Determinants of Happiness in Older Adults in England

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Abstract

The aim of this study was to investigate the factors that affect happiness in the elderly using data from the ELSA Wave 7 dataset. The dependent variable was happiness, and the independent variables were loneliness, anxiety, gender, financial constraints, health, and alcohol consumption. Chi-square test and Binary Logistic regression were performed in the analysis. The results of the chi-square test showed that all of the independent variables had an association with happiness. In the logistic regression analysis, alcohol consumption was not found to be a significant predictor of happiness, while the other independent variables were significant. These findings suggest that loneliness, anxiety, financial constraints, and health may be important factors that influence happiness in the elderly population. Further research with a larger sample size and different research designs is needed to confirm these results and to investigate the underlying mechanisms by which these factors affect happiness in this age group.

1. Introduction:

Happiness is a crucial element of overall well-being, and identifying the factors that influence happiness is a significant area of study. Happiness is affected by a wide range of factors, including personal characteristics, social and economic conditions, and physical and mental health, (Bassi & Delle Fave, 2004) and (Argyle et al., 1989) defined happiness as the predominance of positive emotions over negative ones and satisfaction with one's life. Happiness is vital for all members of society, especially the elderly population. Elderly people may be affected by unique factors that influence their happiness. (Nanthamongkolchai et al., 2009) As people age, they may encounter physical and cognitive changes, financial challenges, and changes in social relationships and support networks. These changes can all affect happiness in various ways, and understanding these relationships is vital for creating strategies to enhance well-being in this group. The current research uses data from the English Longitudinal Study of Aging (ELSA) wave 7 dataset to examine the relationship between happiness and multiple potential independent variables in a sample of elderly individuals. Empirical research has shown that people with higher levels of happiness have better outcomes in all areas of life, including success in money, positive relationships, mental health, successful coping, and even physical health and lifespan. (Diener, 2013) (Lyubomirsky et al., 2005) Moreover, prospective, and long-term studies demonstrate that happiness frequently precedes and predicts them. (Diener, 2009) (Diener et al., 1999) Independent variables of interest include financial constraints, alcohol consumption, gender, loneliness, anxiety, and health. By understanding the potential connections between these characteristics and happiness, we may be able to develop effective strategies for promoting happiness among older adults.

2. Literature Review

Loneliness is a prevalent feeling among older adults. The loss of friends, family members, and partners is common among the elderly, and as physical health deteriorates with age, many may be unable to participate in social activities they once enjoyed. All these factors can contribute to feelings of loneliness. (Can Happiness Reverse the Negative Effects of Loneliness?, 2012) The senior population is substantial overall and is increasing as medical knowledge advances. The many physical, psychological, and social changes that older adults experience can put their sense of self and ability to be happy under stress.. In later life, a lot of people endure despair and loneliness. The findings showed a significant connection between loneliness and depression. (Singh & Misra, 2009) Loneliness has been linked to negative emotions such as sadness and depression, which can ultimately lead to a decrease in overall happiness. The effects of loneliness and social isolation on older adults' health can be particularly detrimental. (NHS, 2021)

The world needs more people to practice happiness cultivation to reduce the dread and anxiety that many are experiencing (Ethridge & MA, 2020). Mental health conditions are a major contributor to sadness, but there are also other factors such as poverty, unemployment, family dysfunction, and physical sickness. According to the World Happiness Report, self-reported mental health condition is a significant factor in determining happiness and may even be the main cause of misery in wealthy nations (Helliwell et al., 2017). Improving resilience and self-efficacy, as well as reducing loneliness and discontent, may be ways to lower mental distress levels (Gerino et al., 2017). Resilience has been found to reduce anxiety and depression symptoms and improve overall life quality, both physically and psychologically. Studies have also revealed that some people experience "happiness anxiety" which is the fear of success or positive experiences due to past experiences where positive events turned into negative ones (Happiness Anxiety: What Is It?, 2019). Some people may even view happiness as an illusion (Hugo, 2019).

(Hong & Kim, 2020) in their research found that household wealth had an impact on the happiness of older women. Monthly income is the most significant factor in the dimension of contextual features (Factors Influencing Happiness in the Elderly Based on the Anderson Model, 2020). This study (Cha, 2021) also demonstrated that when economic activity and monthly income were high, happiness increased. Princeton University psychologists have found that concerns about financial stability and life satisfaction are strongly correlated. Financial stability and security can provide a sense of security and peace of mind which can increase happiness, as confirmed by research from Dunn et al (2011) and MacPherson (2009) stating that, money can buy happiness.

Health is a significant factor that can impact the happiness of older adults. Poor physical health can lead to unpleasant feelings such as pain, discomfort, and frustration, which can lower one's level of happiness. A study found that physical health was the most crucial variable in the dimension of medical outcomes for happiness (Factors Influencing Happiness in the Elderly Based on the Anderson Model, 2020). Additionally, research by Hong and Kim (2020) found that older adults who practiced healthy habits, felt they were in good health, and had no constraints on using healthcare reported experiencing a higher level of happiness. The idea that persistent unhappiness could be a real health concern and that happier individuals tend to be healthier and live longer is gaining acceptance in the scientific community (Happiness Has a Positive Effect on Physical Health, 2021). Good physical health can also increase an individual's ability to engage in activities and experiences that bring them happiness.

Research has found that low to moderate alcohol consumption can improve emotional expression and boost happiness (Baum-Baicker, 1985). However, excessive, or chronic drinking can have negative effects on physical and mental health. Studies have provided mixed findings on the effects of alcohol on happiness (Griscti, 2016), with some finding temporary benefits (Dufour et al., 1992) and others indicating negative effects (Burnett, 2016; Alcohol Can Make You Momentarily Happier, 2016). Additionally, older adults may be more sensitive to the harmful effects of alcohol on their health

(Klausen et al., 2020) and research suggests that older adults are increasingly engaging in alcohol use, which can lead to harmful consequences (Alcohol and Older Adults - HelpGuide.org, 2022). Drinking alcohol can also amplify certain emotions and worsen depression (NHS, 2021).

