

Contribution of Individual Factors to Happiness

Word count: 2259

Abstract

OBJECTIVE: The physical and psychological wellbeing of older adults is always a popular field and levels of unhappiness can be a major personal problem. This report takes The Nottingham Longitudinal Study of Activity and Ageing (NLSAA) as research target (interview in 1985; female: 636, male: 406). It aims to investigate the factors that determine the level of happiness among older adults.

METHODS: The inferential statistic method is one of the more practical ways of examining factors, including Chi-squared test and binary logistic regression. Therefore, the author selected and tests five independent variables: gender (`sex_85`), age (`age85`), health (`hlthr85`), class (`class`) and relationship with kids (`relakid`). Prior to analysing the interview data, it was necessary to process and describe variables, in order to avoid violation of assumption.

RESULTS: Several reports show that age, health, class and relationship with children can influence levels of happiness. This report, however, confirms that there is no association between both class and relationship with children and happiness. In addition, what is surprising is that gender can influence happiness: female respondents are .698 times less likely to be unhappy, controlling for other factors in the model. Moreover, health is the strongest predictor, recording an odds ratio of 10.958.

CONCLUSION: The present report is designed to determine the effect of several variables to happiness. It is argued that gender, age and health are factors of happiness. Due to time limitations, more potential predictors cannot be tested. Based on the findings, further studies need to be carried out in order to investigate health factors which can impact on older adults.

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Appendix

1. Introduction

Recently, there is a growing body of literature (Fleckenstein & Cox, 2015; Khazaee-pool, Sadeghi, Majlessi & Rahimi Foroushani, 2016; Cameron et al., 2018) that recognises the importance of physical and psychological wellbeing for the aged. According to Cordeiro, Mota, Ribeiro and Quintino (2016), the feeling of unhappiness is seen as a heavy burden for older adults when complaining their life. Therefore, happiness is one of major issues for older adults. For example, happiness has become a policy goal in a large number of nations, including United Kingdom, France, China, Japan and so forth (Diener, Lucas, Schimmack, & Helliwell, 2009).

In their study of happiness, Oishi and Gilbert report that the concept of happiness varies across time and culture. Oishi, Graham, Kesebir and Galinha (2013) also support this view that recent definition happiness is related to factors of happiness, instead of traditionally defined as “good luck and favourable external conditions” (p.559). Regard to factors of happiness, Khazaee-pool et al. (2016) claims that physical activity has positive effects on happiness among older adults. In addition, education can also improve life satisfaction and influence happiness (Michalos, 2017). These results indicate that physical activity could have an effect on the feeling of happiness in elder adults. Therefore, the aim of this report is to explore the factors of happiness in elder people. The author selects and investigates several potential factors from The Nottingham Longitudinal Study of Activity and Ageing (NLSAA) dataset.

This report is composed of four sections. The first section introduces used variables and refers to previous work. The second section describe the methodology and the third section presents results. The final section discussed and analyses the results and gives a conclusion.

2. Literature review

There is a large number of studies into factors related to happiness. This section selects and summarises five potential variables for further test.

2.1 Gender

According to Rijavec, Jurčec, Mijočević and Kašića (2010), there are differences in significant predictors of depression/happiness between males and females. Another survey, however, by Mahon and Yarcheski (2005) indicates that there is no association between gender and happiness. Accordingly, the gender factor needs to be examined.

2.2 Age

Majority of psychologists assert that there is not much of relationship between age and happiness. In their study, however, Frijters and Beaton (2012) argue that age-happiness relationship follows a “late wave” in middle age (35-50), instead of a possible U-shape. In addition, Witt, Lowe, Peek and Curry (1980) also report that the association shifts from ‘no’ to a weakly positive one. Therefore, it may be possible that age can influence happiness to some extent.

2.3 Health

Kozma and Stones (1983) hold the view that health is one of the predictors of happiness. Another study by Graham (2008) also supported this conclusion: higher level of happiness has an associated with better health. Other studies have reported similar findings of association between health and happiness (Cattaneo, Galiani, Gertler, Martinez, Titiunik, 2009; Post, 2005; Veenhoven, 2008).

2.4 Class

Many surveys have confirmed the effect of social class on happiness. For example, Cameron (1975) found that social class is positively related to life-satisfaction. In another similar study, Kahneman, Diener and Schwarz (1999) revealed that there is a correlation between class and happiness (about average .20). It is evident that social class status can influence happiness.

2.5 Relationship with children

According to White, Booth and Edwards (1986), there is a negative relation between children and happiness. It is because the birth of a first child prevents unhappy couple from divorce.

Accordingly, there is a large number of unhappy couples retained in married adults. It is possible that the frequent contact with children could increase sense of happiness.

3. Methodology

This section describes the methodology to achieve the aim. It mainly introduces the NLSAA dataset and interpret two main used techniques. In addition, all statistical analyses were performed using SPSS software (version 25).

3.1 NLSAA

The Nottingham Longitudinal Study of Activity and Ageing (NLSAA) is initiated in May 1985. It aims to investigate the relationship between customary physical activity and elder physical or psychological wellbeing in the aged (Morgan, 1998). In addition, Li (2017) also confirmed that it is composed of 161 questions including demographics, mobility, physical health and so forth. Therefore, the author selected five categories as independent variables to examine the association with happiness.

Prior to analysis, it is necessary to process data. First, the dependent variable happiness: `happy_85` is changed to binary data type (0 = “Happy”, 1 = “Unhappy”). Second, `class` is summarised into three value (0 = “Unskilled”, 1 = “Semiskilled”, 2 = “Skilled”). Third, the author creates a new variable: `relakid`, representing the relationship between respondents with their kids. It equals to the minimum values of `gkdsee85` and `kidsee85` (last time contact with children or grandchildren). All variables and values are listed in Table 1.

3.2 Descriptive statistic

The first technique involves descriptive statistics. According to Pallant (2013), descriptive statistics is a description of variables and used to avoid violation of the assumptions. Therefore, the author presenting data in different graphical formats. Pie charts are used for gender (`sex_85`), class (`class`) and happiness (`happy_85`) to display categories and ratio. Another way is histogram to present the frequency distribution of age (`age_85`), health (`hlthr_85`) and relationship with kids (`relakid`).

3.3 Inferential statistic

Another technique is inferential statistic and it includes two methods: Chi-squared test and logistic regression.

3.3.1 Chi-squared test

The first method is Chi-squared test. Pearson (1900) holds the view that Pearson's Chi-squared can be used to investigate whether there is an association between two categorical variables. In addition, in his study, Field (2014) claims that the principle is to compare observed frequencies with expected frequencies. Accordingly, the author tested all independent variables based on cross-tabs and null hypothesis is listed in Table 1.

3.3.2 Binary logistic regression

The second method is binary logistic regression. Although Chi-squared test can test whether there is an association between independent variables and dependent variables, multiple linear regression could present different results. Because one independent variable can be influenced by other variables. According to Pallant (2013), logistic regression can be used to build and test model in order to predict association between two or more categories. In addition, Field (2014) also argues that the definition of binary logistic regression is "to predict membership of only two categorical outcomes". Therefore, the author devised a model containing five independent variables (sex, age, health, class and relationship with kids) and the null hypothesis is also listed in Table 1.

3.4 Summary

The table below summarizes the methodology including used variables, descriptions, values, inferential statistic methods and null hypothesis. In addition, all copies of SPSS output are in the appendix.

Table 1. Summary of used variables in NLSAA dataset

Variable	Description	Value	Inferential statistic	Null Hypothesis H_0
happy_85	Are you happy today?	0 = “Happy” 1 = “Unhappy”	Binary logistic regression	
sex_85	Sex of Respondent	0 = Female 1 = Male	Chi-squared test	There is association between happiness and gender
age85	Age Group	1 = “< 69” 2 = “70-74” 3 = “75-79” 4 = “80-84” 5 = “85-89” 6 = “90 +”		There is association between happiness and age
hlthr_85	Rating of health	1= “Poor” 2 = “Fair” 3 = “Average” 4 = “Good” 5 = “Excellent”		There is association between happiness and health
class	Social Class	0 = “Unskilled” 1 = “Semiskilled” 2 = “Skilled”		There is association between happiness and class
relakid	Relationship with kids: last contact time	1= “Last week” 2 = “Last month” 3 = “Last year” 4 = “1 year +”		There is association between happiness and relationship with kids

4. Results

In order to assess five independent variables and one dependent variable, Descriptive statistic and inferential statistic are used. The results are as follows.

4.1 Gender

As shown in Figure 1, the number of female and male respondent is 636 and 406 respectively, accounting for 61% and 39% approximately. In regard to the Chi-Square test, it can be seen from Table 2 that there is no significant association between happiness and gender in the NLSAA: of the 377 men, 82 reported no happiness (21.8%), compared with 102 of the 597 women (17.1%) in the study ($\chi^2=2.985$; $df=1$; $p=0.084$; none of E_i is less than 5).

