

**14 Year of Life Satisfaction: A Longitudinal Study Exploring Life Satisfaction Trajectories
in a Dutch Probability Sample**

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Abstract

High Life Satisfaction has positive influences on people's health and job performance. Life Satisfaction can fluctuate over time, and is positively associated with Extraversion, Income, older Age and Supporting Social Relationships, and negatively associated with Neuroticism. The aim of this study is to explore Life Satisfaction Growth trajectories in a Dutch probability sample and to research which personal and environmental aspects are associated with various growth trajectories. The study has a longitudinal design investigating yearly repeated Life Satisfaction measurements for the last 14 years from 1340 participants. Latent Growth Modelling was applied to explore whether individual Life Satisfaction trajectories could be grouped into classes, in which participants have similar growth trajectories. Three latent classes were found, with the biggest one (68.06%) showing to have relatively high Life Satisfaction levels, which were stable over the past 14 years. Class members scoring lower on Life Satisfaction than the reference class, which was highly satisfied with their lives, were younger, were less Satisfied with their Social Contacts, had a lower Monthly Income, and scored higher on Neuroticism. This study gives an indication which aspects might be relevant for long-term, high levels of Life Satisfaction. Especially a combination of high Neuroticism and a lack of Satisfaction with Social Contacts seems to be present for people being less satisfied with their lives.

Keywords: Life Satisfaction, Latent Growth Modelling, Social Relationships, Dutch Probability Sample, Personality Traits (Extraversion, Neuroticism)

1. Introduction

According to the World Happiness Report 2022, the Netherlands rank as the 5th happiest (highest in Life Satisfaction) country in the world, only behind Finland, Denmark, Iceland, and Switzerland. According to the same report, the two biggest factors explaining Life Satisfaction in the Netherlands are the Gross Domestic Product (GDP) and social support.

This report states that the COVID-19 pandemic has diminished the effect of income on Life Satisfaction and increase the relevance of Social Relationships (Helliwell et al., 2022). Furthermore, various studies report a slight decrease in Life Satisfaction levels during the COVID-19 pandemic and the associated lockdown measures (van der Laan et al., 2022; Veenhoven et al., 2021).

However, the numbers reported in the world happiness report are means. Even though calculating means is a common method to compare groups in social sciences, it has some shortcomings, such as that it is sensitive to extreme values, and does not consider time specific conditions if values collected at different time points are averaged (Jacobs, 1994). The consequence for Life Satisfaction levels in the Netherlands might be that indeed most people are highly satisfied with their lives, but a minority might not be, which would get lost by calculating Life Satisfaction averages. The same is valid for a potential drop in Life Satisfaction during the COVID pandemic, which might not be represented in averaged values.

These shortcomings make analysing repeated measurements data from the general Dutch population relevant. Latent growth modelling is a statistical approach which describes change in a variable over time. Change over time is described by a function considering the variable values and time, which is called growth trajectory (McArdle & Nesselrode, 2003). Change over time can be described by one growth trajectory for the entire population, or by different growth trajectories for sub-sets (latent groups) of the population. This latter approach goes beyond averaging variable values for an entire population, since it models various variable trajectories for subsets of the population, providing a more differentiated picture.

This explorative approach might provide a more detailed picture in regard to how sub-groups of the Dutch people actually differ in Life Satisfaction, and which aspects make a difference in Life Satisfaction levels. Understanding this might be relevant for policy makers in the Netherlands, and beyond.

2. Theoretical Background

The aim of this paper is to better understand if and how Life Satisfaction changed over the last 14 years in the Dutch population. This is done in two steps. First, this longitudinal study with a repeated measure design aims to research whether subjects can be grouped based on their within-subject Life Satisfaction pathway from 2008 until 2022. In a second step, if results show that subjects can be grouped into sub-populations based on their Life Satisfaction trajectories, differences in variables associated with group allocation are examined.

Life Satisfaction

Life Satisfaction is a sub-construct of Subjective Well-Being (SWB). Next to Life Satisfaction, Positive Affect, and Negative Affect are part of SWB. While Positive Affect and Negative Affect describe rather short-term positive or negative emotions in a person's life (Diener et al., 2008), Life Satisfaction resembles the cognitive evaluative facet of SWB (Veenhoven, 1996), and is also referred to as Cognitive well-being in other papers.

According to Veenhoven (1996), Life Satisfaction „is the degree to which a person positively evaluates the overall quality of his/her life as-a-whole. In other words, how much the person likes the life he/she leads.” The important take from this definition is that Life Satisfaction describes one's subjective evaluation of their entire life, not just a period or domain of it. Life Satisfaction has a temporal dimension, focussing on one's past life, the current life situation, or future life scenarios (Veenhoven, 1996). However, there is criticism regarding the reliability and validity of Life Satisfaction. Even though Life Satisfaction should cover a person's global, subjective understanding of their entire life (Pavot & Diener, 2009), Strack et al. (1988) argues that Life Satisfaction assessments are often based on temporary available information, such as a person's current mood, and not on an extensive reflection of a person's life.

Lawless & Lucas (2011) state that countries with high levels of Life Satisfaction have greater life expectancies and lower levels of homicides and serious sickness, such as diabetes or cancer. Furthermore, studies show a negative relation between Life Satisfaction and mental disorders, like anxiety or depression, in various cultural contexts (Dunne et al., 2018; Mibu et al., 2018; Yazdanshenas Ghazwin et al., 2016). Life Satisfaction also has a positive influence on job performance (Duckworth et al., 2009; Greguras & Diefendorff, 2010) and work commitment (Vanaki & Vagharseyyedin, 2009).

The literature is not clear when it comes to how Life Satisfaction levels change over time. On the one hand, Brickman & Campbell (1971), Cummins (2016), and Frederick & Loewenstein

(1999) claim in their studies that Life Satisfaction on an individual level is stable over time. On the other hand, Lucas (2007a, 2007), and Luhmann & Eid (2009) claim the opposite, that individual Life Satisfaction fluctuates over time.

Life Satisfaction over time

On the one hand, a majority studies, mostly conducted before 2000, described Life Satisfaction as a stable construct over time, which does not change significantly (Brickman & Campbell, 1971; Cummins, 2016; Frederick & Loewenstein, 1999). One approach to explain Life Satisfaction stability is that everyone has a predetermined set point of Life Satisfaction. Life Satisfaction might fluctuate around this set point, but does not diverge significantly from it (Cummins, 2016; Fujita & Diener, 2005).

On the other hand, more recent longitudinal studies, studies which repeatedly measured Life Satisfaction with the same group of individuals, argue that some life events can have lasting effects on Life Satisfaction levels. Lucas (2007) reports that Life Satisfaction levels can change before, during, and after life events such as marriage, widowhood, and divorce. It can take up to seven years after the event for Life Satisfaction levels to return to previous levels. For life events such as unemployment (Luhmann & Eid, 2009) or disability (Lucas, 2007a), it is reported that Life Satisfaction levels do not recover during the seven years measurement period to previous levels after the life event.