Research has shown that since the early 1970s, there has been a decline in happiness among women compared to men (Brakus et al., 2022). Studies have produced mixed findings (Are Women Happier than Men? Do Gender Rights Make a Difference?, 2020), with some indicating that women are happier than men (Yue et al, 2017), while others have found that women's happiness has decreased over the last few decades. However, recent research shows that women now report lower levels of happiness than men, reversing the trend from the 1970s Is There a Happiness Gender Gap?, 2009). As women's rights continue to advance, it is expected that their levels of life satisfaction will also increase. The question of whether or not women are happier than men is complex and more research is needed to draw a definitive conclusion. It will be interesting to see what we find in our analysis.

3. Research Aim and Objectives

Table 1. Research Aim and Objectives

Research Aim	This study intends to investigate if factors such as loneliness, anxiety, physical health, alcohol consumption, gender, and financial restrictions have an impact on an older person's happiness as well as the quality of any relationships they may have.
Research Objectives	1. To identify the connection between economic (financial) circumstances and happiness. 2. To investigate whether happiness and physical health are related. 3. To investigate the association between happiness and Gender. 4. To evaluate whether happiness and alcohol consumption are related. 5. To determine whether mental health issues (such as loneliness and anxiety) have a connection to happiness.

4. Methodology

4.1 The ELSA Wave 7 dataset

The English Longitudinal Study of Ageing (ELSA) is a large-scale, nationally representative study of adults aged 50 and over living in England. The study collects detailed information on a wide range of topics, including physical and mental health, social networks, economic well-being, and cognition. Wave 7 of the study was conducted in 2014-2015 and included a representative sample of over 9,000 adults. The ELSA Wave 7 dataset offers a wealth of data for researching the variables that influence happiness and well-being in later life.

4.2 Variables

As mentioned, the factors which can possibly affect happiness are Loneliness, Anxiety, Financial Constraints, Gender, Physical health, and Alcohol consumption. These are the independent variables and Happiness is our dependent variable. Happiness is a binary variable which means that it has values of 0 or 1. All the independent variables are categorical. A categorical variable, is a variable used in statistics that can have one of a finite number of possible values, usually fixed, and that designates each individual or other unit of observation to a specific group or nominal category based on some qualitative property.

Table 2. Variables

Variable	Variable type	ELSA Dataset Label	Re-coded Label	Assigned Values	Description
Happiness (Dependent)	Binary	PScedD	Happiness	0=No 1=Yes	Whether was happy much of the time during past week
Loneliness	Ordinal	scfeele	Loneliness	1= Hardly ever or never 2= Sometimes 3= Often	How often respondent feels lonely
Anxiety	Ordinal	scovan	Anxious	0= Not at all 1= Less Likely 2= A bit 3= More Likely 4= Very	Overall, how anxious did you feel yesterday?
Financial Constraints	Ordinal	EXRela	Finance	1= Never 2= Rarely 3= Sometimes 4= Often 5= Most of the time	How often they find they have too little money to spend on their needs
Gender	Binary	DiSex	Gender	1=Male 2=Female	Respondent sex
Physical health	Ordinal	Hehelf	Health	1= Excellent 2= Very good 3= Good 4= Fair 5= Poor	Self-reported general health

	Ordinal	scako	Drink	1= More than three days a week 2= Once or twice a week 3= Once or twice a month 4= Once every couple of months 5= Once or twice a year 6=Not at all	How often respondent has had an alcoholic drink during the last 12 months
Alcohol consumption					

4.3 Analysis and Procedure

The IBM SPSS Statistics 28 software is used in this report to conduct the analysis. We began by importing the ELSA Wave 7 dataset into SPSS and Cleaning and preparing the data for analysis by checking for missing values, and outliers. Then, descriptive statistics were run to summarize the data. As the data were not normally distributed, a non-parametric test was run on the variables which was the chi-square test to examine the relationship between happiness (the dependent variable) and the independent variables. After that, as our dependent variable was categorical and binary, logistic regression was performed to determine the unique contribution of each independent variable to the prediction of happiness, while controlling for the other variables in the model.

5. Results

5.1 Descriptive Statistics

Table 3. Descriptive statistcs

Variable	Values	Frequency	Valid Percentage	Mean
Happiness (Dependent)	0=No	869	9.7%	0.90
	1=Yes	8109	90.3%	
	Total	*8978*	*100%*	
Loneliness	1= Hardly ever or never	5748	71.2%	1.34
	2= Sometimes	1870	23.1%	
	3= Often	460	5.7%	
	Total	*8078*	*100%*	
Anxiety	0= Not at all	3508	45.1%	0.85
	1= Less Likely	2651	34.1%	
	2= A bit	961	12.3%	
	3= More Likely	568	7.3%	
	4= Very	97	1.2%	
	Total	*7785*	*100%*	
Financial Constraints	1= Never	4238	47.3%	1.87
	2= Rarely	2451	27.3%	
	3= Sometimes	1672	18.6%	
	4= Often	364	4.1%	
	5= Most of the time	244	2.7%	
	Total	*8969*	*100%*	
Gender	1=Male	4298	44.5%	1.55
	2=Female	5368	55.5%	
	Total	*9666*	*100%*	
Physical health	1= Excellent	1076	11.9%	2.80
	2= Very good	2640	29.1%	
	3= Good	2989	33.0%	
	4= Fair	1682	18.6%	
	5= Poor	679	7.5%	
	Total	*9066*	*100%*	
Alcohol consumption	1= More than three days a week	2679	33.4%	2.74
	2= Once or twice a week	1998	24.9%	
	3= Once or twice a month	935	11.6%	
	4= Once every couple of months	619	7.7%	
	5= Once or twice a year	741	9.2%	
	6=Not at all	1059	13.2%	
	Total	*8031*	*100%*	

5.2 Chi-square test

The chi-square test is a statistical test that is used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in a categorical data set.

