,000 population of 1.7.

Characteristics Based on Education

Education is an important aspect in the lives of the elderly which plays a role in improving the quality of life. Higher education can of course improve older people in developing their abilities and playing a greater role in the interests of society. Education in this research is the most recent education of the respondent. Where from those who have not attended school to the highest level of education, different grades will be given. The units used in this research are measured in years which are based on the years of successful schooling for older adults. Table 4 shows the distribution of respondents based on education.

Table 4. Distribution of Respondents Based on Education

No	Level of education	Number of Respondents	Percentage
1	**Didn't go to school/didn't finish elementary school**	11	11%
2	**elementary school**	23	23%
3	**junior high school**	8	8%
4	**high school**	29	29%
5	**College**	29	29%
	Amount	**100**	**100%**

Source: Primary Data, 2024 (Data processed)

Based on Table 4, it shows that the educational distribution of the elderly population in Denpasar City is dominated by elderly people with high school and tertiary education, namely 29 respondents each with a percentage of 29% each. There were only 8 seniors with education up to junior high school with a percentage of 8%. Some of these elderly people have low education because in the past some elderly people came from poor families so they were unable to continue their education.

Characteristics Based on Health Complaints

Health complaints refer to symptoms or disorders felt or complained about by someone related to their health condition. Health complaints can include a variety of things, from physical symptoms such as pain, weakness, or illness, to psychological problems such as stress, anxiety, or depression. Health complaints in this study were the frequency of elderly people using health services during the last month. Table 5 shows the distribution of respondents based on health complaints.

Table 5. Distribution of Respondents Based on Health Complaints

Health Complaints	Number of Respondents	Percentage
0	49	49%
1	33	33%
2	12	12%
3	4	4%
4	2	2%
Amount	**100**	**100%**

Source: Primary Data, 2024 (Data processed)

Based on Table 5, it shows that the distribution of health complaints from the elderly population in Denpasar City is dominated by elderly people who do not experience health complaints, namely 49 respondents with a percentage of 49% and elderly people who experienced health complaints 4 times in the last month were only 2 respondents with a percentage of 2 %. This illustrates that there are quite a lot of elderly people who have good health and rarely experienced health complaints during the last month so that the elderly population can work and carry out productive activities.

Characteristics Based on Number of Dependents

The number of dependents in this study is the number of family members who are still dependent on the family, be it wives, children or other family members who live in the same house but do not work or do not have income and is expressed in person units. Table 6 shows the distribution of respondents based on the number of dependents.

Table 6. Distribution of Respondents Based on Number of Dependents

Number of Dependents (people)	Number of Respondents	Percentage
0	21	21%
1	25	25%
2	38	38%
3	11	11%
4	4	4%
5	1	1%
Amount	**100**	**100%**

Source: Primary Data, 2024 (Data processed)

Based on Table 6, it shows that the distribution of the number of dependents of the elderly population in Denpasar City is dominated by elderly people who have 2 dependents in their family, namely 38 respondents with a percentage of 38% and elderly people who support 5 people in their family, only 1 respondent with a percentage of 1%. .

Characteristics Based on Family Support

Family support in this research is family involvement in providing support to elderly people to work. The four indicators of this family support variable are informational support, assessment support, instrumental support and emotional support. Table 7 shows the distribution of respondents based on family support.

Table 7. Distribution of Respondents Based on Family Support

Indicator	1 People (Percent)	2 People (Percent)	3 People (Percent)	4 People (Percent)	Amount
Informational Support	3 (3%)	15 (15%)	39 (39%)	43 (43%)	**100 (100%)**
Assessment Support	5 (5%)	16 (16%)	49 (49%)	30 (30%)	**100 (100%)**
Instrumental Support	4 (4%)	20 (20%)	47 (47%)	29 (29%)	**100 (100%)**
Emotional Support	1 (1%)	6 (6%)	28 (28%)	65 (65%)	**100 (100%)**