When looking at how Life Satisfaction changes over the course of a person's Age, again, several studies find contrary results. On the one hand, it seems to be relatively stable from young adulthood until the age of 70 (Hamarat et al., 2002), when it rapidly declines (Baird et al., 2010). One explanation for the decline of Life Satisfaction is proximity to death, which might be explained by a decrease in health or biological functioning close to death (Gerstorf et al., 2008). On the other hand, longitudinal studies indicate that there seems to be evidence that Life Satisfaction follows a u-shaped curve during peoples life, having its lowest point at mid-age (40 – 50 years), after which it increases again (Blanchflower & Oswald, 2008; Kaiser et al., 2022).

Overall, the questions of (1) Life Satisfaction stability and (2) how it evolves over people's lifespans cannot be answered clearly, due to the inconsistent research findings discussed above. However, factors positively and negatively associated with Life Satisfaction exist, and will be discussed in the following paragraphs.

There are various individual, heritability and personality, and environmental aspects, such as Social Relationships, which are associated with long term Life Satisfaction. Heritability and, partly related to it, personality, as individual aspects, and Social Relationships as an environmental factor, are discussed in the following paragraphs.

Heritability

Life Satisfaction levels seems to be partly predicted by genetic factors. SWB has an average heritability of up to 40% (Bartels & Boomsma, 2009; Nes et al., 2010; Nes & Røysamb, 2015), whereas heritability estimates for Life Satisfaction are slightly lower, namely around 32% (Røysamb et al., 2018). Furthermore, Røysamb et al. (2018) found in their study with 1516 Norwegian twins that 31% of Life Satisfaction variance could be explained by genetic factors, of which 20% were indirectly explained by personality-related genetic factors (Extraversion and Neuroticism) and 11% by genetics not related to personality. Further they report that 49% of the Life Satisfaction variance would be explained by environmental factors.

Personality

When discussing personality in relation to Life Satisfaction, the traits Extraversion and Neuroticism have strong positive and negative correlations with Life Satisfaction, respectively (Steel et al., 2008). The meta-analysis from Anglim et al. (2020) found that Extraversion significantly predicts high levels of Life Satisfaction and Neuroticism significantly predicts low levels of Life Satisfaction. These associations were found for two separate personality measures, namely the *IPIP NEO* (Costa & McCrae, 1992) and *HEXACO* (Ashton & Lee, 2007); claiming that the personality traits Extraversion and Neuroticism are positively and negatively, respectively, associated with Life Satisfaction.

Environment & Demographic Factors

After discussing how heritability and personality are associated with Life Satisfaction, environmental factors, which might explain up to 49% of Life Satisfaction variance (Røysamb et al., 2018), are discussed in the following paragraphs, namely focussing on Social Relationships, and demographic factors, namely Age, Gender, and Income,

Social Relationships describe relationships people have with others, for example family members, friends, colleagues, and acquaintances. Those relationships can differ regarding *social integration* (level of involvement with other people), *quality of relationships* (support provided by others), and how those relationships are organized in *social networks* (Umberson & Karas Montez, 2010).

Positive Social Relationships are positively associated with high Life Satisfaction levels across different life stages and for different relationship contexts. Sun et al. (2020) found in their study that self- and observer-reported quantity and quality (conversational depth and self-disclosure) of social interactions significantly predicted Life Satisfaction.

A study by Walsh et al. (2022) researched Life Satisfaction in a pool of 4.835 US-American singles using a cross sectional study design. They applied Latent Profile Analysis, a method to identify latent answer patterns in datasets, to group their participants in ten different Life Satisfaction classes, and see which variables predicted Life Satisfaction for each of those classes. They found that the classes scoring the highest on Life Satisfaction were the ones being satisfied with their friendships and family relationships and scoring high on Extraversion and low on Neuroticism. The latent classes being the unhappiest were also least satisfied with their family and friendship relationships and scored low on Extraversion and high on Neuroticism.

The association between Social Relationships and Life Satisfaction seems to be particularly strong for the family context. A study investigating the influence of parental attachment to young adults (aged 20-31) showed direct and indirect (via their siblings) positive, significant effects on Life Satisfaction of those young adults (Ponti & Smorti, 2019). In a different context, Lau and Bradshaw (2018) investigated the relevance of parental- and teacher relationships for children in Hong Kong. They found that good relationships with parents and teachers and an overall supportive environment have relevant effects on children's levels of Life Satisfaction.

However, the association between Social Relationships and Life Satisfaction can be found outside of the family context as well, for friendships (Amati et al., 2018; Demir & Weitekamp, 2007; Gillespie, Lever, et al., 2015), also in an LGB (lesbian, gay, bi-sexual) population (Gillespie, Frederick, et al., 2015), at work (Colbert et al., 2016), and even in an online environment (Wheatley & Buglass, 2019); however, heavy online social network use is associated with reductions in Life Satisfaction.

Supportive, Social Relationships are associated with higher Life Satisfaction in various contexts, as shown in the literature discussed above. Other environmental influences, next to Social Relationships, on Life Satisfaction are discussed briefly.

Cheung & Lucas (2015) investigated the relationship between Income and Life Satisfaction using three different longitudinal panel studies, namely from Germany, Britain, and

Switzerland. They report for their data that Income predicts Life Satisfaction levels on between- and within subject level¹. This means that financially more wealthy people report higher levels of Life Satisfaction compared to financially less privileged people (between-subject perspective) and that an increase of Income over time was associated with higher Life Satisfaction levels for each individual subject (within-subject perspective) Furthermore, they report that these associations are strongest for adults between 30 to 50 years.

Summary & Aim of the Study

Summarizing, high levels of Life Satisfaction seem to positively influence health and well-being. Life Satisfaction describes a subjective evaluation of one's past, present, and future life situation. However, it is not clear whether Life Satisfaction is stable over life or fluctuates, around life events for example. Genetic factors predict Life Satisfaction directly, and indirectly via personality, however, about 50% of variance in Life Satisfaction seems to be explained by other personal or environmental factors. It is positively associated with the personality trait Extraversion and negatively associated by Neuroticism. Environmental factors like Social Relationships, but also Age and Income seem to be associated with Life Satisfaction.

The aim of this explorative study is to fill research gaps regarding (1) whether Life Satisfaction levels have changed over the last 14 years in the Dutch population, (2) whether change can be described by different latent groups in the data and (3) whether assignment to those classes is associated with personality traits, Social Relationships, and other predicting factors, namely Age, Gender, and Income.