To conduct a chi-square test, certain criteria must be met such as the data used must be categorical, and the expected frequencies for each cell in the contingency table should be at least 5. If the expected frequencies are too low, the chi-square test results may not be trustworthy. The p value is used to indicate the level of significance of the results obtained from the test.

If $p<0.05$, the results significant and null hypothesis(H_0) can be rejected.

- **Hypothesis for all variables:**

Table 5: Hypothesis

H_0	There is no association between the independent variable and happiness.
H_1	There is an association between the independent variable and happiness.

Table 6: Crosstabulation of Happiness and Loneliness

			Loneliness			
			Hardly ever	Sometimes	Often	Total
Happiness	No	Count	243	277	186	706
		% Within Happiness	34.4%	39.2%	26.3%	100%
	Yes	Count	5477	1582	269	7328
		% Within Happiness	74.7%	21.6%	3.7%	100%
	Total	Count	5720	1859	455	8034
		% Within Happiness	71.2	23.1%	5.7%	100%

Table 6.1: Chi-square test

	Value	df	Asymptotic Significance (2-sided)	Min. expected count
Linear-by-Linear Association	753.45	1	<0.001	39.98
Result	There is a significant association between Happiness and Loneliness ($\chi2$=753.45, p<0.001). Therefore, H_0 is rejected. As you can see, only 3.7% of people who often feel lonely are happy and 74.7% of people who hardly felt lonely are happy.			

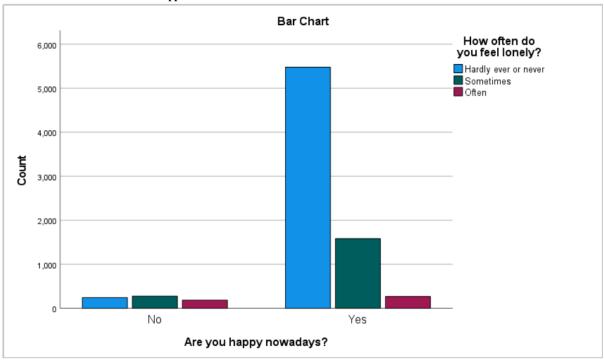**Chart 6.1: Clustered bar chart of Happiness and loneliness**

Table 7: Crosstabulation of Happiness and Anxiety

			Anxiety					
			Not at all	Less likely	A bit	More likely	Very	Total
Happiness	No	Count	144	197	152	130	32	655
		% Within Happiness	22.0%	30.1%	23.2%	19.8%	4.9%	100%
	Yes	Count	3347	2437	806	432	64	7086
		% Within Happiness	47.2%	34.4%	11.4%	6.1%	0.9%	100%
	Total	Count	3491	2634	958	562	96	7741
		% Within Happiness	45.1%	34.0%	12.4%	7.3%	1.2%	100%

Table 7.1: Chi-square test

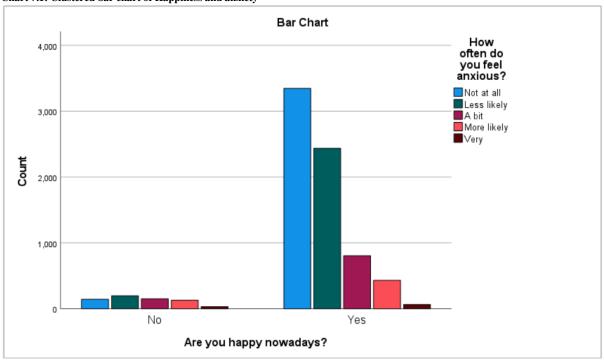|	Value	df	Asymptotic Significance (2-sided)	Min. expected count
Linear-by-Linear Association	367.34	1	<0.001	8.12
Result	There is a significant association between Happiness and Anxiety ($\chi 2$=367.34, p<0.001). Therefore, H_0 is rejected. As you can see,47.2% of people who often feel anxious are happy and 0.9% of people who feel anxious are happy.			

Chart 7.1: Clustered bar chart of Happiness and anxiety

Table 8: Crosstabulation of Happiness and Financial Constraints

			Financial Constraints					
			Never	Rarely	Sometimes	Often	Most of time	Total
Happiness	No	Count	288	183	217	83	85	856
		% Within Happiness	33.6%	21.4%	25.4%	9.7%	9.9%	100%
	Yes	Count	3347	2437	806	432	64	7086
		% Within Happiness	48.7%	28.0%	17.9%	3.4%	1.9%	100%
	Total	Count	4225	2446	1665	361	240	8937
		% Within Happiness	47.3%	27.4%	18.6%	4.0%	2.7%	100%

Table 8.1: Chi-square test

	Value	df	Asymptotic Significance (2-sided)	Min. expected count
Linear-by-Linear Association	257.86	1	<0.001	22.99
Result	There is a significant association between Happiness and Financial constraints (χ^2=257.86, p<0.001). Therefore, H$_0$ is rejected. 48.7% of people who are rich feel happy whereas only 1.9% of people who have financial constraints are happy.			