Source: Primary Data, 2024 (Data processed)

Information:

1 : Never

2 : Rare

3 : Often

4 : Always

Based on Table 7, there are four indicators that measure the level of family support for the elderly population in Denpasar City. In the first indicator, namely informational support, it was dominated by elderly people who chose the answer always, namely 43 respondents with a percentage of 43% and elderly people who chose never were only 3 respondents with a percentage of 3%. This shows that most elderly people always get informational support from their families. The second indicator, namely assessment support, was dominated by elderly people who chose the answer often, namely 49 respondents with a percentage of 49% and elderly people who chose never were only 5 respondents with a percentage of 5%. This shows that most of the elderly often receive assessment support from their families. The third indicator, namely instrumental support, was dominated by elderly people who chose the answer often, namely 47 respondents with a percentage of 47% and elderly people who chose never were only 4 respondents with a percentage of 4%. This shows that most elderly people quite often get instrumental support from their families. And the fourth indicator, namely emotional support, was dominated by elderly people who chose the answer always, namely 65 respondents with a percentage of 65% and elderly people who chose never was only 1 respondent with a percentage of 1%. This shows that most elderly people always get emotional support from their families.

Characteristics Based on Work Participation

Elderly work participation is an activity carried out by residents aged 60 years and over who are working or trying to earn income or are looking for work. The level of work participation of the elderly population in this study was measured through the number of working hours during the past week using hours. Table 4.5 shows the distribution of respondents based on work participation.

Table 8. Distribution of Respondents Based on Work Participation

Working Hours (Hours/Week)	Number of Respondents	Percentage
≤35	25	25%
36-45	30	30%
46-55	21	21%
56-65	16	16%
66-75	3	3%
≥76	5	5%
Amount	**100**	**100%**

Source: Primary Data, 2024 (Data processed)

Based on Table 8, it shows that the distribution of work participation of the elderly population in Denpasar City is dominated by elderly people who have working hours of 36 to 45 hours a week, namely 30 respondents with a percentage of 30% and elderly people who have working hours of 66 to 75 hours are only as many as 3 respondents with a percentage of 3%.

Test Results

Descriptive Statistical Analysis Test Results

Descriptive Statistical Analysis is statistics used to analyze data by describing or describing the data that has been collected. The information displayed in descriptive statistical analysis is in the form of a description of the samples used in the research in terms of the average (mean), minimum and maximum values, and standard deviation. The results of descriptive statistical analysis can be seen in table 9.

Table 9. Descriptive Statistical Analysis Test Results

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Education (X1)	100	0	18	10.26	5,018
Health Complaints (X2)	100	0	4	.77	,952
Number of Dependents (X3)	100	0	5	1.55	1,123
Family Support (X4)	100	-3	1	.00	1,000
Work Participation (Y)	100	20	84	46.71	13,579
Valid N (listwise)	100				

Based on Table 9, it is known that the Work Participation (Y) variable has a minimum value of 20 and a maximum value of 84 with an average (mean) value of 46.71 and a standard deviation of 13.579. This shows that respondents have the lowest work participation, namely 20 hours/week and the highest work participation, namely 84 hours/week with an average working hours of 46.71 hours/week, which means that the number of working hours of work participation for the elderly population in The city of Denpasar is quite high.

The Education variable (X1) has a minimum value of 0 and a maximum value of 18 with an average (mean) value of 10.26 and a standard deviation of 5.018. This shows that respondents have the lowest level of education, namely 0 years or no school, and the highest level of education, namely 18 years or master's degree with an average education level of 10.26 years or equivalent to class 1 of high school, which means the population's education level. The number of elderly people in Denpasar City is quite high even though they have not been able to complete their education up to university level.

The Health Complaints variable (X2) has a minimum value of 0 and a maximum value of 4 with an average (mean) value of 0.77 and a standard deviation of 0.952. This shows that respondents experienced the lowest health complaints, namely 0 times or no health complaints during the last month and respondents who experienced the highest health complaints were 4 times during the last month with an average of 0 health complaints.