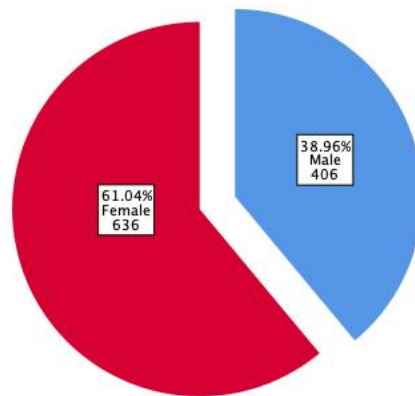


Figure 1. Proportion of Respondent Gender (1985)

Table 2. Chi-Square test for Gender and Happiness

	Value	df	Asymptotic Significance (2-sided)
Continuity Correction	2.985	1	0.084

0 cells (0.0%) have expected count less than 5

The minimum expected count is 71.22

4.2 Age

The Figure 2 shows that almost three-fourths of the respondents are less than 80 years old and respondents with 90 years old or elder is only a tiny fraction (2.4%). Concerning the Chi-Square test, as can be seen from Table 3, there is no significant association between happiness and age in the NLSAA: $\chi^2=7.783$; $df=5$; $p=0.169$; 8.3% E_i is less than 5 and the minimum is 3.78.

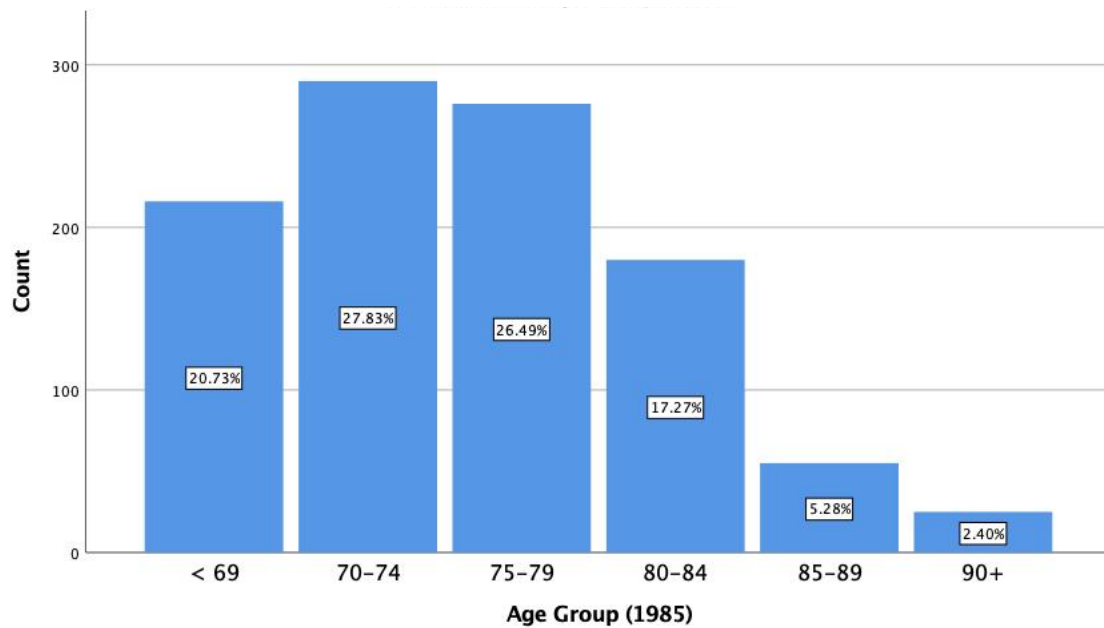


Figure 2. Distribution of Respondent Age (1985)

Table 3. Chi-Square test for Age and Happiness

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.783	5	0.169

1 cell (8.3%) have expected count less than 5

The minimum expected count is 3.78

4.3 Health

It can be seen from Figure 3 that about half of the respondent (46%) have “good” health but only 6% of respondent are not healthy. In addition, the percentage of “fair”, “average” and “excellent” health rating is almost equal (15%). Considering the Chi-Square test, Table 4 illustrate that there is a significant association between health and happiness in the NLSAA: $\chi^2=14.602$; $df=1$; $p=0.000133$; none of E_i is less than 5.

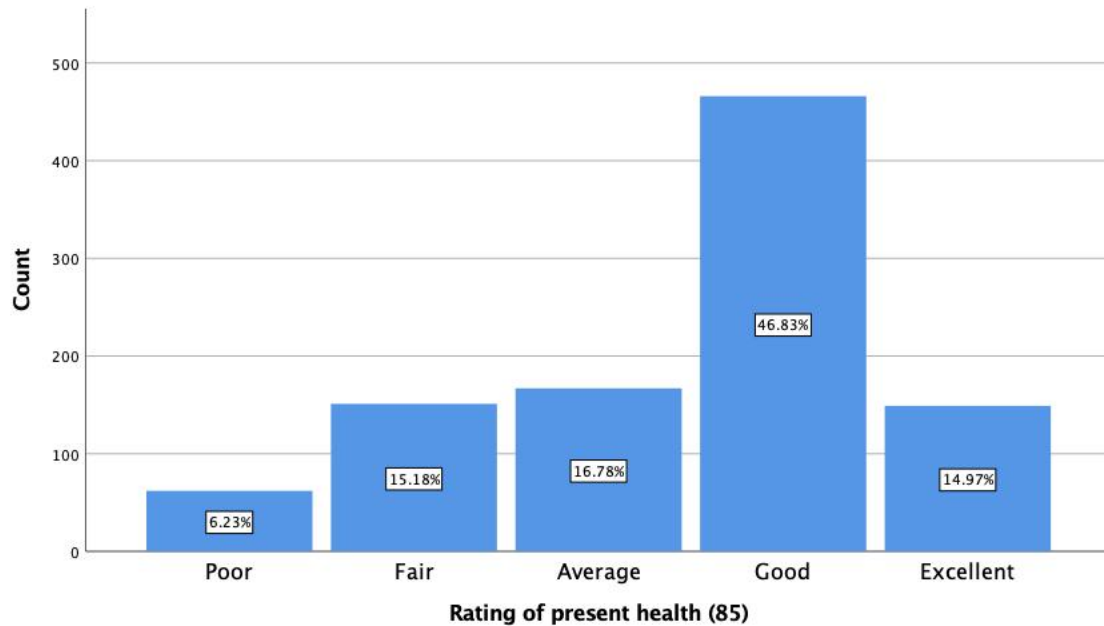


Figure 3. Histogram of Respondent Health

Table 4. Chi-Square test for Health and Happiness

	Value	df	Asymptotic Significance (2-sided)
Linear-by-Linear Association	14.602	1	0.000133
0 cells (0.0%) have expected count less than 5			
The minimum expected count is 11.54			

4.4 Class

According to Figure 4, majority of respondents are skilled or semiskilled (93.77%), compared to unskilled respondents (6.24%). As regards the Chi-Square test, Table 5 present that there is no significant association between class and happiness in the NLSAA: $\chi^2=0.858$; $df=1$; $p=0.354$; none of E_i is less than 5.

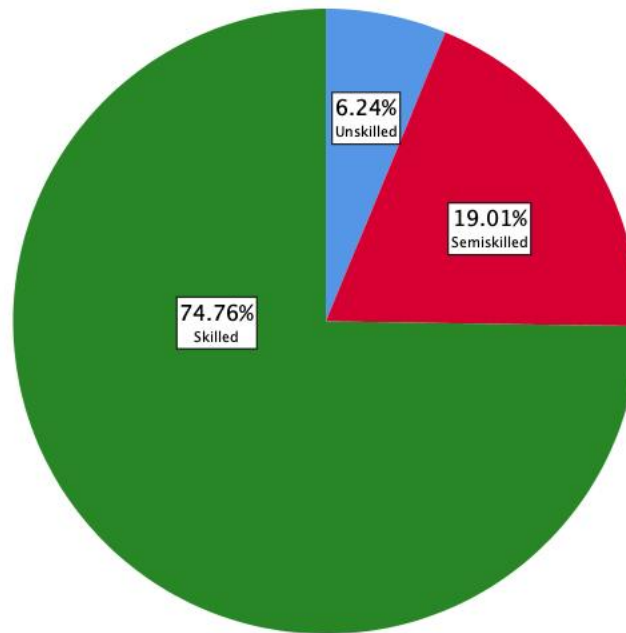


Figure 4. Proportion of Respondent Class

Table 5. Chi-Square test for Class and Happiness

	Value	df	Asymptotic Significance (2-sided)
Linear-by-Linear Association	.858	1	.354

0 cells (0.0%) have expected count less than 5

The minimum expected count is 11.45

4.5 Relationship with kids

As shown in Figure 5, most respondents contact with children within one week (about 70%) but for one in five respondents, it has been more than one year since the last time. Turning to the Chi-Square test, it can be seen from Table 6, there is no significant association between happiness and relationship with children in the NLSAA: $\chi^2=0.038$; $df=1$; $p=0.845$; none of E_i is less than 5.