Chart 8.1: Clustered bar chart of Happiness and financial constraints

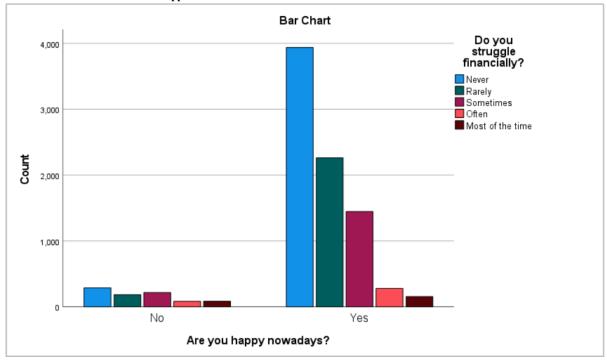**Table 9: Crosstabulation of Happiness and Gender**

			Gender		
			Male	Female	Total
Happiness	No	Count	332	537	869
		% Within Happiness	38.2%	61.8%	100.0%
	Yes	Count	3603	4506	8109
		% Within Happiness	44.4%	55.6%	100.0%
	Total	Count	3935	5043	8978
		% Within Happiness	43.8%	56.2%	100.0%

Table 9.1: Chi-square test

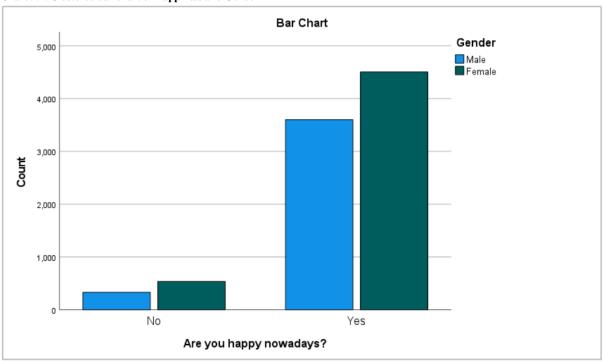|	Value	df	Asymptotic Significance (2-sided)	Min. expected count
Continuity Correction	12.11	1	<0.001	380.88
Result	There is a significant association between Happiness and Gender ($\chi2$=12.11, p<0.001). Therefore, H$_0$ is rejected. 55.6% of females are happy whereas 38% of males are unhappy.			

Chart 9.1: Clustered bar chart of Happiness and Gender

Table 10: Crosstabulation of Happiness and Physical health

			Physical Health					
			Excellent	Very good	Good	Fair	Poor	Total
Happiness	No	Count	53	122	248	252	194	869
		% Within Happiness	6.1%	14.0%	28.5%	29.0%	22.3%	100.0%
	Yes	Count	1017	2498	2711	1407	474	8107
		% Within Happiness	12.5%	30.8%	33.4%	17.4%	5.8%	100.0%
	Total	Count	1070	2620	2959	1659	668	8976
		% Within Happiness	11.9%	29.2%	33.0%	18.5%	7.4%	100.0%

Table 10.1: Chi-square test

	Value	df	Asymptotic Significance (2-sided)	Min. expected count
Linear-by-Linear Association	356.94	1	<0.001	64.67
Result	There is a significant association between Happiness and Physical health ($\chi2$=356.94, p<0.001). Therefore, H0 is rejected. Only 5.8% of unhealthy are happy whereas only 33.4% of people with good health are happy.			

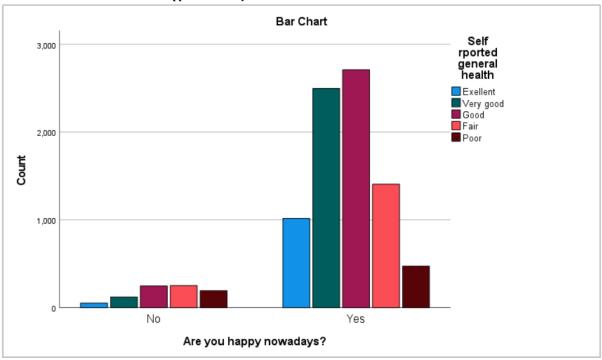**Chart 10.1: Clustered bar chart of Happiness and Physical health**

Table 11: Crosstabulation of Happiness and Alcohol consumption

			Alcohol Consumption						
			More than three times a week	Once or twice a week	Once or twice a month	Once every couple of months	Once or twice a year	Not at all	Total
Happiness	No	Count	189	151	78	64	81	139	702
		% Within Happiness	26.9%	21.5%	11.1%	9.1%	11.5%	19.8%	100.0%
	Yes	Count	2479	1832	853	554	652	914	7284
		% Within Happiness	34.0%	25.2%	11.7%	7.6%	9.0%	12.5%	100.0%
	Total	Count	2668	1983	931	618	733	1053	7986
		% Within Happiness	33.4%	24.8%	11.7%	7.7%	81	139	702

Table 11.1: Chi-square test

	Value	df	Asymptotic Significance (2-sided)	Min. expected count
Linear-by-Linear Association	43.6	1	<0.001	54.32
Result	There is a significant association between Happiness and Alcohol Consumption ($\chi2$=43.6, p<0.001). Therefore, H0 is rejected. 26.9% of people who used to drink alcohol regularly were unhappy whereas 34% of people who drink regularly were happy. 19.8% of people who did not drink were unhappy and 12.5% of people who did not consume alcohol were happy.			

Chart 11.1: Clustered bar chart of Happiness and alcohol consumption

5.3 Logistic Regression

The hypothesis for Logistic regression is the same as in the case of chi-square test.

Table 12: Hypothesis

H0	There is no association between the independent variable and happiness.
H1	There is an association between the independent variable and happiness.

Table 13: Categorical variables coding

		Frequency	Parameter coding				
			(1)	(2)	(3)	(4)	(5)
How often do you drink?	More than three days a week	2576	.000	.000	.000	.000	.000
	Once or twice a week	1897	1.000	.000	.000	.000	.000
	Once or twice a month	895	.000	1.000	.000	.000	.000
	Once every couple of months	579	.000	.000	1.000	.000	.000
	Once or twice a year	690	.000	.000	.000	1.000	.000
	Not at all	966	.000	.000	.000	.000	1.000
Self-reported general health	Excellent	956	.000	.000	.000	.000	
	Very good	2337	1.000	.000	.000	.000	
	Good	2546	.000	1.000	.000	.000	
	Fair	1293	.000	.000	1.000	.000	
	Poor	471	.000	.000	.000	1.000	