Classic Assumption Test Results

1) Normality test

The normality test aims to test whether in the regression model, the confounding or residual variables have a normal distribution or not. A good regression model should have a normal or close to normal distribution. The normality test was carried out using the Kolmogrov-Smirnov sample test method. Normality test results can be seen in Table 10.

Table 10. Normality Test Results

One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residuals
N			100
Normal Parameters, b	Mean		.0000000
	Std. Deviation		8.32514323
Most Extreme Differences	Absolute		,088
	Positive		,088
	Negative		-.081
Statistical Tests			,088
Asymp. Sig. (2-tailed)c			,056
Monte Carlo Sig. (2-tailed)	Sig.		,057
d	99% Confidence Interval	Lower Bound	,051
		Upper Bound	,063

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

The residuals can be said to be normally distributed if the Asymp value. Sig (2-tailed) > level of significance. Table 10 shows the Asymp value. Sig (2-tailed) is 0.056, which means the value of 0.056 is greater than α = 0.05, so it can be said that the residuals analyzed are normally distributed or have passed the normality test.

2) Multicollinearity Test

A good regression model should have no correlation between independent variables. If the tolerance value is more than 0.10 or the VIF is less than 10, it is said to be free from multicollinear symptoms. The results of the multicollinearity test can be seen in Table 11.

Table 11. Multicollinearity Test Results

Coefficientsa

		Collinearity Statistics	
Model		Tolerance	VIF
1	(Constant)		
	Education (X1)	,769	1,300
	Health Complaints (X2)	,946	1,058
	Number of Dependents (X3)	,827	1,210
	Family Support (X4)	,928	1,078

a. Dependent Variable: Work Participation

Based on Table 11, it is known that each independent variable has a tolerance value greater than 0.10 and a VIF value less than 10, so that the regression model can be said to be free from symptoms of multicollinearity.

3) Heteroscedasticity Test

The heteroscedasticity test aims to test whether in a regression model there is inequality in the variance from the residuals of one observation to another. The heteroscedasticity test was carried out using the Glejser test by regressing the independent variables on the residual absolute value. If the significance level is greater than 0.05, then the regression model is declared free from symptoms of heteroscedasticity. The results of the heteroscedasticity test can be seen in Table 12.

Table 12. Heteroscedasticity Test Results

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2,262	1,485		1,523	.131
	Education (X1)	,227	.122	,202	1,852	,067
	Health Complaints (X2)	,265	,582	,045	,455	,650
	Number of Dependents (X3)	,840	,528	,167	1,590	,115
	Family Support (X4)	,752	,560	.133	1,344	,182

a. Dependent Variable: ABS_RES

Based on Table 12, it is known that the significance value of the variables education, health complaints, number of dependents and family support exceeds 0.05, which means there are no symptoms of heteroscedasticity in the model tested. From the classical assumption test, it is stated that the regression model in this research is valid and worthy of further analysis.

Multiple Linear Regression Analysis Test Results

Multiple linear regression analysis is a regression model that includes more than one independent variable (Ghozali, 2018). Multiple linear regression analysis techniques were used to determine the influence of educational variables, health complaints, number of dependents, and family support on work participation of the elderly population in Denpasar City, consisting of the F test (simultaneously) and t test (partially).