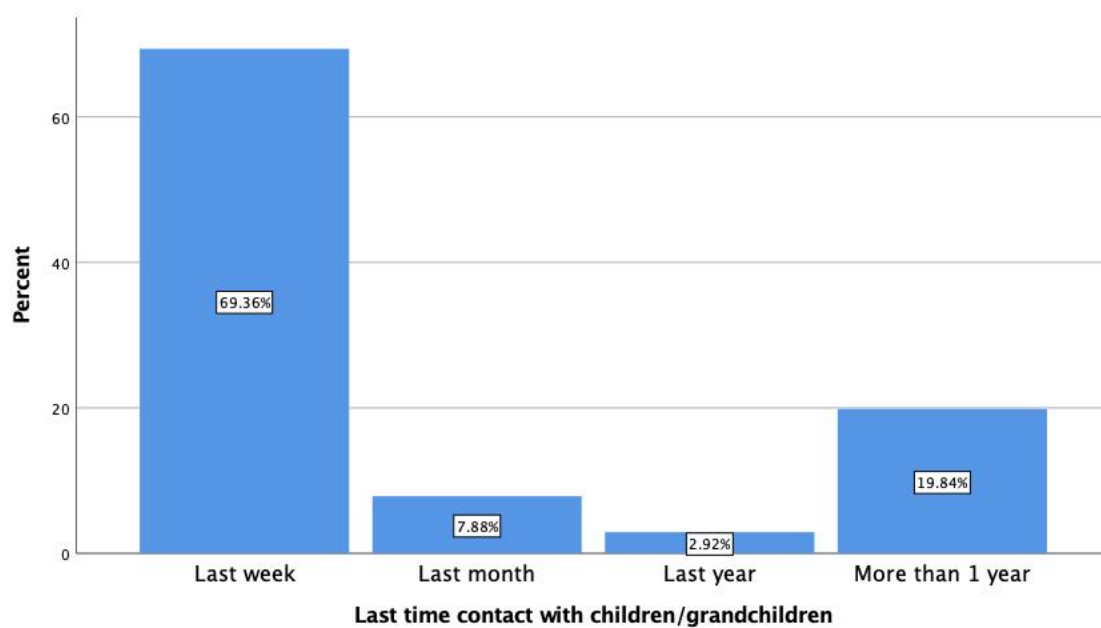


Figure 5. Relationship with children

Table 6. Chi-Square test for Happiness and relationship with kids

	Value	df	Asymptotic Significance (2-sided)
Linear-by-Linear Association	0.038	1	0.845

0 cells (0.0%) have expected count less than 5

The minimum expected count is 5.29

4.6 Happiness

From Figure 6, it can be seen that majority of respondents feel happy in life (nearly 80%). By contrast, the percentage of unhappy respondents is only approximately 20%.

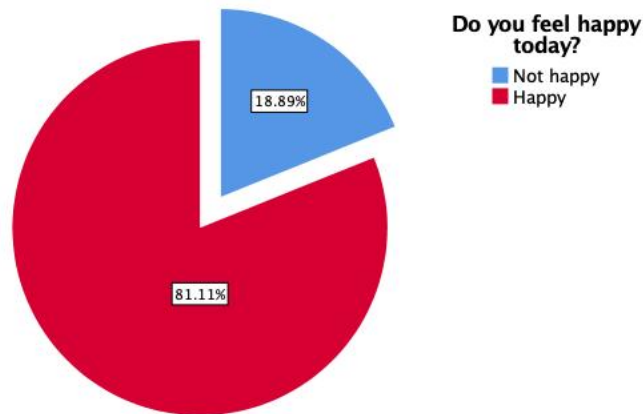


Figure 6. Proportion of happy respondents

4.7 Association

The result of logistic regression about happiness and five independent variables are summarised in Table 7. As discussed above, the results of multiple linear regression can be different because of the interaction between independent variables. The model contained five independent variables (sex, age, health, class and relationship with kids). The full model containing all predictors was statistically significant, $\chi^2(5, N = 969) = 40.208, p < .001$, indicating that the model was able to distinguish between respondents who are happy and unhappy. The model as a whole explained between 4.1% (Cox and Snell R square) and 6.6% (Nagelkerke R square) of the variance in happiness status, and correctly classified 81.2% of cases.

As shown in Table 6, only three of the independent variables made a unique statistically significant contribution to the model (age, sex and health). The strongest predictor of happiness was health, recording an odds ratio of 10.958. This indicated that respondents with excellent health were over about 11 times more likely to be unhappy than female respondents, controlling for all other factors in the model. In addition, the odds ratio of .698 for female respondents was less than 1, indicating that they were .698 times less likely to be unhappy, controlling for other factors in the model. Moreover, the odds ratio of 3.397 for respondents aged 85-89 was less

than 1, indicating that they were nearly 3 times less likely to be unhappy when controlling for other factors in the model (Pallant, 2013).

Table 7 Logistic Regression about Happiness and five independent variables

	B	S.E.	Wald	df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Sex of Respondent(1)	-.359	.174	4.267	1	.039	.698	.497	.982
Age Group (1985)			11.46	5	.043			
Age Group (1985)(1)	.060	.251	.058	1	.810	1.062	.650	1.736
Age Group (1985)(2)	.235	.251	.883	1	.347	1.265	.774	2.068
Age Group (1985)(3)	.242	.279	.753	1	.385	1.274	.738	2.200
Age Group (1985)(4)	1.22	.385	10.07	1	.002	3.397	1.596	7.230
Age Group (1985)(5)	-.107	.665	.026	1	.873	.899	.244	3.308
Rating of present health (85)			16.24	4	.003			
Rating of present health (85)(1)	1.52	.762	3.976	1	.046	4.572	1.026	20.367
Rating of present health (85)(2)	2.08	.747	7.797	1	.005	8.059	1.863	34.871
Rating of present health (85)(3)	1.88	.732	6.657	1	.010	6.611	1.574	27.758
Rating of present health (85)(4)	2.39	.747	10.26	1	.001	10.958	2.534	47.386
Social Class			1.403	2	.496			
Social Class(1)	-.071	.375	.036	1	.849	.931	.447	1.941
Social Class(2)	-.276	.340	.663	1	.416	.758	.390	1.476
Last contact with children/grandchildren			2.754	4	.600			
Last contact with children/grandchildren(1)	-.035	.199	.031	1	.860	.965	.653	1.427
Last contact with children/grandchildren(2)	.184	.344	.287	1	.592	1.202	.613	2.360
Last contact with children/grandchildren(3)	-1.15	.771	2.225	1	.136	.316	.070	1.435
Last contact with children/grandchildren(4)	-.087	.724	.014	1	.904	.917	.222	3.787
Constant	-3.09	.821	14.19	1	.000	.045		

5. Discussion and conclusion

This study set out with the aim of exploring factors of happiness in older adults. In reviewing the literature, potential variables include age, health, class and relationship with children. The results confirm that both age and health is associated with happiness. It has been, however, suggested that class and relationship do not influence happiness of older adults. In addition, surprisingly, there is a significantly relationship between gender and happiness. An explanation for this might be that most of the female respondents are healthier or younger than male respondents. Moreover, the findings also indicate that health is a major factor of happiness. Therefore, it is important for older adults to keep healthy. Further research should be undertaken to investigate the factors of wellbeing. For example, Green et al. report that both “Creative and cultural participation” and “Physical activities” are two major contribution for wellbeing.

To conclude, the aim of the present research is to examine contribution of happiness in older adults. Binary logistic regression revealed that gender, age and health are reliable predictors of happiness. These findings provide possible method to improve the level of happiness for older adults. This report cannot test sufficient factors that influence happiness possibly due to word restrictions. Further research could also be conducted to determine the effect of other physical activities. In addition, wellbeing could be next possible issue about elder adults.

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Appendix

* Chart Builder.