3. Methods

3.1 Design and procedure

3.1.1 Design

The design of this study is a longitudinal repeated measures design. It measures within- and between-subject changes over the course of 14 years, with 2008 being the baseline measure and yearly repeated measures afterwards. The effect of Social Relationships, the personality traits

¹ Within-subject refers to observing and comparing data from the same subject at different points in time, while between-subject refers to comparing differences between different subjects, at the same of different point in time (Charness et al., 2012).

Extraversion and Neuroticism, Age, Gender, and Income, as independent variables, on Life Satisfaction (dependent variable) is investigated in this study.

3.1.2 - Procedure

The data was taken from the Longitudinal Internet Studies for the Social Sciences (LISS). The LISS collected data from 5000 households (approximately 7500 individuals) in the Netherlands on a yearly basis. The first wave of the study was conducted in 2008. Participants were paid for participating in the study.

For initial data collection, a probability sample of 10150 addresses from the Netherlands was drawn. In a second step, those households were contacted with a letter and a brochure providing information about the nature of the study. In a third step, a 10-minute interview was conducted either via phone or face to face, in which willingness to participate in the study and internet access were checked. Participants had to confirm their willingness to participate again either online or by sending back a reply card. After doing so, they could participate in the study. Participants were paid for filling in the questionnaires (Scherpenzeel, 2018).

The following modules were presented to the participants: (1) Health, (2) Religion and Ethnicity, (3) Social Integration and Leisure, (4) Family and Household, (5) Work and Schooling, (6) Personality, (7) Politics and Values, (8) Economic Situation: Assets, (9) Economic Situation: Income, (10) Economic Situation: Housing, and (11) Background Variables. Participants completed one module every month. To access the LISS data, one needs to sign up on the LISS Panel website (<https://www.lissdata.nl/>). The measure for Social Relationships was downloaded from the social integration and leisure-module, the measures for Extraversion, Neuroticism and Life Satisfaction were downloaded from the personality-module, and the measures on Age, Gender, and Income were downloaded from the background variables-module.

3.1.3 Participants

Of the 1340 participants considered for analysis, 69.6% were married, 14.6% were never married, 8.5% were divorced, and 3.3% of the participants were widowed. The Personal Gross Monthly Income of the biggest group of the participants (16,3%) was between 2000€ and 2999€ (*Mean*: 3267.41€, *SD*: 12555.43€). Eight-point nine percent of the participants had no Income at all, and 6.4% of the participants earned less than 1000 € per month, 2.8% of the participants earned more than 6000€ per month. This data must be taken with cautious, since 36.3% of the participants did not indicate their monthly gross Income.

The biggest group of the participants (23.6%) finished a higher vocational education (US: college), 27.5% finished an intermediate secondary education (US: junior high school), and 22.6% finished an intermediate vocational education (US: junior college). 2.3% did finished a different kind of education or no education at all and 6.4% finished a university degree.

3.2 Assessments

Gender was measured as a categorical variable. Age and Monthly gross Income were measured as a metric variable, allowing the participants to enter their exact age and income.

Life Satisfaction

Life Satisfaction was measured using the Satisfaction With Life Scale (Diener et al., 1985). It is a 5-item scale being answered on a 7-likert-scale, ranging from 1 – *strongly disagree* to 7 – *strongly agree*. An example item is: "I am satisfied with my life." It shows to have good psychometric properties regarding internal consistency, with Cronbach's α ranging from lowest .88 in 2008 and 2010 to .91 in 2019, 2021, and 2022. Those are higher than the alpha values found by López-Ortega et al. (2016), which was $\alpha = .74$. The Cronbach's alphas for each year from 2008 to 2022 can be found in Appendix 1. Furthermore, Diener et al. (2013) reported that the Satisfaction With Life Scale is a valid measure, when compared to nonself-report measures, when considering heritability, and checking its discriminant validity.

Social Relationships

Social Relationships was measured using two independent measures. The one was a single item question asking *How satisfied are you with your social contacts?* This question could be answered on a scale from 0 (not at all satisfied) – 10 (completely satisfied).

The second question is a measure of quantity of social contacts. In this, participants are asked to list up to five people, which are close to them. Together, those questions give an impression of the quality and the quantity of the participants Social Relationships.

Personality

Extraversion and Neuroticism were measured using the International Personality Item Pool (*IPIP-NEO-50*) (Goldberg, 2006). The scale consists of 50 items in total, 10 items measuring each of the five personality traits. It was answered on a 5-likert-scale, ranging from 1 – *Very Inaccurate* to 5 – *Very Accurate*. The scales for Extraversion had good internal consistencies, with $\alpha = .86$. An example item for the Extraversion scale is: "I am the life of the party."

The scale for Neuroticism had good internal consistencies as well, with α being .88 in 2008. This value is even a little higher than internal consistency measures of $\alpha = .81$ and a test-retest correlation of .98 found in other studies (Wood et al., 2022). One example item for Neuroticism is: “I worry about things.” Validity is high as well, when comparing to other personality questionnaires. It ranges from .70 to .82 when correlated to the corresponding *NEO PI-R* factors (Gow et al., 2005). For Extraversion and Neuroticism, the reversed items were transformed to provide valid measures.

Social Relationships, Extraversion, Neuroticism, Age, Gender, and Income were measured at baseline in 2008.

3.3 Data Analysis

To analyse the data, *SPSS Version 27.0.0.0* and *R 4.2.2* were used. *Appendix 2* shows the for the analysis used libraries in *R*. The package used for the latent growth modelling was the Extended Mixed Models Using Latent Classes and Latent Processes package (LCMM) version 2.0.0. It provides a set of functions which can calculate estimations for mixed models, such as latent class mixed models (Proust-Lima et al., 2015). Latent class mixed models is a statistical method to discover subgroups based on their common growth trajectories in repeated measure data (McCulloch et al., 2002).

After downloading the data for each year, the variables were calculated from the items. For Life Satisfaction, the means for each participant were calculated for each repeated measure, so there were 14 Life Satisfaction measures from 2008 until 2022. For 2016, no data was collected for Life Satisfaction by the LISS Panel.

As Table 2 shows, skewness and Kurtosis results are $p < .001$, meaning that the Life Satisfaction variables do not follow a multivariate normal distribution.

Table 2. *Mardia’s test result to test multivariate normality*

	Mardia’s test	
	Skewness	Kurtosis
Beta-hat	20.04*	346.22*
Kappa	4475.59*	105.69*

Note. * = $p < .000$

Latent growth modelling

In a next step, the data was pivoted from a wide data frame to a long data frame to proceed with the latent growth modelling, resulting in three variables in the long data frame (participant ID, year, Life Satisfaction Score). Latent Growth Modelling is a technique to model growth by considering repeated measures of dependent variables. Growth of the latent groups is explained with a latent intercept and a latent slope, which describes the change in the data. Change for the latent groups can be modelled with linear- and nonlinear models. Participants with similar growth trajectories in the repeated measure data are summarized into groups, called latent classes (Proust-Lima et al., 2012). The analytic approach suggested by Wardenaar (2020) consists of: (1) defining the underlying growth model, (2) models with various numbers of classes will be fit to the data, (3) the best model will be determined, and (4) the best fitting model's intercepts and slopes will be inspected.