Table 13. Multiple Linear Regression Analysis Test Results

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	29,156	2,353		12,391	<.001
	Education (X1)	1,473	,194	,544	7,590	<.001
	Health Complaints (X2)	-2,623	,923	-.184	-2,843	,005
	Number of Dependents (X3)	2,877	,837	,238	3,438	<.001
	Family Support (X4)	2,309	,887	,170	2,603	.011

a. Dependent Variable: Work Participation

The results of data processing using the SPSS program obtained the following multiple linear regression equation:

Y = 29.156+ 1,473 (X1) – 2,623 (X2)+ 2,877 (X3) + 2,309 (X4)

t = (7,590) (-2,843) (3,438) (2,603)

Sig = (0.000) (0.005) (0.000) (0.011)

R2 = 0.624 F = 39,435 Sig = 0.000

Based on the results obtained from the SPSS output, it shows that the Fcount value is 39.435 with a significance level of 0.000. This identifies that the variables education, health complaints, number of dependents, and family support have a significant effect on the work participation of the elderly population in Denpasar City. The value of the determinant coefficient is 0.624, which means that 62.4% of the work participation of the elderly population is influenced by education, health complaints, number of dependents and family support and the remaining 37.6% is influenced by other factors.

Based on the results obtained from the SPSS output, it shows that partially the education variable (X1) has a calculated t value of 7.590 with a significance of 0.000, which means that the significance value of t (0.000) is smaller than 0.05, so H0 is rejected and H1 is accepted. The results of this research show that the education variable (X1) partially has a positive and significant effect on the work participation of the elderly population in Denpasar City.

Based on the results obtained from the SPSS output, it shows that partially the health complaints variable (X2) obtained a t value of -2.843 with a significance of 0.005, which means that the significance value of t (0.005) is smaller than 0.05, so H0 is rejected and H1 is accepted. The results of this study show that the health complaints variable (X2) partially has a negative and significant effect on the work participation of the elderly population in Denpasar City.

F Test Results (Simultaneous Regression Coefficient Test)

The F test was carried out to determine whether the variables education, health complaints, number of dependents, and family support had a significant effect simultaneously on the work participation variable. The results of simultaneous hypothesis testing can be seen in Table 14.

Table 14. F Test Results

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11393.097	4	2848,005	39,435	<.001b
	Residual	6861.493	95	72,280		
	Total	18254.590	99			

a. Dependent Variable: Work Participation
b. Predictors: (Constant), Family Support, Health Complaints, Number of Dependents, Education

Based on Table 14, namely the results of tests carried out using the SPSS program, the analysis stages used are as follows:

1) Hypothesis Formulation

H_0: = = = = 0, which means that education (X1), health complaints (X2), number of dependents (X3), and family support (X4) do not simultaneously influence the work participation of the elderly population in Denpasar City.$\beta_1\beta_2\beta_3\beta_4$

H_1: at least one of βi ≠ 0, which means that education (X1), health complaints (X2), number of dependents (X3), and family support (X4) simultaneously influence the work participation of the elderly population in Denpasar City.

2) Determining Real Levels

The real level used is (α) = 5% (0.05) and the degrees of freedom df = (4-1); (100-4) = (3) ; (96) so it is withdrawnF_{tabel}= 2.70

3) Testing Criteria

If ≤ or significance value > α then it is acceptedF_{hitung} F_{tabel} H_0

IfF_{hitung} > or significance value ≤ α then it is rejected$F_{tabel}H_0$

4) Statistical Calculations

Values can be obtained from regression results with the SPSS program,$F_{hitung}$$F_{hitung}$= 39.435

5) Conclusion

Based on the results of simultaneous regression analysis, it is known that it is 39.435 with a significance of 0.000, which means the significant value (0.000) is smaller than$F_{hitung}$$F_{hitung}$$\alpha$ = 0.05 andF_{hitung}(39.435) is greater thanF_{tabel} (2.70). Can be concluded thatH_0rejected and accepted. The results of this research show that education, health complaints, number of dependents, and family support simultaneously influence the work participation of the elderly population in Denpasar City.H_1

T Test Results (Partial Significance Test of Regression Coefficients)

The t test is used to determine the influence of the independent variable partially on the dependent variable or the influence of each independent variable on the dependent variable assuming the other independent variables are constant. Partial hypothesis test results can be seen in Table 15.