GGRAPH

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COUNT()[name="COUNT"] MISSING=LISTWISE  
REPORTMISSING=NO  
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BEGIN GPL  
SOURCE: s=userSource(id("graphdataset"))  
DATA: sex_85=col(source(s), name("sex_85"), unit.category())  
DATA: COUNT=col(source(s), name("COUNT"))  
COORD: polar.theta(startAngle(0))  
GUIDE: axis(dim(1), null())  
GUIDE: legend(aesthetic(aesthetic.color.interior), label("Sex of Respondent"))  
GUIDE: text.title(label("Pie Chart Count of Sex of Respondent"))  
SCALE: linear(dim(1), dataMinimum(), dataMaximum())  
SCALE: cat(aesthetic(aesthetic.color.interior), include("1", "2"))  
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color.interior(sex_85))  
END GPL.
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GGraph

Notes

Output Created

22-JAN-2019 14:22:09

Comments		
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Syntax

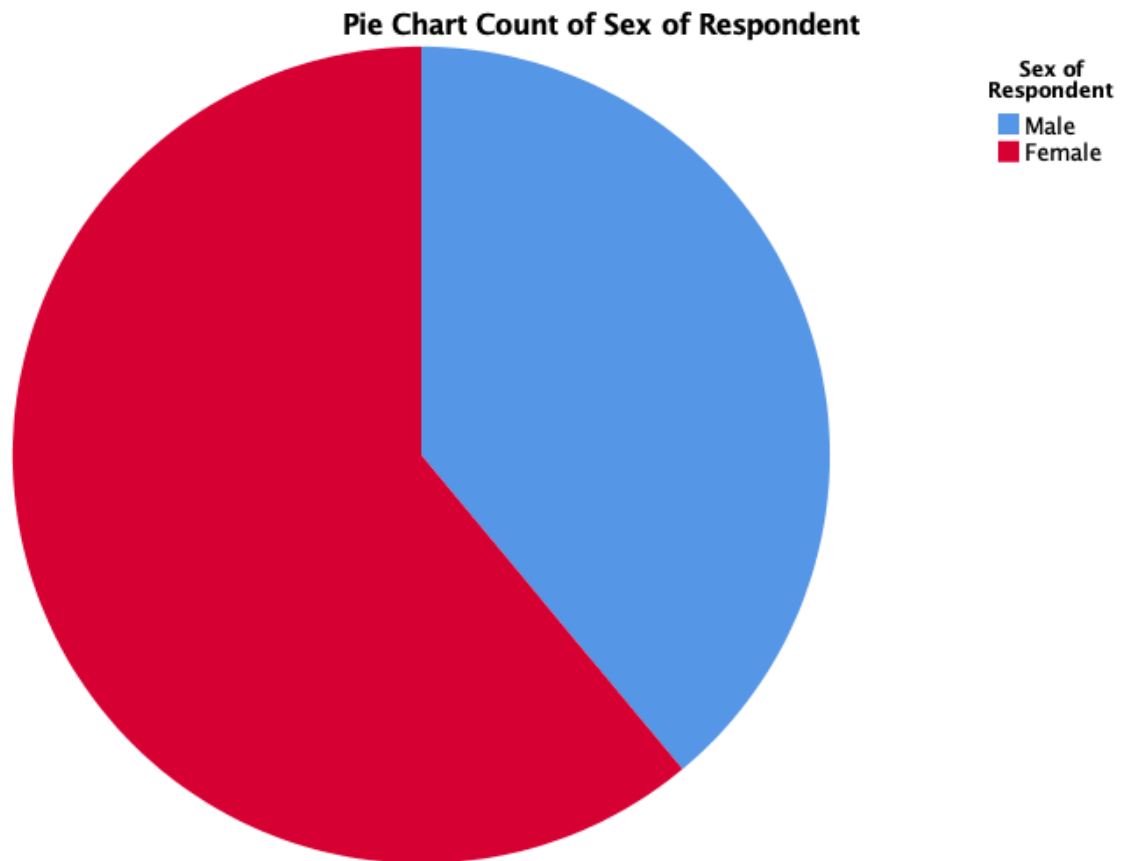
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  REPORTMISSING=NO
  /GRAPHSPEC
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  DATA:
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unit.category())
  DATA:
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name("COUNT"))
  COORD:
polar.theta(startAngle(0))
  GUIDE: axis(dim(1), null())
  GUIDE:
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color.interior), label("Sex of
Respondent"))
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Respondent"))
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  SCALE:
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color.interior(sex_85))
END GPL.

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* Chart Builder.

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REPORTMISSING=NO

/GRAPHSPEC SOURCE=INLINE.

BEGIN GPL

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DATA: COUNT=col(source(s), name("COUNT"))


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GUIDE: axis(dim(2), label("Count"))
GUIDE: text.title(label("Simple Histogram Count of Age Group (1985)"))
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SCALE: linear(dim(2), include(0))
ELEMENT: interval(position(age85*COUNT), shape.interior(shape.square))
END GPL.

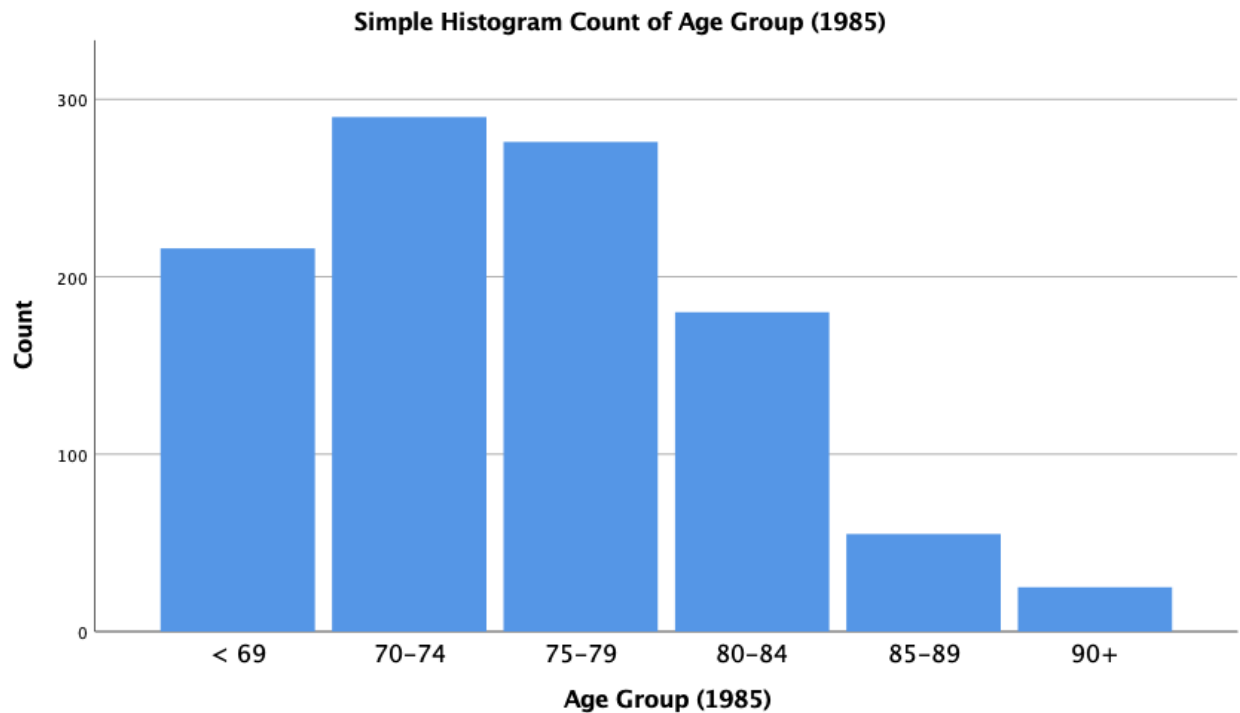
```

GGraph

Notes

Output Created		22-JAN-2019 14:22:38
Comments		
Input	Data	/Users/kevin/Downloads/NL SAA Jan 2006(1)-2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1042

Syntax	<pre> GGGRAPH /GRAPHDATASET NAME="graphdataset" VARIABLES=age85 COUNT()[name="COUNT"] MISSING=LISTWISE REPORTMISSING=NO /GRAPHSPEC SOURCE=INLINE. BEGIN GPL SOURCE: s=userSource(id("graphdat aset")) DATA: age85=col(source(s), name("age85"), unit.category()) DATA: COUNT=col(source(s), name("COUNT")) GUIDE: axis(dim(1), label("Age Group (1985)")) GUIDE: axis(dim(2), label("Count")) GUIDE: text.title(label("Simple Histogram Count of Age Group (1985)")) SCALE: cat(dim(1), include("1", "2", "3", "4", "5", "6")) SCALE: linear(dim(2), include(0)) ELEMENT: interval(position(age85*CO UNT), shape.interior(shape.squar e)) END GPL. </pre>				
Resources	<table> <tr> <td>Processor Time</td><td>00:00:00.18</td></tr> <tr> <td>Elapsed Time</td><td>00:00:00.00</td></tr> </table>	Processor Time	00:00:00.18	Elapsed Time	00:00:00.00
Processor Time	00:00:00.18				
Elapsed Time	00:00:00.00				



* Chart Builder.

GGRAPH

/GRAPHDATASET NAME="graphdataset" VARIABLES=hlthr_85

COUNT()[name="COUNT"] MISSING=LISTWISE

REPORTMISSING=NO

/GRAPHSPEC SOURCE=INLINE.

BEGIN GPL

SOURCE: s=userSource(id("graphdataset"))

DATA: hlthr_85=col(source(s), name("hlthr_85"), unit.category())

DATA: COUNT=col(source(s), name("COUNT"))

GUIDE: axis(dim(1), label("Rating of present health (85)"))

GUIDE: axis(dim(2), label("Count"))

GUIDE: text.title(label("Simple Histogram Count of Rating of present health (85)"))

SCALE: cat(dim(1), include("1", "2", "3", "4", "5"))

SCALE: linear(dim(2), include(0))

ELEMENT: interval(position(hlthr_85*COUNT), shape.interior(shape.square))

END GPL.

GGraph

Notes

Output Created		22-JAN-2019 14:22:54
Comments		
Input	Data	/Users/kevin/Downloads/NL SAA Jan 2006(1)-2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1042

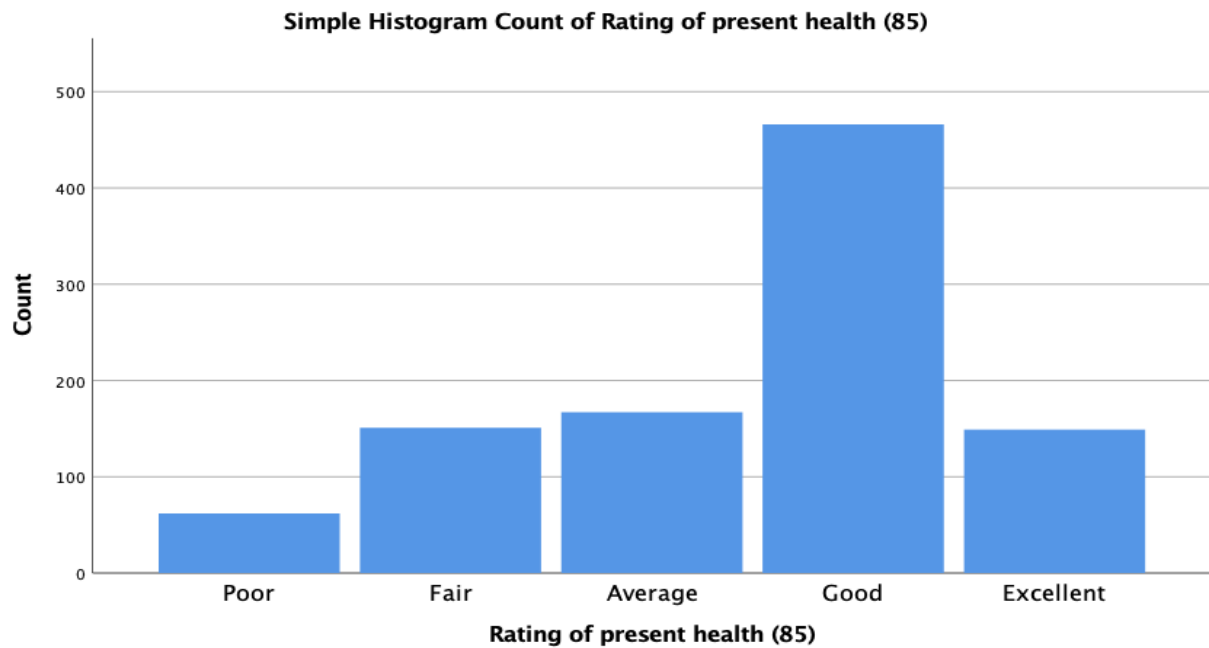
Syntax