	Category	N	(1)	(2)	(3)	(4)
Do you struggle financially?	Never	3673	.000	.000	.000	.000
	Rarely	2133	1.000	.000	.000	.000
	Sometimes	1348	.000	1.000	.000	.000
	Often	275	.000	.000	1.000	.000
	Most of the time	174	.000	.000	.000	1.000
How often do you feel anxious?	Not at all	3429	.000	.000	.000	.000
	Less likely	2598	1.000	.000	.000	.000
	A bit	943	.000	1.000	.000	.000
	More likely	544	.000	.000	1.000	.000
	Very	89	.000	.000	.000	1.000
How often do you feel lonely?	Hardly ever or never	5488	.000	.000		
	Sometimes	1717	1.000	.000		
	Often	398	.000	1.000		
Gender	Male	3348	.000			
	Female	4255	1.000			

Table 14: Variables in the equation

Variable	df	P(Sig.)	Exp(B)	95% C.I for Exp(B)	
				Lower	Upper
Do you struggle financially?	4	<.001			
Do you struggle financially? (1)	1	.626	.945	.751	1.188
Do you struggle financially? (2)	1	.011	.737	.582	.933
Do you struggle financially? (3)	1	.001	.545	.379	.785
Do you struggle financially? (4)	1	<.001	.287	.193	.428
Self-reported general health	4	<.001			
Self-reported general health (1)	1	.455	1.162	.784	1.721
Self-reported general health (2)	1	.218	.792	.547	1.148
Self-reported general health (3)	1	<.001	.496	.338	.728
Self-reported general health (4)	1	<.001	.316	.208	.482
How often do you feel lonely?	2	<.001			
How often do you feel lonely? (1)	1	<.001	.371	.303	.453
How often do you feel lonely? (2)	1	<.001	.132	.101	.172
How often do you feel anxious?	4	<.001			
How often do you feel anxious? (1)	1	<.001	.621	.491	.785
How often do you feel anxious? (2)	1	<.001	.426	.327	.555
How often do you feel anxious? (3)	1	<.001	.255	.191	.340
How often do you feel anxious? (4)	1	<.001	.208	.121	.360
Gender (1)	1	.040	.821	.680	.991
How often do you drink?	5	.756			
How often do you drink? (1)	1	.229	1.167	.907	1.502
How often do you drink? (2)	1	.506	1.110	.816	1.511
How often do you drink? (3)	1	.521	1.121	.791	1.588
How often do you drink? (4)	1	.411	1.147	.828	1.588
How often do you drink? (5)	1	.140	1.241	.931	1.654
Constant	1	<.001	51.701		

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Table 15: Model Summary

-2 Log likelihood	Cox and Snell R Square	Nagelkerke R Square
3560.04	0.103	0.235

A model's ability to fit the data is measured by its R-squared value. A better fit is indicated by higher values, which range from 0 to 1. R squared is difficult to understand in logistic regression because it lacks a clear statistical significance. An adjusted version of R squared known as **Nagelkerke's R squared** has the same meaning as R squared in linear regression.

Apart from alcohol intake, which has a p>0.05, all the independent variables in our logistic regression model are significant. In our examination of the literature, we found that some researchers discovered that drinking alcohol temporarily boosts happiness while other researchers discovered that it had greater detrimental effects on the elderly. This was the reason behind selecting the variable, which was intriguing.

Table 16: Findings

Variable	p(Sig.)	Exp(B)	Result
Do you struggle financially? (Never)	<.001		Reference category
Do you struggle financially? (Rarely)	.626	.945	The result is insignificant as p>0.05.
Do you struggle financially? (Sometimes)	.011	.737	People who **sometimes** struggle financially are **26.3% less happy** than the ones who do not struggle financially at all.
Do you struggle financially? (Often)	.001	.545	People who **often** struggle financially are **65.5% less happy** than the ones who do not struggle financially at all.
Do you struggle financially? (Most of the time)	<.001	.287	People who **most of the time** struggle financially are **71.3% less happy** than the ones who do not struggle financially at all.
Self-reported general health (Excellent)	<.001		Reference category
Self-reported general health (Very Good)	.455	1.162	The result is insignificant as p>0.05.
Self-reported general health (Good)	.218	.792	The result is insignificant as p>0.05.
Self-reported general health (Fair)	<.001	.496	People who have **Fair health** are **51.4% less happy** than the ones who have excellent self-reported health.
Self-reported general health (Poor)	<.001	.316	People who have **poor health** are **68.4% less happy** than the ones who have excellent self-reported health.
How often do you feel lonely? (Hardly ever or never)	<.001		Reference category
How often do you feel lonely? (Sometimes)	<.001	.371	People who **sometimes feel lonely** are **62.9% less happy** than the ones who hardly ever feel lonely.
How often do you feel lonely? (Often)	<.001	.132	People who **often feel lonely** are **86.8% less happy** than the ones who hardly ever feel lonely.

How often do you feel anxious? (Not at all)	<.001		Reference Category
How often do you feel anxious? (Less likely)	<.001	.621	People who are **less likely to feel anxious** are **37.9% less happy** than the ones who do not feel anxious at all.
How often do you feel anxious? (A bit)	<.001	.426	People who **feel a bit anxious** are **57.4% less happy** than the ones who do not feel anxious at all.
How often do you feel anxious? (More Likely)	<.001	.255	People who are **more likely to feel anxious** are **74.5% less happy** than the ones who do not feel anxious at all.
How often do you feel anxious? (Very)	<.001	.208	People who are **very anxious** are **79.2% less happy** than the ones who do not feel anxious at all.
Gender (Male)			Reference Category
Gender (Female)	.040	.821	**Females** are **17.9% less happy** than males.
How often do you drink? (More than three times a week)	.756		**The result is insignificant as p>0.05.**
How often do you drink? (Once or twice a week)	.229	1.167	The result is insignificant as p>0.05.
How often do you drink? (Once or twice a month)	.506	1.110	The result is insignificant as p>0.05.
How often do you drink? (Once every couple of months)	.521	1.121	The result is insignificant as p>0.05.
How often do you drink? (Once or twice a year)	.411	1.147	The result is insignificant as p>0.05.
How often do you drink? (Not at all)	.140	1.241	The result is insignificant as p>0.05.