As the first step of the Latent Growth Modelling, the underlying growth model was defined to find the best fitting model. Functions considered to model growth trajectories were: (1) a model with a fixed intercept and slope, (2) a model with a random intercept and a fixed slope, (3) a model with a random intercept and random slope, and (4) a model with a random intercept and slope and a quadratic effect. Fixed effect models are used when it is assumed that a variable represents the entire variance of possible values in a population (e.g., satisfied vs. unsatisfied). This means in the context of growth modelling, to describe data by a single trajectory for all cases within a given sample. Random effects, on the other hand, are applicable when it is assumed that variable values are drawn at random from a larger number of possibilities. Random effects are estimated based on between-cases variability, allowing for individual intercepts and slopes. For more detailed information, see Raudenbush & Bryk (2002). Akaike Information Criteria (AIC; Akaike, 1974) and Bayesian Information Criteria (BIC; Schwarz, 1978) were used to determine the best fitting model. Lower values for both criteria indicated better fit of the model.

In a second step, after the best underlying growth model was determined, new classes trying to describe the data were introduced, until no improvement in the fit was found anymore. This was done by inspecting the Integrated Complete Likelihood (ICL; (Côme & Latouche, 2015)), and entropy values. Entropy is a measure indicating the correct class assignment of individuals to latent classes. For this indicator, higher values indicate an overall more accurate class assignment. The ICL indicator is the BIC corrected for entropy, for which lower values

indicate a better fit (Wang et al., 2017). For identifying the best fitting model, an iterative approach was chosen, in which a model with an additional class was compared to the previous model until the ICL (considering correct class assignment) value did not improve (get lower) anymore.

After finding the best fitting model, the intercepts and slopes for each class were being checked whether they were significant. Significant results for intercept, slope, and quadratic effect meant that there was change for this group in the data over time, which could be best described by a quadratic model. As described earlier, change was modelled by using linear or quadratic models to estimate the trajectories of the latent classes.

Multinomial logistic regression

In a third step, the independent variables were regressed on the assigned classes in a multinomial, logistic regression to understand whether the independent variables significantly predicted class membership. A multinomial regression can be used to understand how a set of independent variables is associated with a categorical dependent variable. To conduct a multinomial, logistic regression, the following assumptions must be fulfilled: (1) linearity, (2) no outliers, (3) Independence, and (4) No Multicollinearity. First, the independent variable gross Income had ten outliers, which were eliminated from the dataset (Appendix 3 for boxplots). The other variables had no outliers. Second, multicollinearity was checked by running a linear regression model with assigned class membership as dependent variable and all independent variables (Satisfaction with Social Contacts, Number of Social Contacts, Extraversion, Neuroticism, Gender, Age, Monthly Gross Income). Variable Inflation Factors (VIF) were calculated for all independent variables. The VIF's for all independent variables were smaller than 2, indicating no multicollinearity (Appendix 4). Linearity and Independence were given.

In the last step, a two-step Multinomial Logistic Regression was conducted. In the first stage, only the independent variables were regressed on Life Satisfaction class membership. In a second step, Life Satisfaction intercepts were added as an independent variable, investigating whether the other independent variables were associated with trajectory change over the last 14 years.

4. Results

Data Preparation

Overall, 1340 participants were included in the latent growth modelling data analysis. Since 2008, 16257 participants filled in at least one Life Satisfaction measure of the 14 measurement waves of the LISS Panel. Out of those 16257 participants, 6796 (41.80%) participants started in the first wave in 2008. Participants, which did not start in 2008 were excluded, because the aim of this paper is to model Life Satisfaction trajectories for as long as possible, thus, the course of 14 years, from 2008 to 2022.

To account for missing values in the data set, the characteristics of the people having no missing Life Satisfaction data and the characteristics of the people having missing Life Satisfaction data were compared. The results of this comparison can be visible in Table 1. This comparison of characteristics is done to get an insight whether the listwise deletion of participants resulted in a difference in characteristics of the participants with missing data and without missing data. Participants with missing data were significantly younger, contained significantly more women, were significantly more extroverted, scored significantly higher on Neuroticism, and were significantly less satisfied with their Lives. Since participants characteristics between the groups are significantly different for the named variables, generalizability of the results is limited.

A complete dataset, with Life Satisfaction measures for all 14 waves were present for 1340 (8.24%) participants. Participants with missing Life Satisfaction data were excluded.

Table 1. *Characteristics of all participants with at least one Life Satisfaction measure, participants with missing Life Satisfaction data from 2008 – 2022, and participants with no missing data from 2008 - 2022*

Variable	Participants with Missing Life Satisfaction Data N = 5456 (80.28%) M (SD)	Participants with no Missing Life Satisfaction Data N = 1340 (19.72%) M (SD)	Statistic
Age	45.33 (16.50)	50.92 (12.51)	$F = 134.61^{**}$
Gender	1.55 (.50)	1.50 (.50)	$X = 11.91^*$
Extraversion	3.31 (.63)	3.25 (.63)	$F = 10.43^*$

Neuroticism	2.60 (.68)	2.53 (.66)	$F = 12.90^{**}$
Gross Monthly Income	2871.06 € (18793.37 €)	3267.41€ (12555.43€)	$F = .34$
Important Contacts	3.24 (1.75)	3.17 (1.71)	$F = 1.66$
Satisfaction with Social Contacts	7.31 (1.72)	7.4 (1.58)	$F = 2.94$
Overall Mean Life Satisfaction 2008 - 2022	5.07 (.96)	5.16 (.93)	$F = 10.02^*$

Note. F = Oneway Anova, posthoc comparison with Bonferoni correction, * = p-value < .01, ** = p-value <.001; all variables, but Overall Mean Life Satisfaction, were measured at baseline in 2008; percentages of missing values per variable: Gross Monthly Income: 42.21%, 36,19%; Important Contacts: 3.41%, 1.04%; Satisfaction with Social Contacts: 5.24%, 2.61%.

Baseline Model Fit

First, the baseline model calculated. Four models were tested (1) a model with a fixed intercept and slope, (2) a model with a random intercept and fixed slope, (3) a model with a random intercept and a random slope, and (4) a model with a random intercept, random slope, and quadratic effect. Table 3 shows the fit indices for the baseline model.