```

GGRAPH
  /GRAPHDATASET
  NAME="graphdataset"
  VARIABLES=hlthr_85
  COUNT()[name="COUNT"]
  MISSING=LISTWISE
  REPORTMISSING=NO
  /GRAPHSPEC
  SOURCE=INLINE.
  BEGIN GPL
    SOURCE:
    s=userSource(id("graphdat
    aset"))
    DATA:
    hlthr_85=col(source(s),
    name("hlthr_85"),
    unit.category())
    DATA:
    COUNT=col(source(s),
    name("COUNT"))
    GUIDE: axis(dim(1),
    label("Rating of present
    health (85)"))
    GUIDE: axis(dim(2),
    label("Count"))
    GUIDE:
    text.title(label("Simple
    Histogram Count of Rating
    of present health (85)"))
    SCALE: cat(dim(1),
    include("1", "2", "3", "4",
    "5"))
    SCALE: linear(dim(2),
    include(0))
    ELEMENT:
    interval(position(hlthr_85*C
    OUNT),
    shape.interior(shape.squar
    e))
  END GPL.

```

Resources	Processor Time	00:00:00.18
	Elapsed Time	00:00:00.00



* Chart Builder.

GGRAPH

/GRAPHDATASET NAME="graphdataset" VARIABLES=class

COUNT()[name="COUNT"] MISSING=LISTWISE

REPORTMISSING=NO

/GRAPHSPEC SOURCE=INLINE.

BEGIN GPL

SOURCE: s=userSource(id("graphdataset"))

DATA: class=col(source(s), name("class"), unit.category())

DATA: COUNT=col(source(s), name("COUNT"))

COORD: polar.theta(startAngle(0))

GUIDE: axis(dim(1), null())

GUIDE: legend(aesthetic(aesthetic.color.interior), label("Social Class"))

GUIDE: text.title(label("Pie Chart Count of Social Class"))

SCALE: linear(dim(1), dataMinimum(), dataMaximum())

SCALE: cat(aesthetic(aesthetic.color.interior), include("0", "1", "2"))

ELEMENT: interval.stack(position(summary.percent(COUNT))),
color.interior(class))

END GPL.

GGraph

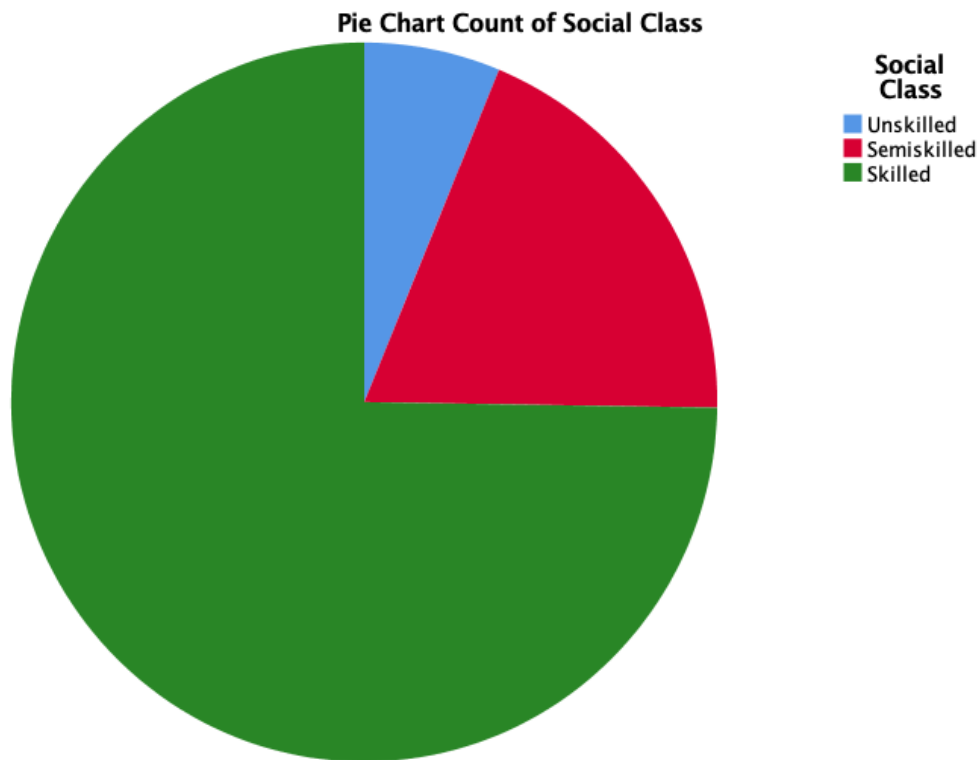
Notes		
Output Created		22-JAN-2019 14:23:10
Comments		
Input	Data	/Users/kevin/Downloads/NL SAA Jan 2006(1)-2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data	1042
	File	

Syntax