6. Discussion

The chi-square test findings revealed that each independent variable was associated with happiness. This shows that each of these elements may be having an impact on how happy the senior population is.

Alcohol consumption was shown not to be significant in the logistic regression analysis, although the other independent factors were. Accordingly, it is likely that gender, financial limitations, health, loneliness, and anxiety are significant predictors of happiness in the elderly.

It was found that people who struggle financially are less happy than the ones who do not. The results support (Cha, 2021) findings in his research.

(Glantz & Bareham, 2018) found that when people are physically unwell or ill, their capacity of being happy decreases which align with our result as well. We found that as physical health declines, happiness declines.

Loneliness came out as one of the most significant predictors as the people who were lonely more often were 86.8% less happy than the ones who were not lonely. (Singh & Misra, 2009) found a significant relationship between loneliness and depression, which further causes unhappiness.

Male and female mental health issues exhibited the greatest detrimental causal relationships with happiness. (Mahmoodi et al., 2022) Our results showed that as anxiety increases, happiness decreases,

which aligns with the findings of Mahmoodi. Lower scores for the symptoms of anxiety and depression were also predicted by higher levels of enjoyment. (Spinhoven et al., 2021)

In our literature review, we found different results of happiness in men and women. Some of the researchers found that women's happiness has decreased since the 1970s, (Brakus et al., 2022) our analysis also showed that as compared to men, women are 17.9% less happy.

7. Limitations

The fact that the data used in this study was self-reported, which makes it prone to biases including social desirability bias and recall bias, is one restriction. For instance, if a participant feels that drinking alcohol is socially unacceptable, they may not accurately report it or underreport it. The number of variables that could influence elderly people's happiness was quite small in this study. This analysis may have missed some significant variables, such as social support and relationship with partner. The statistical analyses used in this study (chi-square test and logistic regression) have their own limitations. It is crucial to keep in mind that, despite the fact that the data for this study were gathered over time, it is still not viable to infer causality from the findings of this analysis. A causal link between the independent and dependent variables would require more research employing various research designs and methodologies.

8. Reflections and Improvements

In this study, drinking alcohol was not found to be a reliable indicator of happiness. The limited sample size or other elements, such as the frequency and intake of alcohol, could be to blame for this. To completely comprehend the connection between alcohol and happiness in the elderly, additional research with larger sample size and more thorough data on alcohol usage may be required. We can incorporate other variables into the model, such as partner relationships and social support, to make it more accurate. Future analyses might use these variables to paint a fuller picture of the determinants affecting this age group's pleasure.

9. Conclusion

In conclusion, the results of the chi-square test showed that all of the independent variables (loneliness, anxiety, gender, financial constraints, health, and alcohol consumption) had an association with happiness. Alcohol consumption was not found to be a significant predictor of happiness in the logistic regression study, although the other independent variables were significant. Anxiety and Loneliness were the top two predictors of happiness. These elements must be considered by healthcare professionals and policymakers when developing interventions and support systems for the aged. When interpreting the findings of a study, it is crucial to consider the limitations of the data and statistical analyses that were employed.

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11. Appendix

Frequencies

Statistics

		Are you happy nowadays?	How often do you feel lonely?	How often do you feel anxious?	Do you struggle financially?	Gender	Self rported general health	How often do you drink?
N	Valid	8978	8078	7785	8969	9666	9066	8031
	Missing	688	1588	1881	697	0	600	1635
Mean		.9032	1.3454	.8561	1.8767	1.5553	2.8068	2.7413
Range		1.00	2.00	4.00	4.00	1.00	4.00	5.00
Minimum		.00	1.00	.00	1.00	1.00	1.00	1.00
Maximum		1.00	3.00	4.00	5.00	2.00	5.00	6.00

Frequency Table

Are you happy nowadays?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	869	9.0	9.7	9.7
	Yes	8109	83.9	90.3	100.0
	Total	8978	92.9	100.0	
Missing	System	688	7.1		
Total		9666	100.0		

How often do you feel lonely?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hardly ever or never	5748	59.5	71.2	71.2
	Sometimes	1870	19.3	23.1	94.3
	Often	460	4.8	5.7	100.0
	Total	8078	83.6	100.0	
Missing	System	1588	16.4		
Total		9666	100.0		

How often do you feel anxious?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	3508	36.3	45.1	45.1
	Less likely	2651	27.4	34.1	79.1
	A bit	961	9.9	12.3	91.5
	More likely	568	5.9	7.3	98.8
	Very	97	1.0	1.2	100.0
	Total	7785	80.5	100.0	
Missing	System	1881	19.5		
Total		9666	100.0		

Do you struggle financially?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	4238	43.8	47.3	47.3
	Rarely	2451	25.4	27.3	74.6
	Sometimes	1672	17.3	18.6	93.2
	Often	364	3.8	4.1	97.3
	Most of the time	244	2.5	2.7	100.0
	Total	8969	92.8	100.0	
Missing	System	697	7.2		
Total		9666	100.0		

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	4298	44.5	44.5	44.5
	Female	5368	55.5	55.5	100.0
	Total	9666	100.0	100.0	

How often do you drink?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	More than three days a week	2679	27.7	33.4	33.4
	Once or twice a week	1998	20.7	24.9	58.2
	Once or twice a month	935	9.7	11.6	69.9
	Once every couple of months	619	6.4	7.7	77.6
	Once or twice a year	741	7.7	9.2	86.8
	Not at all	1059	11.0	13.2	100.0
	Total	8031	83.1	100.0	
Missing	System	1635	16.9		
Total		9666	100.0		