Table 3. *Baseline fit indices for a model with fixed intercept and slope, random intercept, fixed slope, random intercept, random slope, and random intercept, random slope, quadratic effect*

Model	Log-Likelihood Function	AIC	BIC
Fixed intercept and slope	-28245.02	56496.04	56511.64
Random intercept, fixed slope	-19371.29	38750.59	38771.39
Random intercept, random slope	-18657.35	37326.70	37357.90
Random intercept, random slope. Quadratic effect	-18643.71	37301.43	37337.83

Note. AIC = Akaike Information Criterion, BIC = Bayesian Information Criterion, ICL = Integrated Complete Likelihood

Table 3 shows the lowest AIC and BIC scores for the random intercept, random slope model, with a quadratic effect, meaning it is the best fitting model for the data. The quadratic

function describing the data is $f(x) = 5.22585 - .02220*x + .00145*x^2$. Intercept, slope, and quadratic effect are all significant at $p < .001$, meaning that there is significant change in the overall Life Satisfaction trajectory over time, which can be best described by a quadratic model. Figure 1 shows the estimated quadratic model in relation to the observed scores.

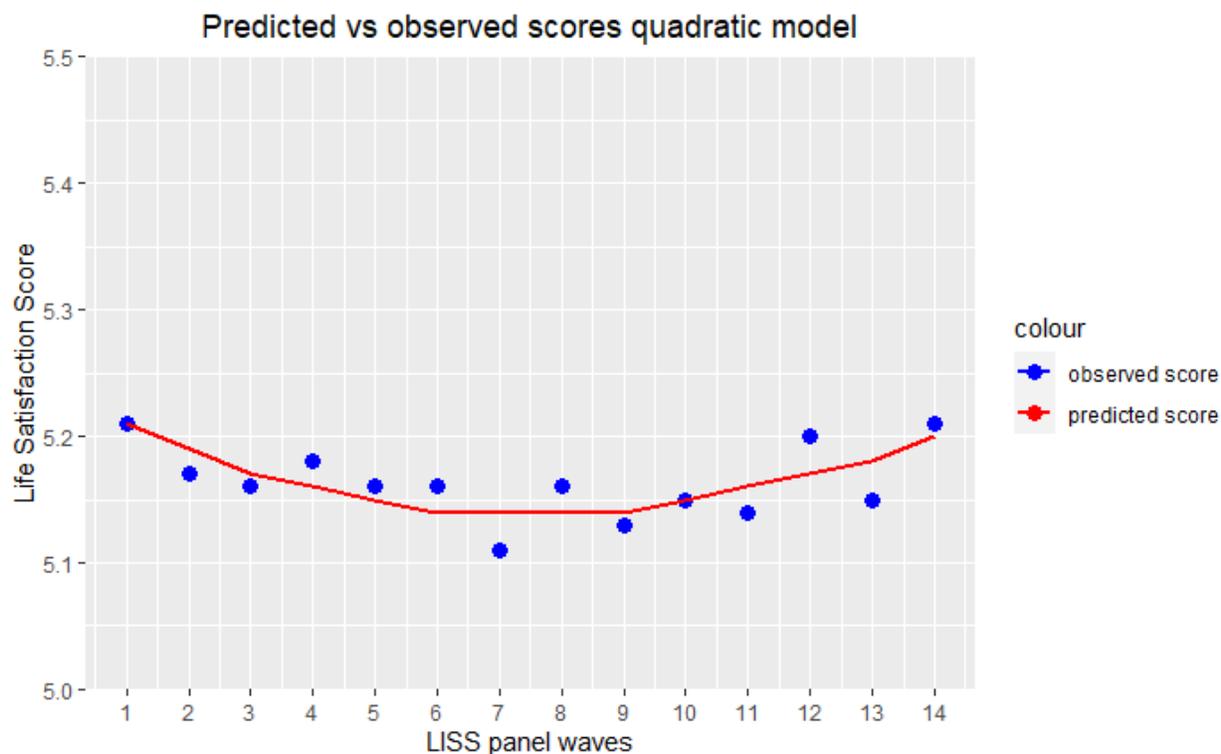


Figure 1. Showing Life Satisfaction Means per year and Predicted values by quadratic model.

Latent Growth Modelling

Models with additional classes were run until the fit criteria did not improve anymore. As shown in Table 4, even though AIC and BIC get lower, thus indicating a better fit, adding a fourth class to the model, ICL reached its lowest value at three classes. Based on the lowest ICL value, a model with three latent classes was chosen as the best fitting model for the data.

Table 5 shows the intercepts, linear- and quadratic slopes of the three latent classes. All classes show good average class membership probability ($>.8$). Class 1 (17.39%) is called *medium Life Satisfaction, decreasing over time* class, with a medium intercept ($M = 5.08$, $SE = .09$, $p < .001$), a small negative slope ($M = -.29$, $SE = .02$, $p < .001$) and a quadratic effect ($M = .02$, $SE = .00$, $p < .001$). It starts with a medium level of Life Satisfaction (5.08) in 2008, decreases until after the first quarter of 2015 to an estimated average Life Satisfaction value of 4.02, after

Table 4: *Model fit indices: Latent growth modelling of Life Satisfaction*

Amount of Classes	Loglik	AIC	BIC	Entropy	ICL	% in Class 1	% in Class 2	% in Class 3	% in Class 4
1	-18643.71	37301.43	37337.83	1.0	37337.83	100	-	-	-
2	-18337.17	36698.34	36760.74	0.72	34283.49	18.28	81.71	-	-
3	-18142.68	36319.37	36407.78	0.69	34080.89	17.39	68.06	14.55	-
4	-18104.39	36252.78	36367.19	0.69	34123.99	65.97	17.16	14.78	2.09

Table 5. *Latent class characteristics for Life Satisfaction*

Class	number N (%)	class prob	Intercept M (SE)	Slope M (SE)	Quadratic M (SE)
1 medium Life Satisfaction, decreasing over time	233 (17.39%)	.87	5.08(.09)*	-.29 (.02)*	.02 (.00)*
2 high Life Satisfaction, stable over time	912 (68.06%)	.88	5.60 (.03)*	-.00 (.01)	.00 (.00)
3 low Life Satisfaction, increasing over time	195 (14.55%)	.81	4.05 (.13)*	.19 (.02)*	-.01 (.00)*

Note. * = $p < .000$, class prob = average class membership probability

which it increases until an average, estimated value of 4.94 in 2022. This shows that, overall, Life Satisfaction levels have decreased for this class from 2008 until 2022.