```
GGGRAPH
  /GRAPHDATASET
NAME="graphdataset"
VARIABLES=class
COUNT()[name="COUNT"]
MISSING=LISTWISE
  REPORTMISSING=NO
  /GRAPHSPEC
SOURCE=INLINE.
BEGIN GPL
  SOURCE:
s=userSource(id("graphdat
aset"))
  DATA:
class=col(source(s),
name("class"),
unit.category())
  DATA:
COUNT=col(source(s),
name("COUNT"))
  COORD:
polar.theta(startAngle(0))
  GUIDE: axis(dim(1), null())
  GUIDE:
legend(aesthetic(aesthetic.
color.interior), label("Social
Class"))
  GUIDE: text.title(label("Pie
Chart Count of Social
Class"))
  SCALE: linear(dim(1),
dataMinimum(),
dataMaximum())
  SCALE:
cat(aesthetic(aesthetic.coLo
r.interior), include("0", "1",
"2"))
  ELEMENT:
interval.stack(position(sum
mary.percent(COUNT))),
color.interior(class))
END GPL.
```

Resources Processor Time

00:00:00.16



* Chart Builder.

GGRAPH

/GRAPHDATASET NAME="graphdataset" VARIABLES=relakid

COUNT()[name="COUNT"] MISSING=LISTWISE

REPORTMISSING=NO

/GRAPHSPEC SOURCE=INLINE.

BEGIN GPL

SOURCE: s=userSource(id("graphdataset"))

DATA: relakid=col(source(s), name("relakid"), unit.category())

DATA: COUNT=col(source(s), name("COUNT"))

GUIDE: axis(dim(1), label("Last contact with children/grandchildren"))

GUIDE: axis(dim(2), label("Count"))

GUIDE: text.title(label("Simple Histogram Count of Last contact with children/grandchildren"))

SCALE: cat(dim(1), include("1.00", "2.00", "3.00", "4.00"))

SCALE: linear(dim(2), include(0))

ELEMENT: interval(position(relakid*COUNT), shape.interior(shape.square))

END GPL.

GGraph

Notes		
Output Created		22-JAN-2019 14:24:04
Comments		
Input	Data	/Users/kevin/Downloads/NL SAA Jan 2006(1)-2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1042

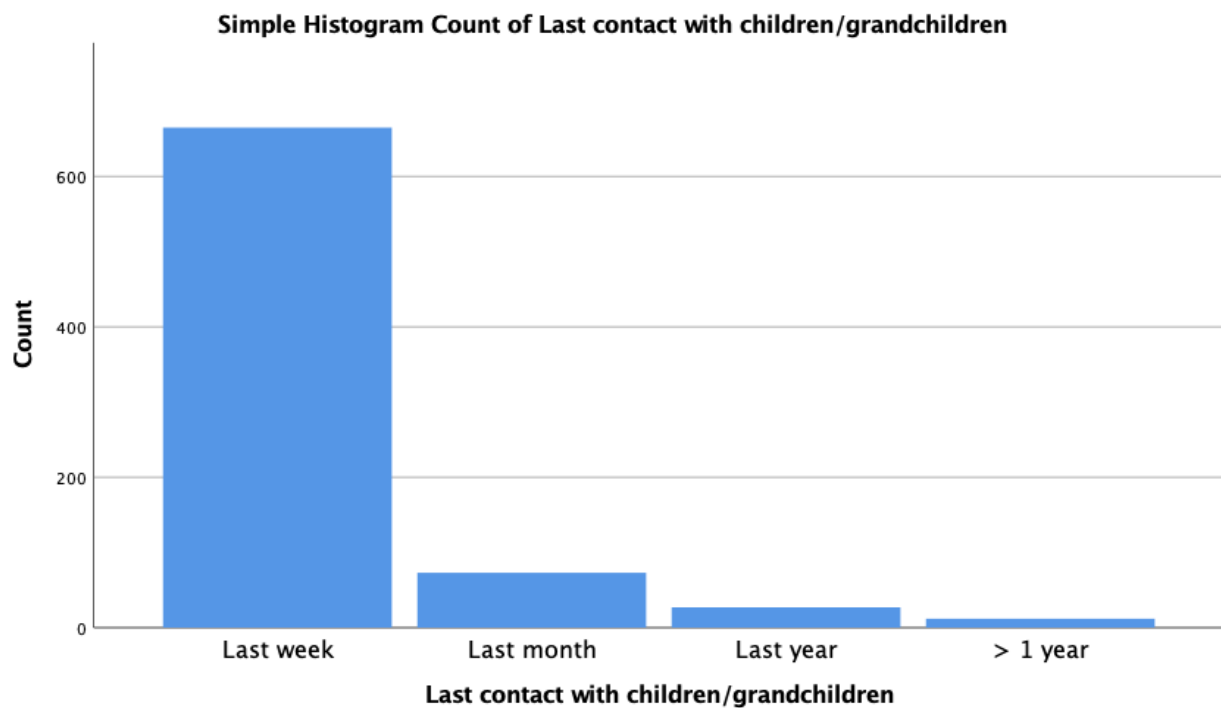
Syntax

```

GGGRAPH
  /GRAPHDATASET
NAME="graphdataset"
VARIABLES=relakid
COUNT()[name="COUNT"]
MISSING=LISTWISE
  REPORTMISSING=NO
  /GRAPHSPEC
SOURCE=INLINE.
BEGIN GPL
  SOURCE:
s=userSource(id("graphdat
aset"))
  DATA:
relakid=col(source(s),
name("relakid"),
unit.category())
  DATA:
COUNT=col(source(s),
name("COUNT"))
  GUIDE: axis(dim(1),
label("Last contact with
children/grandchildren"))
  GUIDE: axis(dim(2),
label("Count"))
  GUIDE:
text.title(label("Simple
Histogram Count of Last
contact with
children/grandchildren"))
  SCALE: cat(dim(1),
include("1.00", "2.00",
"3.00", "4.00"))
  SCALE: linear(dim(2),
include(0))
  ELEMENT:
interval(position(relakid*CO
UNT),
shape.interior(shape.squar
e))
END GPL.

```

Resources	Processor Time	00:00:00.16
	Elapsed Time	00:00:00.00



```

SET Small=0.0001 THREADS=AUTO Epoch=Automatic RNG=MC
DIGITGROUPING=No TLook=None Format=F8.0 SUMMARY=None
SCALEMIN=24 TFit=Both LEADZERO=No FUZZBITS=6 TABLERENDER=light.
SET Small=0.0001 THREADS=AUTO Epoch=Automatic RNG=MC
DIGITGROUPING=No TLook=None Format=F8.0 SUMMARY=None
SCALEMIN=24 TFit=Both LEADZERO=No FUZZBITS=6 TABLERENDER=light.
SET Small=0.0001 THREADS=AUTO Epoch=Automatic RNG=MC
DIGITGROUPING=No TLook=None Format=F8.0 SUMMARY=None
SCALEMIN=24 TFit=Both LEADZERO=No FUZZBITS=6 TABLERENDER=light.
* Chart Builder.

```

```
GGRAPH
```

```
/GRAPHDATASET NAME="graphdataset" VARIABLES=happy_85
```

```
COUNT()[name="COUNT"] MISSING=LISTWISE
```

```
REPORTMISSING=NO
```

```
/GRAPHSPEC SOURCE=INLINE.
```

```
BEGIN GPL
```

```

SOURCE: s=userSource(id("graphdataset"))
DATA: happy_85=col(source(s), name("happy_85"), unit.category())
DATA: COUNT=col(source(s), name("COUNT"))
COORD: polar.theta(startAngle(0))
GUIDE: axis(dim(1), null())
GUIDE: legend(aesthetic(aesthetic.color.interior), label("How much happiness in
your life ",
"today?"))
GUIDE: text.title(label("Pie Chart Count of How much happiness in your life
today?"))
SCALE: linear(dim(1), dataMinimum(), dataMaximum())
SCALE: cat(aesthetic(aesthetic.color.interior), include("0", "1"))
ELEMENT: interval.stack(position(summary.percent(COUNT))),
color.interior(happy_85))
END GPL.

```

GGraph

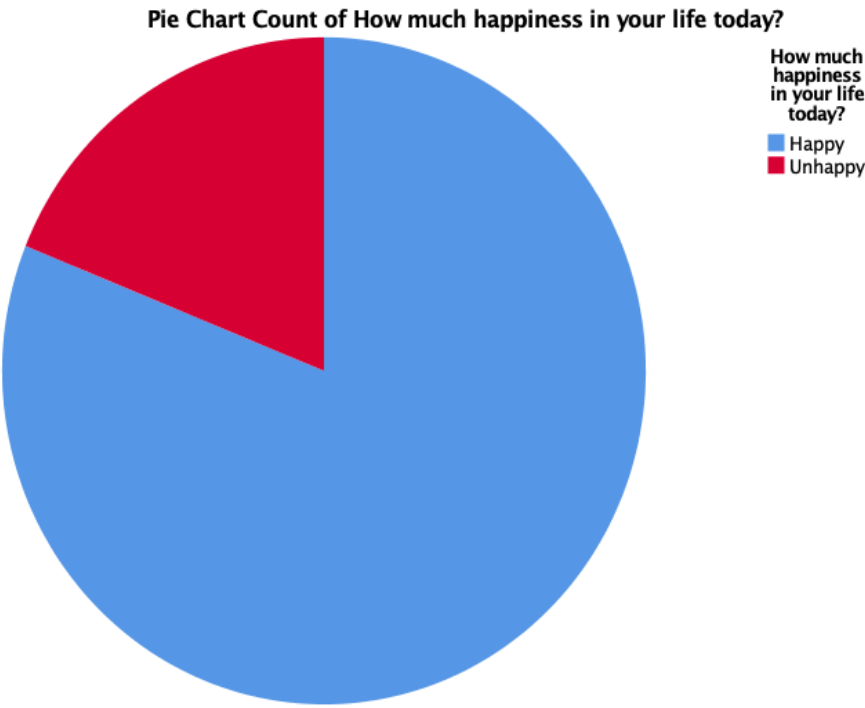
Notes		
Output Created		22-JAN-2019 14:34:19
Comments		
Input	Data	/Users/kevin/Downloads/NL SAA Jan 2006(1)-2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>

N of Rows in Working Data File	1042
-----------------------------------	------

Syntax