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Are you happy nowadays? * Gender	8978	92.9%	688	7.1%	9666	100.0%
Are you happy nowadays? * How often do you feel lonely?	8034	83.1%	1632	16.9%	9666	100.0%
Are you happy nowadays? * ANXIETY	7741	80.1%	1925	19.9%	9666	100.0%
Are you happy nowadays? * Self rported general health	8976	92.9%	690	7.1%	9666	100.0%
Are you happy nowadays? * Do you struggle financially?	8937	92.5%	729	7.5%	9666	100.0%
Are you happy nowadays? * How often do you drink?	7986	82.6%	1680	17.4%	9666	100.0%

Are you happy nowadays? * Gender

Crosstab

			Gender		Total
			Male	Female	
Are you happy nowadays?	No	Count	332	537	869
		% within Are you happy nowadays?	38.2%	61.8%	100.0%
	Yes	Count	3603	4506	8109
		% within Are you happy nowadays?	44.4%	55.6%	100.0%
Total		Count	3935	5043	8978
		% within Are you happy nowadays?	43.8%	56.2%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	12.363[a]	1	<.001		
Continuity Correction[b]	12.112	1	<.001		
Likelihood Ratio	12.493	1	<.001		
Fisher's Exact Test				<.001	<.001
Linear-by-Linear Association	12.362	1	<.001		
N of Valid Cases	8978				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 380.88.

b. Computed only for a 2x2 table

Are you happy nowadays? * How often do you feel lonely?

Crosstab

			How often do you feel lonely?			
			Hardly ever or never	Sometimes	Often	Total
Are you happy nowadays?	No	Count	243	277	186	706
		% within Are you happy nowadays?	34.4%	39.2%	26.3%	100.0%
	Yes	Count	5477	1582	269	7328
		% within Are you happy nowadays?	74.7%	21.6%	3.7%	100.0%
Total		Count	5720	1859	455	8034
		% within Are you happy nowadays?	71.2%	23.1%	5.7%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	818.321[a]	2	<.001
Likelihood Ratio	590.416	2	<.001
Linear-by-Linear Association	753.454	1	<.001
N of Valid Cases	8034		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 39.98.

Are you happy nowadays? * How often do you feel anxious?

Crosstab

			How often do you feel anxious?					
			Not at all	Less likely	A bit	More likely	Very	Total
Are you happy nowadays?	No	Count	144	197	152	130	32	655
		% within Are you happy nowadays?	22.0%	30.1%	23.2%	19.8%	4.9%	100.0%
	Yes	Count	3347	2437	806	432	64	7086
		% within Are you happy nowadays?	47.2%	34.4%	11.4%	6.1%	0.9%	100.0%
Total		Count	3491	2634	958	562	96	7741
		% within Are you happy nowadays?	45.1%	34.0%	12.4%	7.3%	1.2%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	388.692[a]	4	<.001
Likelihood Ratio	319.191	4	<.001
Linear-by-Linear Association	367.357	1	<.001
N of Valid Cases	7741		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.12.

Are you happy nowadays? * Self rported general health

Crosstab

			Self rported general health					Total
			Exellent	Very good	Good	Fair	Poor	
Are you happy nowadays?	No	Count	53	122	248	252	194	869
		% within Are you happy nowadays?	6.1%	14.0%	28.5%	29.0%	22.3%	100.0%
	Yes	Count	1017	2498	2711	1407	474	8107
		% within Are you happy nowadays?	12.5%	30.8%	33.4%	17.4%	5.8%	100.0%
Total		Count	1070	2620	2959	1659	668	8976
		% within Are you happy nowadays?	11.9%	29.2%	33.0%	18.5%	7.4%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	452.651[a]	4	<.001
Likelihood Ratio	378.072	4	<.001
Linear-by-Linear Association	356.947	1	<.001
N of Valid Cases	8976		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 64.67.

Are you happy nowadays? * Do you struggle financially?

Crosstab

			Do you struggle financially?					Total
			Never	Rarely	Sometimes	Often	Most of the time	
Are you happy nowadays?	No	Count	288	183	217	83	85	856
		% within Are you happy nowadays?	33.6%	21.4%	25.4%	9.7%	9.9%	100.0%
	Yes	Count	3937	2263	1448	278	155	8081
		% within Are you happy nowadays?	48.7%	28.0%	17.9%	3.4%	1.9%	100.0%
Total		Count	4225	2446	1665	361	240	8937
		% within Are you happy nowadays?	47.3%	27.4%	18.6%	4.0%	2.7%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	332.569[a]	4	<.001
Likelihood Ratio	249.211	4	<.001
Linear-by-Linear Association	257.860	1	<.001
N of Valid Cases	8937		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 22.99.

Are you happy nowadays? * How often do you drink?

Crosstab

| | | | How often do you drink? | | | | | | |
			More than three days a week	Once or twice a week	Once or twice a month	Once every couple of months	Once or twice a year	Not at all	Total
Are you happy nowadays?	No	Count	189	151	78	64	81	139	702
		% within Are you happy nowadays?	26.9%	21.5%	11.1%	9.1%	11.5%	19.8%	100.0%
	Yes	Count	2479	1832	853	554	652	914	7284
		% within Are you happy nowadays?	34.0%	25.2%	11.7%	7.6%	9.0%	12.5%	100.0%
Total		Count	2668	1983	931	618	733	1053	7986
		% within Are you happy nowadays?	33.4%	24.8%	11.7%	7.7%	9.2%	13.2%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	45.407[a]	5	<.001
Likelihood Ratio	42.670	5	<.001
Linear-by-Linear Association	43.602	1	<.001
N of Valid Cases	7986		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 54.32.