Table 15. t test results

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	29,156	2,353		12,391	<.001
	Education (X1)	1,473	,194	,544	7,590	<.001
	Health Complaints (X2)	-2,623	,923	-.184	-2,843	,005
	Number of Dependents (X3)	2,877	,837	,238	3,438	<.001
	Family Support (X4)	2,309	,887	,170	2,603	.011

a. Dependent Variable: Work Participation

1) The influence of education on work participation of the elderly population in Denpasar City

Based on the test results carried out using the SPSS program, partial testing can be seen in Table 15. The stages in the partial test (t test) are as follows:

a) Hypothesis Formulation

H_0: ≤ 0, meaning that the education variable (X1) partially has no positive and significant effect on the work participation of the elderly population in Denpasar Cityβ_1

H_1: > 0, meaning that the education variable (X1) partially has a positive and significant effect on the work participation of the elderly population in Denpasar City.β_1

b) Real Level

Real level (α) = 0.05 and degrees of freedom df = (α) ; (nk-1) = (0.05) ; (95) so that it is drawn = 1.98525t_{tabel}

c) Testing Criteria

Ift_{hitung} ≤ or significance value > α then it is accepted. If > or significance value ≤ α then it is rejected$t_{tabel}H_0t_{hitung}t_{tabel}H_0$

d) Statistical Calculations

Values can be obtained from regression results with the SPSS program,$t_{hitung}t_{hitung}$= 7,590

e) Conclusion

Based on partial regression analysis, it is known that the value is 7.590 with a significance of 0.000, which means that the significant value (0.000) is smaller than α = 0.05 and (7.590) is greater than (1.98525). Can be concluded that$t_{hitung}t_{hitung}t_{hitung}t_{tabel}H_0$rejected and accepted. The results of this research show that the education variable (X1) partially has a positive and significant effect on the work participation of the elderly population in Denpasar City.H_1

2) The influence of health complaints on work participation of elderly residents in Denpasar City

Based on the test results carried out using the SPSS program, partial testing can be seen in Table 15. The stages in the partial test (t test) are as follows:

a) Hypothesis Formulation

H_0: ≤ 0, meaning that the health complaint variable (X2) partially has no positive and significant effect on the work participation of the elderly population in Denpasar Cityβ_1

H_1: > 0, meaning that the health complaint variable (X2) partially has a positive and significant effect on the work participation of the elderly

population in Denpasar City.β_1

b) Real Level

Real level (α) = 0.05 and degrees of freedom df = (α) ; (nk-1) = (0.05) ; (95) so that it is drawn = 1.98525t_{tabel}

c) Testing Criteria

Ift_{hitung} ≤ or significance value > α then it is accepted. If > or significance value ≤ α then it is rejected$t_{tabel}H_0t_{hitung}t_{tabel}H_0$

d) Statistical Calculations

Values can be obtained from regression results with the SPSS program,$t_{hitung}t_{hitung}$= -2.843

e) Conclusion

Based on partial regression analysis, it is known that the value is -2.843 with a significance of 0.005, which means that the significant value (0.005) is smaller than α = 0.05 and (-2.843) is smaller than (1.98525). Can be concluded that$t_{hitung}t_{hitung}t_{hitung}t_{tabel}H_0$rejected and accepted. The results of this study indicate that the health complaint variable (X2) partially has a negative and significant effect on the work participation of the elderly population in Denpasar City.H_1

3) The influence of the number of dependents on the work participation of the elderly population in Denpasar City

Based on the test results carried out using the SPSS program, partial testing can be seen in Table 15. The stages in the partial test (t test) are as follows:

a) Hypothesis Formulation

H_0: ≤ 0, meaning that the variable number of dependents (X3) partially has no positive and significant effect on the work participation of the elderly population in Denpasar Cityβ_1