```
GGRAPH
  /GRAPHDATASET
  NAME="graphdataset"
  VARIABLES=happy_85
  COUNT()[name="COUNT"]
  MISSING=LISTWISE
  REPORTMISSING=NO
  /GRAPHSPEC
  SOURCE=INLINE.
  BEGIN GPL
    SOURCE:
    s=userSource(id("graphdat
    aset"))
    DATA:
    happy_85=col(source(s),
    name("happy_85"),
    unit.category())
    DATA:
    COUNT=col(source(s),
    name("COUNT"))
    COORD:
    polar.theta(startAngle(0))
    GUIDE: axis(dim(1), null())
    GUIDE:
    legend(aesthetic(aesthetic.
    color.interior), label("How
    much happiness in your life
    ",
    "today?"))
    GUIDE: text.title(label("Pie
    Chart Count of How much
    happiness in your life
    today?"))
    SCALE: linear(dim(1),
    dataMinimum(),
    dataMaximum())
    SCALE:
    cat(aesthetic(aesthetic.co
    lor.interior), include("0", "1"))
    ELEMENT:
    interval.stack(position(sum
    mary.percent(COUNT))),
    color.interior(happy_85))
```

		END GPL.
Resources	Processor Time	00:00:00.25
	Elapsed Time	00:00:00.00



```
CROSSTABS
  /TABLES=sex_85 BY happy_85
  /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ
  /CELLS=COUNT EXPECTED
  /COUNT ROUND CELL.
```

Crosstabs

Notes

Output Created		22-JAN-2019 14:35:20
Comments		
Input	Data	/Users/kevin/Downloads/NL SAA Jan 2006(1)-2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1042
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each table are based on all the cases with valid data in the specified range(s) for all variables in each table.
Syntax		CROSSTABS /TABLES=sex_85 BY happy_85 /FORMAT=AVALUE TABLES /STATISTICS=CHISQ /CELLS=COUNT EXPECTED /COUNT ROUND CELL.
Resources	Processor Time	00:00:00.09
	Elapsed Time	00:00:00.00
	Dimensions Requested	2
	Cells Available	524245

Case Processing Summary

		Cases		Total	
Valid		Missing			
N	Percent	N	Percent	N	Percent

Sex of Respondent *	974	93.5%	68	6.5%	1042	100.0%
How much happiness in your life today?						

Sex of Respondent * How much happiness in your life today? Crosstabulation

			How much happiness in your life today?		
			Happy	Unhappy	Total
Sex of Respondent	Male	Count	295	82	377
		Expected Count	305.8	71.2	377.0
	Female	Count	495	102	597
		Expected Count	484.2	112.8	597.0
Total		Count	790	184	974
		Expected Count	790.0	184.0	974.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.282 ^a	1	.070		
Continuity Correction ^b	2.985	1	.084		
Likelihood Ratio	3.243	1	.072		
Fisher's Exact Test				.078	.043
Linear-by-Linear Association	3.279	1	.070		
N of Valid Cases	974				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 71.22.

b. Computed only for a 2x2 table

CROSSTABS

```

/TABLES=age85 BY happy_85
/FORMAT=AVALUE TABLES
/STATISTICS=CHISQ
/CELLS=COUNT EXPECTED
/COUNT ROUND CELL.

```

Crosstabs

Notes		
Output Created		22-JAN-2019 14:35:36
Comments		
Input	Data	/Users/kevin/Downloads/NL SAA Jan 2006(1)-2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1042
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each table are based on all the cases with valid data in the specified range(s) for all variables in each table.

Syntax		CROSSTABS /TABLES=age85 BY happy_85 /FORMAT=AVALUE TABLES /STATISTICS=CHISQ /CELLS=COUNT EXPECTED /COUNT ROUND CELL.
Resources	Processor Time	00:00:00.09
	Elapsed Time	00:00:00.00
	Dimensions Requested	2
	Cells Available	524245

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Age Group (1985) * How much happiness in your life today?	974	93.5%	68	6.5%	1042	100.0%

Age Group (1985) * How much happiness in your life today? Crosstabulation

			How much happiness in your life today?		Total
			Happy	Unhappy	
Age Group (1985)	< 69	Count	177	34	211
		Expected Count	171.1	39.9	211.0
	70-74	Count	228	48	276
		Expected Count	223.9	52.1	276.0
	75-79	Count	206	50	256
		Expected Count	207.6	48.4	256.0
	80-84	Count	133	33	166
		Expected Count	134.6	31.4	166.0

	85-89	Count	30	15	45
		Expected Count	36.5	8.5	45.0
	90+	Count	16	4	20
		Expected Count	16.2	3.8	20.0
Total		Count	790	184	974
		Expected Count	790.0	184.0	974.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.783 ^a	5	.169
Likelihood Ratio	6.978	5	.222
Linear-by-Linear Association	4.232	1	.040
N of Valid Cases	974		

a. 1 cells (8.3%) have expected count less than 5. The minimum expected count is 3.78.

CROSSTABS

/TABLES=hlthr_85 BY happy_85

/FORMAT=AVALUE TABLES

/STATISTICS=CHISQ

/CELLS=COUNT EXPECTED

/COUNT ROUND CELL.

Crosstabs

Notes

Output Created		22-JAN-2019 14:35:55
Comments		
Input	Data	/Users/kevin/Downloads/NL SAA Jan 2006(1)-2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1042
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each table are based on all the cases with valid data in the specified range(s) for all variables in each table.
Syntax		CROSSTABS /TABLES=hlthr_85 BY happy_85 /FORMAT=AVALUE TABLES /STATISTICS=CHISQ /CELLS=COUNT EXPECTED /COUNT ROUND CELL.
Resources	Processor Time	00:00:00.09
	Elapsed Time	00:00:00.00
	Dimensions Requested	2
	Cells Available	524245

Case Processing Summary

Cases

	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Rating of present health (85) * How much happiness in your life today?	973	93.4%	69	6.6%	1042	100.0%

Rating of present health (85) * How much happiness in your life today? Crosstabulation

			How much happiness in your life today?		
			Happy	Unhappy	Total
Rating of present health (85)	Poor	Count	59	2	61
		Expected Count	49.5	11.5	61.0
	Fair	Count	124	20	144
		Expected Count	116.8	27.2	144.0
	Average	Count	127	35	162
		Expected Count	131.4	30.6	162.0
	Good	Count	372	86	458
		Expected Count	371.4	86.6	458.0
	Excellent	Count	107	41	148
		Expected Count	120.0	28.0	148.0
Total		Count	789	184	973
		Expected Count	789.0	184.0	973.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	20.321 ^a	4	.000
Likelihood Ratio	23.843	4	.000
Linear-by-Linear Association	14.602	1	.000
N of Valid Cases	973		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.54.

CROSSTABS