Class 2 (68.06%) is called *high Life Satisfaction, stable over time* class, with a high intercept ($M = 5.60$, $SE = .03$, $p < .001$), a neutral slope ($M = -.00$, $SE = .01$, $p = .85$) and a quadratic effect ($M = .00$, $SE = .00$, $p = .43$). Since the estimates of the slope and the quadratic effect are not significant, no significant change could be estimated in the Life Satisfaction

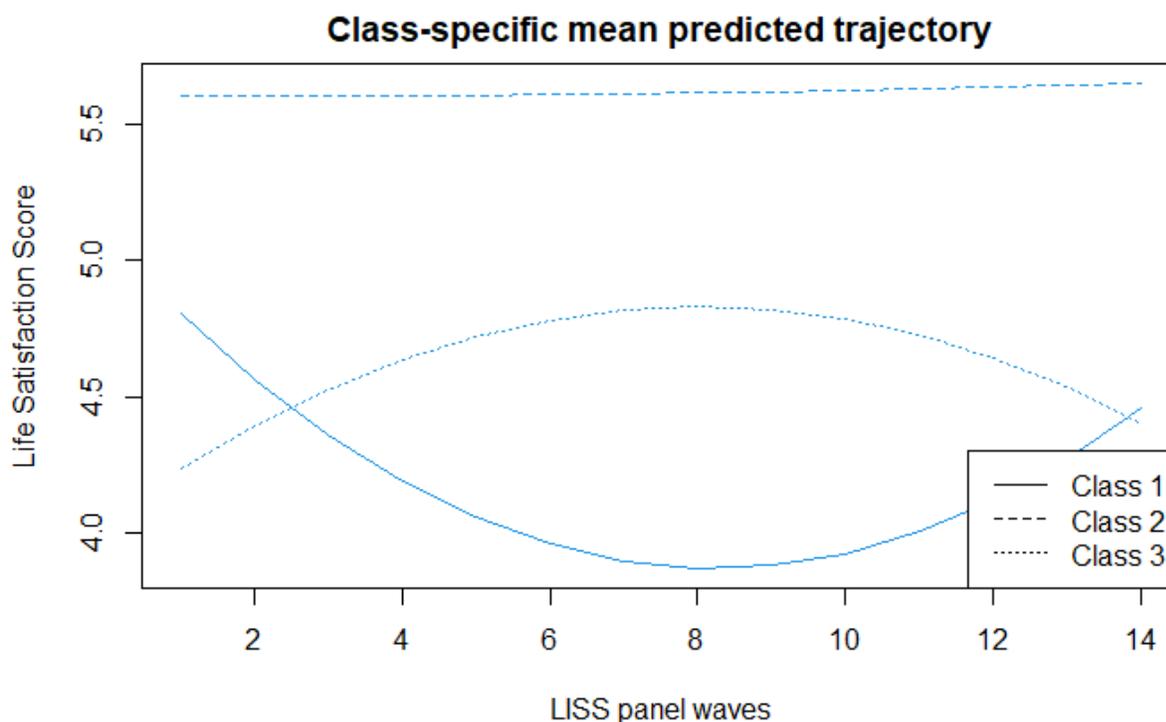


Figure 2. *Curves of Life Satisfaction for class 1-3 from 2008 to 2022*

trajectory of class 2 *high Life Satisfaction, stable over time*.

Class 3 (14.55%) is called *low Life Satisfaction, increasing over time* class, with a low intercept ($M = 4.05$, $SE = .13$, $p < .001$), a small positive slope ($M = .19$, $SE = .02$, $p < .001$) and a negative quadratic effect ($M = -.01$, $SE = .00$, $p < .001$). It starts with a low level of Life Satisfaction (4.05) in 2008, increases until the middle of 2017 to an estimated average Life Satisfaction value of 4.95, after which it decreases until an average, estimated value of 4.75 in 2022. Over the course of measurement, Life Satisfaction levels have increased for this class.

Predicting Class Membership

Table 6 shows the results of the multinomial logistic regression, with class 2 *high Life Satisfaction, stable over time* being the reference class. Class 2 *high Life Satisfaction, stable over time* was chosen as the reference class, because understanding the differentiating factors between the high Life Satisfaction class and the lower one is the most relevant.

By including the variables Important Contacts, Satisfaction with Social Contacts, Gender, Age, Monthly Gross Income, Extraversion, and Neuroticism, the model showed a X^2 (14, $N=852^2$) = 133.35, $p < .001$, with explaining $R^2 = .18$ (Nagelkerke). Participants in *class 1 medium Life Satisfaction, decreasing over time* are significantly less satisfied with their social contacts ($\beta = -.18$, $SE = .06$, $p < .01$, OR = .84, 95% CI [.74, .94]), are significantly younger ($\beta = -.02$, $SE = .01$, $p = .01$, OR = .98, 95% CI [.96, 1.00]), earn significantly less money ($\beta = -.08$, $SE = .04$, $p < .01$, OR = .92, 95% CI [.85, 1.00]), and score significantly higher on Neuroticism ($\beta = .79$, $SE = .16$, $p < .000$, OR = 2.20, 95% CI [1.60, 3.02]) in comparison to the reference class 2 *high Life Satisfaction, stable over time*. This means that participants assigned to *medium Life Satisfaction, decreasing over time* class were significantly less satisfied with their social contacts, were significantly younger, and scored significantly higher on Neuroticism than *high Life Satisfaction, stable over time* class members. Participants being assigned to *class 3 low Life Satisfaction, increasing over time* class, are significantly less satisfied with their social contacts ($\beta = -.03$, $SE = .07$, $p < .001$, OR = .97, 95% CI [.85, 1.10]), and scored significantly higher on Neuroticism ($\beta =$

² Only 852 cases were included in the Multiple Logistic Regression, because Income had 487 missing values, which were excluded from the analysis. When the same regression model was run without Income as an independent variable, $R^2 = .17$ (Nagelkerke) and no additional variables were significant.

1.09, $SE = .17$, $p < .001$, $OR = 2.98$, 95% CI [2.12, 4.20] than the reference group class 2 *high Life*

Table 6. *Regression Coefficients for Multinomial Regression without*

Class	Variable	B (SE)	Exp (B)	95 % Confidence Interval for Exp (B)	
				Lower Bound	Upper Bound
1 medium Life Satisfactio n, decreasing over time	Important Contacts	-.07 (.06)	.93	.83	1.05
	Satisfaction Social Contacts	-.18 (.06)*	.84	.74	.94
	Gender	-.38 (.25)	.69	.42	1.12
	Age	-.02 (.01)*	.98	.96	1.00
	Monthly Gross Income	-.08 (.04)*	.92	.85	1.00
	Extraversion	-.16 (.16)	.85	.62	1.18
	Neuroticism	.79 (.16)**	2.20	1.60	3.02
3 low Life Satisfactio n, increasing over time	Important Contacts	-.03 (.07)	.97	.85	1.10
	Satisfaction Social Contacts	-.28 (.06)**	.76	.67	.86
	Gender	-.41 (.27)	.66	.39	1.13
	Age	.01 (.01)	1.01	.99	1.03
	Monthly Gross Income	-.04 (.04)	.96	.88	1.05
	Extraversion	-.10 (.18)	.91	.64	1.29
	Neuroticism	1.09 (.17)**	2.98	2.12	4.20

Note. * = p -value < .01, ** = p -value < .001; all independent variables were measured at baseline (2008)

Satisfaction, stable over time.