H_1: > 0, meaning that the variable number of dependents (X3) partially has a positive and significant effect on the work participation of the elderly population in Denpasar City.β_1

b) Real Level

Real level (α) = 0.05 and degrees of freedom df = (α) ; (nk-1) = (0.05) ; (95) so that it is drawn = 1.98525t_{tabel}

c) Testing Criteria

Ift_{hitung} ≤ or significance value > α then it is accepted. If > or significance value ≤ α then it is rejected$t_{tabel}H_0t_{hitung}t_{tabel}H_0$

d) Statistical Calculations

Values can be obtained from regression results with the SPSS program,$t_{hitung}t_{hitung}$= 3.438

e) Conclusion

Based on partial regression analysis, it is known that the value is 3.438 with a significance of 0.000, which means that the significant value (0.000) is smaller than α = 0.05 and (3.438) is greater than (1.98525). Can be concluded that$t_{hitung}t_{hitung}t_{hitung}t_{tabel}H_0$rejected and accepted. The results of this research show that the variable number of dependents (X3) partially has a positive and significant effect on the work participation of the elderly population in Denpasar City.H_1

Discussion of Research Results

The Influence of Education on Work Participation of the Elderly Population in Denpasar City

Based on the test results of the education variable (X1) on the work participation of the elderly population in Denpasar City (Y), the results show that education has a partially positive and significant effect on the work participation of the elderly population in Denpasar City. The test results are in accordance with the hypothesis which states that education partially has a positive effect on the work participation of the elderly population in Denpasar City. With a t value of 7.590 with a significance value of 0.000 which is smaller than 0.05, which means that the education variable has a significant effect. This education variable has a significant effect on the work participation of the elderly population in Denpasar City. A positive regression coefficient means that the higher the education, the higher the probability of the elderly population working or the higher the work participation of the elderly population in Denpasar City. This is in line with research conducted by Kevin E. Cahill et al. (2006), that elderly people with a higher level of education have a higher chance of continuing to work after reaching retirement age. On average, seniors' schooling has a significant positive effect on seniors' work participation (Amaliyyah et al. 2023). This is also confirmed by research conducted by Widiastutik, (2018) which suggests that with higher education, when they enter old age, the elderly population in Indonesia has a greater probability of continuing to work. According to

Burtless, (2013) that the increase in the absorption of elderly workers is influenced by educated elderly workers who are still remaining in the world of work. In general, the partial influence of education level on elderly work participation tends to be positive according to experts' views. Higher education can provide benefits in terms of skills, access to employment, self-confidence and financial stability for older adults. In general, the partial influence of education level on elderly work participation tends to be positive according to experts' views. Higher education can provide benefits in terms of skills, access to employment, self-confidence and financial stability for older adults. The results of this research are strengthened by the argument of one respondent named Dewi Masita, 63 years old, who said that:

"I only graduated from junior high school (Junior High School), because I was born into a relatively underprivileged family, so I decided to end my education at junior high school. I am very aware that education is an important part in finding a job, which is proven by my job as a food seller with a fairly small income. Even so, I am quite happy with my job and I think not to waste the knowledge from my education even as a junior high school graduate."

The Influence of Health Complaints on Work Participation of the Elderly Population in Denpasar City

Based on the test results of the health complaints variable (X2) on the work participation of the elderly population in Denpasar City (Y), the results show that health complaints have a partially negative and significant effect on the work participation of the elderly population in Denpasar City. The test results are in accordance with the hypothesis which states that health complaints partially have a negative effect on work participation of the elderly population in Denpasar City. With a t value of -2.843 with a significance value of 0.005 which is smaller than 0.05, which means that the health complaint variable has a significant effect. This health complaint variable has a significant effect on the work participation of the elderly population in Denpasar City. A negative regression coefficient means that the higher the health complaints, the lower the probability of the elderly population working or the lower the work participation of the elderly population in Denpasar City. This is in line with research conducted by Yanti & Sudibia (2019), which found that health conditions had a negative effect on the work participation of the elderly population. This is because in research, the health of elderly people is measured using health complaints experienced by the elderly population, the worse the health condition of the elderly person, so it can affect their daily activities and this can indirectly affect their work participation. . The elderly population, both men and women who have poor health, will make the decision to reduce their participation in work (Mette & Shultz, 2002). According to the results of research conducted by Affandi (2009), working elderly people are generally

supported by their health conditions, which enable these elderly people to continue working. The results of this research are strengthened by the argument of one respondent named Ida Ayu Made Yuli Astuti, 61 years old, who said that:

"In this month I only do a health check once. When I'm sick, of course I won't do activities like working. I choose to rest and recover my condition first, then when I feel healthy I continue to work again."

The Influence of the Number of Dependents on the Work Participation of the Elderly Population in Denpasar City

Based on the test results of the variable number of dependents (X3) on the work participation of the elderly population in Denpasar City (Y), the results show that the number of dependents has a partially positive and significant effect on the work participation of the elderly population in Denpasar City. The test results are in accordance with the hypothesis which states that the number of dependents partially has a positive effect on the work participation of the elderly population in Denpasar City. With a tcount value of 3.438 with a significance value of 0.000 which is smaller than 0.05, which means that the variable number of dependents has a significant effect. This variable for the number of dependents has a significant effect on the work participation of the elderly population in Denpasar City. A positive regression coefficient means that the higher the number of dependents, the higher the probability of the elderly population working or the higher the work participation of the elderly population in Denpasar City. Based on research conducted by Yanti & Sudibia (2019), it is stated that the number of dependents has a positive and significant effect on the work participation of the elderly population. The same thing was also obtained from research conducted by Andini et al. (2013) which states that the number of dependents has a positive and significant effect on the elderly population who are still working. Research by Yudik & Yuliarmi (2022) also states that the number of dependents has a positive and significant effect on the work participation of the elderly population, which means that if the number of dependents increases, the number of working hours will increase. Elderly people who have fewer dependents will require fewer necessities so working hours will be reduced. This is also supported by Firdaus (2006) that the greater the number of dependents in the family, of course, the household burden in meeting the needs borne by the elderly population also increases. The results of this research are strengthened by the argument of one respondent named Nyoman Karsa, 64 years old, who said that:

"I have 2 dependents, namely my wife who is not working and my child who is studying junior high school. Having these dependents allows me to continue working even though I am old and no longer young, this is because it is in order to earn income to meet our needs."

The Influence of Family Support on Work Participation of the Elderly Population in Denpasar City

Based on the test results of the family support variable (X4) on the work participation of the elderly population in Denpasar City (Y), the results show that family support has a partially positive and significant effect on the work participation of the elderly population in Denpasar City. The test results are in accordance with the hypothesis which states that family support partially has a positive effect on work participation of the elderly population in Denpasar City. With a t value of 2.603 with a significance value of 0.011 which is smaller than 0.05, which means that the family support variable has a significant effect. This family support variable has a significant effect on the work participation of the elderly population in Denpasar City. A positive regression coefficient means that the higher the family support, the higher the probability of the elderly population working or the higher the work participation of the elderly population in Denpasar City. According to Adams, GA, & Beehr, T. (2003) that support from the family can contribute positively to elderly work participation. Seniors who feel supported by their families have higher levels of job satisfaction and engagement. According to Wang & Shultz, KS (2010) family and social support can positively influence the work participation of the elderly population. Family support can provide the motivational encouragement and resources necessary for older adults to continue to engage in work activities. This is also reinforced in research conducted by Bahari & Sudibia (2021) which states that the concept of family support for elderly work participation is relevant and has a positive impact on the welfare of elderly people in providing enthusiasm and self-motivation in carrying out things or doing work. Older workers who receive support from their families have higher levels of job satisfaction and lower levels of stress. This family support helps older workers to more effectively manage work tasks and improves overall well-being. Elderly people who are in a supportive social environment or with family support generally have better conditions for carrying out economic activities than other elderly people who do not have family support, because family support is considered to be able to reduce or buffer the mental health effects of elderly people. . Therefore, family support is an important factor for elderly people to continue working. The results of this research are strengthened by the argument of one respondent named Ni Nyoman Suartini, 61 years old, who said that:

"I think support from my family is very important for me in doing my work. I have a family who really cares about my situation. Where when I was experiencing difficulties, my family was always ready to help. If I didn't have a family who didn't care about me, I definitely wouldn't be strong enough to do anything."