```

/TABLES=class BY happy_85
/FORMAT=AVALUE TABLES
/STATISTICS=CHISQ
/CELLS=COUNT EXPECTED
/COUNT ROUND CELL.

```

Crosstabs

Notes

Output Created		22-JAN-2019 14:36:09
Comments		
Input	Data	/Users/kevin/Downloads/NL SAA Jan 2006(1)-2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>

	N of Rows in Working Data File	1042
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each table are based on all the cases with valid data in the specified range(s) for all variables in each table.
Syntax		CROSSTABS /TABLES=class BY happy_85 /FORMAT=AVALUE TABLES /STATISTICS=CHISQ /CELLS=COUNT EXPECTED /COUNT ROUND CELL.
Resources	Processor Time	00:00:00.10
	Elapsed Time	00:00:00.00
	Dimensions Requested	2
	Cells Available	524245

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
Social Class * How much happiness in your life today?	970	93.1%	72	6.9%	1042	100.0%

Social Class * How much happiness in your life today? Crosstabulation

		How much happiness in your life today?		Total
		Happy	Unhappy	
Unskilled	Count	48	13	61

Social Class		Expected Count	49.6	11.4	61.0
		Count	146	38	184
	Semiskilled	Expected Count	149.5	34.5	184.0
		Count	594	131	725
	Skilled	Expected Count	589.0	136.0	725.0
		Count			
Total		Count	788	182	970
		Expected Count	788.0	182.0	970.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.920 ^a	2	.631
Likelihood Ratio	.903	2	.637
Linear-by-Linear Association	.858	1	.354
N of Valid Cases	970		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 11.45.

CROSSTABS

/TABLES=relakid BY happy_85

/FORMAT=AVALUE TABLES

/STATISTICS=CHISQ

/CELLS=COUNT EXPECTED

/COUNT ROUND CELL.

Crosstabs

Notes

Output Created		22-JAN-2019 14:36:21
Comments		
Input	Data	/Users/kevin/Downloads/NL SAA Jan 2006(1)-2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	1042
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each table are based on all the cases with valid data in the specified range(s) for all variables in each table.
Syntax		CROSSTABS /TABLES=relakid BY happy_85 /FORMAT=AVALUE TABLES /STATISTICS=CHISQ /CELLS=COUNT EXPECTED /COUNT ROUND CELL.
Resources	Processor Time	00:00:00.09
	Elapsed Time	00:00:01.00
	Dimensions Requested	2
	Cells Available	524245

Case Processing Summary

	Cases	
Valid	Missing	Total

	N	Percent	N	Percent	N	Percent
Last contact with children/grandchildren * How much happiness in your life today?	974	93.5%	68	6.5%	1042	100.0%

Last contact with children/grandchildren * How much happiness in your life today? Crosstabulation

			How much happiness in your life today?		
			Happy	Unhappy	Total
Last contact with children/grandchildren	.00	Count	185	48	233
		Expected Count	189.0	44.0	233.0
	Last week	Count	522	116	638
		Expected Count	517.5	120.5	638.0
	Last month	Count	52	15	67
		Expected Count	54.3	12.7	67.0
	Last year	Count	23	2	25
		Expected Count	20.3	4.7	25.0
	> 1 year	Count	8	3	11
		Expected Count	8.9	2.1	11.0
Total		Count	790	184	974
		Expected Count	790.0	184.0	974.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.628 ^a	4	.459
Likelihood Ratio	3.975	4	.409
Linear-by-Linear Association	.247	1	.619

N of Valid Cases	974		
------------------	-----	--	--

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 2.08.

LOGISTIC REGRESSION VARIABLES happy_85

/METHOD=ENTER sex_85 age85 hlthr_85 class relakid

/CONTRAST (sex_85)=Indicator(1)

/CONTRAST (hlthr_85)=Indicator(1)

/CONTRAST (age85)=Indicator(1)

/CONTRAST (relakid)=Indicator(1)

/CONTRAST (class)=Indicator(1)

/PRINT=CI(95)

/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).

Logistic Regression

Notes

Output Created		22-JAN-2019 14:37:23
Comments		
Input	Data	/Users/kevin/Downloads/NL SAA Jan 2006(1)-2.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data	1042
	File	

Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing
Syntax		LOGISTIC REGRESSION VARIABLES happy_85 /METHOD=ENTER sex_85 age85 hlthr_85 class relakid /CONTRAST (sex_85)=Indicator(1) /CONTRAST (hlthr_85)=Indicator(1) /CONTRAST (age85)=Indicator(1) /CONTRAST (relakid)=Indicator(1) /CONTRAST (class)=Indicator(1) /PRINT=CI(95) /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
Resources	Processor Time	00:00:00.17
	Elapsed Time	00:00:00.00

Case Processing Summary

Unweighted Cases ^a		N	Percent
Selected Cases	Included in Analysis	969	93.0
	Missing Cases	73	7.0
	Total	1042	100.0
Unselected Cases		0	.0
Total		1042	100.0

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

Dependent Variable Encoding

Original Value	Internal Value
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Happy	0
Unhappy	1

Categorical Variables Codings

		Frequen cy	Parameter coding				
			(1)	(2)	(3)	(4)	(5)
Age Group (1985)	< 69	211	.000	.000	.000	.000	.000
	70-74	274	1.000	.000	.000	.000	.000
	75-79	255	.000	1.000	.000	.000	.000
	80-84	166	.000	.000	1.000	.000	.000
	85-89	44	.000	.000	.000	1.000	.000
	90+	19	.000	.000	.000	.000	1.000
Last contact with children/grandchild ren	.00	231	.000	.000	.000	.000	
	Last week	635	1.000	.000	.000	.000	
	Last month	67	.000	1.000	.000	.000	
	Last year	25	.000	.000	1.000	.000	
	> 1 year	11	.000	.000	.000	1.000	
Rating of present health (85)	Poor	61	.000	.000	.000	.000	
	Fair	143	1.000	.000	.000	.000	
	Average	161	.000	1.000	.000	.000	
	Good	458	.000	.000	1.000	.000	
	Excellent	146	.000	.000	.000	1.000	
Social Class	Unskilled	61	.000	.000			
	Semiskill ed	183	1.000	.000			
	Skilled	725	.000	1.000			
Sex of Respondent	Male	377	.000				
	Female	592	1.000				

Block 0: Beginning Block

Classification Table^{a,b}

			Predicted How much happiness in your life today?		Percentage Correct
Observed			Happy	Unhappy	
Step 0	How much happiness in your life today?	Happy	787	0	100.0
		Unhappy	182	0	.0
	Overall Percentage				81.2

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	-1.464	.082	316.910	1	.000	.231

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Sex of Respondent(1)	3.564	1	.059
		Age Group (1985)	8.306	5	.140
		Age Group (1985)(1)	.400	1	.527
		Age Group (1985)(2)	.043	1	.836
		Age Group (1985)(3)	.158	1	.691
		Age Group (1985)(4)	7.081	1	.008
		Age Group (1985)(5)	.114	1	.736
		Rating of present health (85)	18.710	4	.001
		Rating of present health (85)(1)	2.530	1	.112
		Rating of present health (85)(2)	1.107	1	.293

Rating of present health (85)(3)	.000	1	.997
Rating of present health (85)(4)	7.087	1	.008
Social Class	.969	2	.616
Social Class(1)	.581	1	.446
Social Class(2)	.960	1	.327
Last contact with children/grandchildren	3.300	4	.509
Last contact with children/grandchildren(1)	.320	1	.572
Last contact with children/grandchildren(2)	.613	1	.433
Last contact with children/grandchildren(3)	1.956	1	.162
Last contact with children/grandchildren(4)	.526	1	.468
Overall Statistics	36.136	16	.003

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	39.781	16	.001
	Block	39.781	16	.001
	Model	39.781	16	.001

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	896.370 ^a	.040	.065

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

Classification Table^a

			Predicted		Percentage Correct
			How much happiness in your life today?		
Observed			Happy	Unhappy	
Step 1	How much happiness in your life today?	Happy	786	1	99.9
		Unhappy	182	0	.0
	Overall Percentage				81.1

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
Step 1 ^a	Sex of Respondent(1)	-.359	.174	4.267	1	.039	.698	.497
	Age Group (1985)			11.460	5	.043		
	Age Group (1985)(1)	.060	.251	.058	1	.810	1.062	.650
	Age Group (1985)(2)	.235	.251	.883	1	.347	1.265	.774
	Age Group (1985)(3)	.242	.279	.753	1	.385	1.274	.738

Age Group (1985)(4)	1.223	.385	10.074	1	.002	3.397	1.596
Age Group (1985)(5)	-.107	.665	.026	1	.873	.899	.244
Rating of present health (85)			16.246	4	.003		
Rating of present health (85)(1)	1.520	.762	3.976	1	.046	4.572	1.026
Rating of present health (85)(2)	2.087	.747	7.797	1	.005	8.059	1.863
Rating of present health (85)(3)	1.889	.732	6.657	1	.010	6.611	1.574
Rating of present health (85)(4)	2.394	.747	10.269	1	.001	10.958	2.534
Social Class			1.403	2	.496		
Social Class(1)	-.071	.375	.036	1	.849	.931	.447
Social Class(2)	-.276	.340	.663	1	.416	.758	.390
Last contact with children/grandchildren			2.754	4	.600		
Last contact with children/grandchildren(1)	-.035	.199	.031	1	.860	.965	.653
Last contact with children/grandchildren(2)	.184	.344	.287	1	.592	1.202	.613
Last contact with children/grandchildren(3)	-1.150	.771	2.225	1	.136	.316	.070
Last contact with children/grandchildren(4)	-.087	.724	.014	1	.904	.917	.222
Constant	-3.093	.821	14.193	1	.000	.045	

Variables in the Equation

		95% C.I. for EXP(B) Upper
Step 1 ^a	Sex of Respondent(1)	.982
	Age Group (1985)	
	Age Group (1985)(1)	1.736
	Age Group (1985)(2)	2.068
	Age Group (1985)(3)	2.200
	Age Group (1985)(4)	7.230
	Age Group (1985)(5)	3.308
	Rating of present health (85)	
	Rating of present health (85)(1)	20.367
	Rating of present health (85)(2)	34.871
	Rating of present health (85)(3)	27.758
	Rating of present health (85)(4)	47.386
	Social Class	
	Social Class(1)	1.941
	Social Class(2)	1.476
	Last contact with children/grandchildren	
	Last contact with children/grandchildren(1)	1.427
	Last contact with children/grandchildren(2)	2.360
	Last contact with children/grandchildren(3)	1.435
	Last contact with children/grandchildren(4)	3.787
	Constant	

a. Variable(s) entered on step 1: Sex of Respondent, Age Group (1985), Rating of present health (85), Social Class, Last contact with children/grandchildren.