In a second step, a Multinomial Logistic Regression was run on the same variables, adding each participants intercept. The model showed a $X^2(16, N = 852) = 390.28$, $p < .001$, explaining $R^2 = .46$ (Nagelkerke). Adding the intercept improves the model significantly

Table 7. *Regression Coefficients for Multinomial Regression with intercept*

Class	Variable	B (SE)	Exp (B)	95 % Confidence Interval for Exp (B)	
				Lower Bound	Upper Bound
1 medium Life Satisfaction, decreasing over time	Life Satisfaction	-1.19	.30	.23	.40
	Intercept	(.15)**			
	Important Contacts	.07 (.06)	.94	.83	1.06
	Satisfaction Social Contacts	-.06 (.07)	.94	.82	1.07
	Gender	-.05 (.27)	.96	.57	1.61
	Age	-.02 (.01)*	.98	.96	.99
	Monthly gross Income	-.07 (.04)	.93	.85	1.02
	Extraversion	.03 (.18)	1.03	.73	1.45
3 low Life Satisfaction, increasing over time	Life Satisfaction	-2.16	.12	.08	.16
	intercept	(.18)**			
	Important Contacts	-.02 (.08)	.98	.84	1.15
	Satisfaction Social Contacts	-.06 (.08)	.94	.80	1.10
	Gender	-.05 (.35)	.95	.50	1.83
	Age	.01 (.01)	1.01	.99	1.03
	Monthly gross Income	-.04 (.06)	.97	.87	1.08
	Extraversion	.21 (.22)	1.24	.81	1.89
Neuroticism	.42 (.22)	1.51	1.00	2.33	

Note. * = p-value < .01, ** = p-value <.001; all independent variables were measured at baseline (2008)

($F(1, 852) = 216.48, p < .001$). Participants in *class 2 high Life Satisfaction, stable over time* being the reference class. For *class 1 medium Life Satisfaction, decreasing over time*, the intercept ($\beta = -1.19, SE = .15, p < .001, OR = .30, 95\% CI [.23, .40]$) significantly predicted class membership in comparison to the reference class, next to Age ($\beta = -.02, SE = .01, p = .009, OR = .98, 95\% CI$

[.96, .99]). Furthermore, higher Neuroticism also predicted class membership for class 1 *medium Life Satisfaction, decreasing over time* in reference to class 2 *high Life Satisfaction, stable over time* ($\beta = .48$, $SE = .18$, $p = .006$, OR = 1.62, 95% CI [1.15, 2.29]).

For class 3 *low Life Satisfaction, increasing over time* class no variable, but the Life Satisfaction intercept ($\beta = -2.16$, $SE = .18$, $p < .001$, OR = .12, 95% CI [.08, .16]) significantly predicted class membership.

Discussion

The aim of this research was to provide a better understanding of how Life Satisfaction levels evolved in the Netherlands in a probability sample from 2008 until 2022. To do so, individual trajectories of Life Satisfaction over time were examined on similarities between participants. This explorative approach allows for modelling between subject's effects, by assigning them to three growth classes, describing different change trajectories of Life Satisfaction.

The results of this study show that Life Satisfaction trajectories from 2008 to 2022 could best be described by a quadratic model with random intercept and random slope. Three latent Life Satisfaction classes were found in the data, namely class 1 *medium Life Satisfaction, decreasing over time*, class 2 *high Life Satisfaction, stable over time*, and class 3 *low Life Satisfaction, increasing over time*.

For the first multinomial Regression without the Life Satisfaction intercept, Satisfaction with Social Contacts, Age, Monthly Gross Income, and Neuroticism predicted class membership of class 1 *medium Life Satisfaction, decreasing over time* in reference to class 2 *high Life Satisfaction, stable over time*. When looking at the exponentiation of the B coefficient, which equals the relative risk, and their 95% Confidence Intervals, the effects of Age and Monthly Gross Income are very small. The effect of Satisfaction with Social Contacts is also small, however, a little bigger than Age and Monthly Gross Income. The most relevant predicting effect has Neuroticism, indicating that for every unity increase in Neuroticism, someone is 1.6 times more likely to be assigned to class 1 *medium Life Satisfaction, decreasing over time* than to the reference class.

For class 3 *low Life Satisfaction, increasing over time* Satisfaction with Social Contacts and Neuroticism significantly predicted class membership in reference to class 2 *high Life*

Satisfaction, stable over time. Taking the exponentiation of the B-coefficient into account for this class, Satisfaction with Social Contacts has a smaller effect on class allocation than Neuroticism.

For the multinomial regression with the Life Satisfaction intercept, the Life Satisfaction intercept, Age, and Neuroticism predict class membership of class 1 *medium Life Satisfaction, decreasing over time* in reference to class 2 *high Life Satisfaction, stable over time*. When looking at the exponentiation of the B coefficient, the effect of Age on class allocation is very small. However, Life Satisfaction Intercept and Neuroticism have relevant effects on class allocation. For class 3 *low Life Satisfaction, increasing over time* only the Life Satisfaction intercept predicted class membership in reference to class 2 *high Life Satisfaction, stable over time*, with a strong effect.

Overall, the effects found for Age and Gross Monthly Income are too small to be considered meaningful. However, the effects found for Life Satisfaction Intercept and Neuroticism are relevant.

Life Satisfaction Trajectories

The results of this study can help to better understand the Life Satisfaction trajectories in the Dutch population. Most of the participants (68.06%) experienced high levels of Life Satisfaction in a stable manner over the past 14 years, but there is also about one third which shows overall lower levels of Life Satisfaction. Additionally, for those classes, Life Satisfaction did not seem to be stable over the past 14 years but increase for *class 3 low Life Satisfaction, increasing over time* and decrease for *class 1 medium Life Satisfaction, decreasing over time*.

Those findings also provide a more differentiated picture when considering the question whether Life Satisfaction is mostly stable over time or whether it changes. The results found in this study suggest that for most participants Life Satisfaction is in fact stable over time (Brickman & Campbell, 1971; Cummins, 2016; Frederick & Loewenstein, 1999), which would support the set point theory of Life Satisfaction. However, for a little less than one third of the sample Life Satisfaction was not stable.

Predicting Life Satisfaction

In the regression model without the Life Satisfaction baseline measure in 2008, lower Satisfaction with Relationships, lower Age, lower Income and higher levels of Neuroticism predicted class membership of class 1 *medium Life Satisfaction, decreasing over time*, and low Satisfaction with Relationships and Neuroticism predicted class membership of class 3 *low Life*

Satisfaction, increasing over time in reference to class 2 *high Life Satisfaction, stable over time*. When the initial Life Satisfaction measure at baseline in 2008 was added to the regression model, only Age and Neuroticism remained as significant predictors for class membership for class 1 *medium Life Satisfaction, decreasing over time*. Class membership of class 3 *low Life Satisfaction, increasing over time* was only predicted by the intercept in reference to class 2 *high Life Satisfaction, stable over time*.