Logistic Regression

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	7603	78.7
	Missing Cases	2063	21.3
	Total	9666	100.0
Unselected Cases		0	.0
Total		9666	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
No	0
Yes	1

Categorical Variables Codings

		Frequency	Parameter coding (1)	(2)	(3)	(4)	(5)
How often do you drink?	More than three days a week	2576	.000	.000	.000	.000	.000
	Once or twice a week	1897	1.000	.000	.000	.000	.000
	Once or twice a month	895	.000	1.000	.000	.000	.000
	Once every couple of months	579	.000	.000	1.000	.000	.000
	Once or twice a year	690	.000	.000	.000	1.000	.000
	Not at all	966	.000	.000	.000	.000	1.000
Self rported general health	Exellent	956	.000	.000	.000	.000	
	Very good	2337	1.000	.000	.000	.000	
	Good	2546	.000	1.000	.000	.000	
	Fair	1293	.000	.000	1.000	.000	
	Poor	471	.000	.000	.000	1.000	
Do you struggle financially?	Never	3673	.000	.000	.000	.000	
	Rarely	2133	1.000	.000	.000	.000	
	Sometimes	1348	.000	1.000	.000	.000	
	Often	275	.000	.000	1.000	.000	
	Most of the time	174	.000	.000	.000	1.000	
How often do you feel anxious?	Not at all	3429	.000	.000	.000	.000	
	Less likely	2598	1.000	.000	.000	.000	
	A bit	943	.000	1.000	.000	.000	
	More likely	544	.000	.000	1.000	.000	
	Very	89	.000	.000	.000	1.000	
How often do you feel lonely?	Hardly ever or never	5488	.000	.000			
	Sometimes	1717	1.000	.000			
	Often	398	.000	1.000			
Gender	Male	3348	.000				
	Female	4255	1.000				

Block 0: Beginning Block

Classification Table[a,b]

	Observed		Predicted Are you happy nowadays? No	Yes	Percentage Correct
Step 0	Are you happy nowadays?	No	0	639	.0
		Yes	0	6964	100.0
	Overall Percentage				91.6

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	2.389	.041	3339.360	1	.000	10.898

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Do you struggle financially?	282.222	4	<.001
		Do you struggle financially?(1)	7.252	1	.007
		Do you struggle financially?(2)	22.375	1	<.001
		Do you struggle financially?(3)	66.686	1	<.001
		Do you struggle financially?(4)	164.325	1	<.001
		Self rported general health	331.885	4	<.001
		Self rported general health(1)	77.728	1	<.001
		Self rported general health(2)	2.480	1	.115
		Self rported general health(3)	66.878	1	<.001
		Self rported general health(4)	209.506	1	<.001
		How often do you feel lonely?	756.459	2	<.001
		How often do you feel lonely?(1)	111.245	1	<.001
		How often do you feel lonely?(2)	569.142	1	<.001
		How often do you feel anxious?	390.242	4	<.001
		How often do you feel anxious?(1)	5.274	1	.022
		How often do you feel anxious?(2)	78.704	1	<.001
		How often do you feel anxious?(3)	165.752	1	<.001
		How often do you feel anxious?(4)	81.697	1	<.001
		Gender(1)	13.658	1	<.001
		How often do you drink?	42.692	5	<.001
		How often do you drink?(1)	5.011	1	.025
		How often do you drink?(2)	.025	1	.876
		How often do you drink?(3)	2.117	1	.146
		How often do you drink?(4)	5.990	1	.014
		How often do you drink?(5)	25.658	1	<.001
	Overall Statistics		1125.185	20	<.001

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	827.507	20	<.001
	Block	827.507	20	<.001
	Model	827.507	20	<.001

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	3560.048[a]	.103	.235

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Classification Table[a]

			Predicted		
			Are you happy nowadays?		Percentage Correct
	Observed		No	Yes	
Step 1	Are you happy nowadays?	No	90	549	14.1
		Yes	57	6907	99.2
	Overall Percentage				92.0

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Do you struggle financially?			45.945	4	<.001			
	Do you struggle financially?(1)	-.057	.117	.237	1	.626	.945	.751	1.188
	Do you struggle financially?(2)	-.305	.120	6.436	1	.011	.737	.582	.933
	Do you struggle financially?(3)	-.606	.186	10.655	1	.001	.545	.379	.785
	Do you struggle financially?(4)	-1.247	.203	37.583	1	<.001	.287	.193	.428
	Self rported general health			77.891	4	<.001			
	Self rported general health(1)	.150	.201	.558	1	.455	1.162	.784	1.721
	Self rported general health(2)	-.233	.189	1.515	1	.218	.792	.547	1.148
	Self rported general health(3)	-.702	.196	12.833	1	<.001	.496	.338	.728
	Self rported general health(4)	-1.151	.215	28.613	1	<.001	.316	.208	.482
	How often do you feel lonely?			233.702	2	<.001			
	How often do you feel lonely?(1)	-.993	.103	93.401	1	<.001	.371	.303	.453
	How often do you feel lonely?(2)	-2.027	.137	218.133	1	<.001	.132	.101	.172
	How often do you feel anxious?			108.318	4	<.001			
	How often do you feel anxious?(1)	-.477	.120	15.864	1	<.001	.621	.491	.785
	How often do you feel anxious?(2)	-.854	.135	40.073	1	<.001	.426	.327	.555
	How often do you feel anxious?(3)	-1.366	.146	87.201	1	<.001	.255	.191	.340
	How often do you feel anxious?(4)	-1.568	.279	31.649	1	<.001	.208	.121	.360
	Gender(1)	-.197	.096	4.205	1	.040	.821	.680	.991
	How often do you drink?			2.635	5	.756			
	How often do you drink?(1)	.155	.129	1.447	1	.229	1.167	.907	1.502
	How often do you drink?(2)	.105	.157	.443	1	.506	1.110	.816	1.511
	How often do you drink?(3)	.114	.178	.413	1	.521	1.121	.791	1.588
	How often do you drink?(4)	.137	.166	.676	1	.411	1.147	.828	1.588
	How often do you drink?(5)	.216	.146	2.173	1	.140	1.241	.931	1.654
	Constant	3.945	.203	379.288	1	<.001	51.701		

a. Variable(s) entered on step 1: Do you struggle financially?, Self rported general health, How often do you feel lonely?, How often do you feel anxious?, Gender, How often do you drink?.