Implications of Research Results

Based on the discussion of research results previously presented, the results of this research have theoretical implications that support existing journals and theories and obtain new research results with different variables and research locations from previous research. In this research, there are factors that influence the work participation of the elderly population in Denpasar City, namely education, health complaints, number of dependents, and family support.

Education is an important factor for elderly people in finding a job. Through education, the elderly population will have a lot of knowledge that can be used to develop their skills and personal potential. Higher education can provide benefits in terms of skills, access to employment, self-confidence and financial stability for older adults. Higher education triggers the elderly population to obtain decent work and is able to provide a good income to meet life's needs and reduce the unemployment rate. Therefore, the elderly population who have a high level of education will be able to compete with other workers and the elderly population will also be able to make maximum use of their potential in working even though they have entered old age.

Health complaints refer to symptoms or disorders felt or complained about by elderly people related to their health conditions. Elderly residents who have health complaints have a lower chance of working longer because they are in poor health which can interfere with their activities.

The number of dependents is an important factor for the elderly population in deciding to work. Elderly people who have a large number of dependents in the family will of course require more needs so that their working hours will increase. In contrast to the elderly population who have fewer dependents, they will require fewer needs so that working hours will be reduced.

Family support has a very important role, because the family can provide physical and mental encouragement for elderly people in working. This support will certainly provide a stimulus for elderly people to carry out productive activities such as working. Good family support will have a positive influence on the development of the elderly, and vice versa. Therefore, elderly people who have support from their families will be motivated and can

increase their working hours, compared to elderly people who do not have support from their families.

CONCLUSIONS AND SUGGESTIONS

Conclusion

Based on the results of the discussion described in CHAPTER IV, the following conclusions can be obtained:

1) Education, health complaints, number of dependents, and family support simultaneously and significantly influence the work participation of the elderly population in Denpasar City. These four variables have an influence of 62.4% on the work participation of the elderly population in Denpasar City and the remaining 37.6% is influenced by other variables or factors.
2) Education, number of dependents, and family support partially have a positive and significant effect on work participation of the elderly population in Denpasar City.
3) Health complaints partially have a negative and significant effect on work participation of the elderly population in Denpasar City.

Suggestions

Based on the results of research analysis, discussion and conclusions, suggestions that can be given to parties in need are as follows:

1) The elderly population in Denpasar City has an average of high school education which is considered high compared to other areas. However, the government still needs to carry out ongoing education and training programs designed to improve the skills of the elderly population's work participation, especially in the field of technology and other skills that are in demand in the current job market.
2) Many elderly residents in Denpasar City still work because their health conditions are quite good and they rarely experience health complaints. However, the government still needs to strengthen access to preventive health services, including routine health checks and health promotion programs targeted at work participation of the elderly population. The government also needs to provide subsidies or cost support for medical care related to common illnesses experienced by the elderly population.
3) To families not to burden elderly people as heads of families so that they do not have to work too hard in their old age. Families also really need to provide support for the elderly population both in terms of information, assessment, instrumental and emotional, because family support is very important and needed by the elderly population in

providing comfort. The family is the main support system for the elderly population in maintaining quality of life because good family support will influence a good quality of life.

4) It is hoped that the Denpasar City Government will again provide cash compensation or financial assistance for elderly residents who do not receive old age benefits, so that elderly residents can be helped and reduce the burden of economic problems experienced by elderly residents.

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