This is in line with the discussed literature on the positive influence of Social Relationships on Life Satisfaction. However, it is interesting to see here that only the Satisfaction with Social Relationships was significantly associated with the high Life Satisfaction class membership, not the number of social contacts, when predicting class membership. This is partly contrary to the results found by Sun et al. (2020), who report that quality as well as quantity of Social Relationships was associated with Life Satisfaction during their two weeks experience sampling study. One explanation for the association between Satisfaction with Social Contacts and Life Satisfaction could be the level of (perceived) social support people get. The support people get from their Social Relationships can be of emotional nature, but also financial or tangible resources (Lin, 2002). This support might lead to an increased feeling of safety, and higher Life Satisfaction levels. However, Zhu et al. (2013) found in their paper that the level of perceived social support is positively associated with Life Satisfaction, which would explain why Satisfaction with Social Contacts predicted class membership, but not the Amount of Social Relationships.

When looking at potential explanations for younger Age being a significant factor predicting class membership for class 1 *medium Life Satisfaction, decreasing over time*, Blanchflower & Oswald (2008) mention mental distress to be the highest during peoples 40's. High levels of mental distress are negatively associated with Life Satisfaction (Dunne et al., 2018; Mibu et al., 2018). Another potential explanation for Age as a predicting factor is that younger people have a bigger discrepancy between how they wish their life was and how it is. This seems to be particularly relevant for income and a potential partner. During peoples 30s and early 40s, expectations for earning a high income and having a happy relationship might not be met, which might change during the later course of life and result in higher Life Satisfaction levels (Kageyama & Sato, 2021).

The relationship between lower Income and assignment to class 1 *medium Life Satisfaction, decreasing over time* is also in line with the scientific literature, which states that income and Life Satisfaction are positively associated with one another (Cheung & Lucas, 2015). A potential explanation for this relationship might be that higher income allows people to live their lives the way they want to. Examples of this might be spending time with the people they want at places they want, travelling to places or following leisure time activities. With less income, it is harder to achieve those things, which might explain the association between Income and Life Satisfaction (Kahneman & Deaton, 2010).

Last, high Neuroticism was a predictor for class membership for class 1 *medium Life Satisfaction, decreasing over time* and class 3 *low Life Satisfaction, increasing over time* when compared to class 2 *high Life Satisfaction, stable over time*. These results are in line with previously discussed literature, in which Neuroticism was negatively associated with Life Satisfaction (Anglim et al., 2020; Steel et al., 2008). One possible explanation for the association is that high levels of Neuroticism are associated with mental disorders, particularly with depression and anxiety (Kotov et al., 2010). Those two particular disorders are negatively associated with Life Satisfaction (Kwok et al., 2016; Zhi et al., 2016).

For class 3 *low Life Satisfaction, increasing over time*, a decrease in Life Satisfaction was visible, particularly during the most recent years of the study. This was the same time when the COVID pandemic led to lockdown restrictions in the Netherlands. An increase of depression and anxiety and a slight decrease in Life Satisfaction was reported as a result of the COVID preventions in the Netherlands (Veenhoven et al., 2021). These effects might be visible in the Life Satisfaction trajectory of class 3 *low Life Satisfaction, increasing over time*, which was vulnerable to mental disorders due to its higher Neuroticism levels and might lack social support due to lower Satisfaction levels with Social Contacts, which could explain the decrease in Life Satisfaction for this group.

Overall, when comparing class 1 *medium Life Satisfaction, decreasing over time* and class 3 *low Life Satisfaction, increasing over time* to one another in reference to class 2 *high Life Satisfaction, stable over time*, the number of variables predicting class membership for class 1 are quantitative more than for class 3, providing a potential explanation why Life Satisfaction decreases for class 1 and increases for class 2.

Strengths and Limitations

One strength of this study was the sample. First, even though only 1340 participants were used to run the analysis on, this is an exceptionally big sample for a social science research project. The advantages of this are an increase in power, which means that it was more likely to find significant results and that those results are more generalizable than from studies of smaller samples. The second strength of this sample is the probability sample nature of it. Many social science studies conduct research on convenience samples, mostly students. This was not the case for this study, which sample covered a wide span of Age, educational background, and Income classes. The advantage of this is that, again, results are more generalizable and mirror reality better than research conducted on convenience samples.

A third strength is number of the repeated measures over years and the explorative latent growth modelling analysis approach. This approach allowed to paint a more nuanced picture beyond means how Life Satisfaction develops over time and that there are various subgroups in the data, which have different Life Satisfaction growth trajectories, which were associated with different environmental and personal characteristics.

However, this study also has limitations, which need to be addressed. The biggest limitation of this study is the amount of missing data. When comparing the group of people with missing values and the group without missing values, it became apparent that there are significant differences in those groups' characteristic. The group of participants which was excluded was significantly younger, scored higher on Extraversion and on Neuroticism, and was significantly less Satisfied with their Lives. These differences in the groups' characteristics might be particularly relevant for Age and Neuroticism, since they significantly predict class membership according to the data. These differences might have resulted in a sampling error and limits the generalizability of the results. Future research should account for missing data and impute those values, to get a more holistic understanding of Life Satisfaction trajectories.

Another limitation of this study is that Social Relationships was only measured by two single item questions. This impairs reliability and validity of the measures and reduces generalizability of the results further. Future research should apply reliably and valid scales to measure Social Relationships, such as the Social Connectedness Scale (Haslam et al., 2015). This would allow a better understanding whether relevant constructs are present and how they are associated with Life Satisfaction.

Furthermore, future research could apply machine learning. As shown in the article by Kaiser et al. (2022), machine learning can help to extract the effect of a single independent variable on Life Satisfaction. The mechanism behind it is that two machine learning model models are run, one containing several variables and the other one containing the same variables, plus the variable of special interest (Satisfaction with Social Contacts, for example). The difference in Life Satisfaction between those two models would be explained by the variable of interest. This would allow to isolate the effect of Satisfaction with Social Contacts on Life Satisfaction, for example.

Conclusion

The results of this study show that for most of the sample Life Satisfaction was in fact high and stable over time, even in times of financial crisis and a worldwide pandemic. However, Satisfaction with Social Contacts, Age, and especially Neuroticism predicted class membership, showing that there are aspects which make people more or less satisfied with their lives. An interplay of increased mental disorder combined with a lack of social support to counteract those challenges might be a situation which negatively affects peoples Life Satisfaction levels. It is relevant for policy makers within- and outside of the Netherlands to understand that valid Social Relationships and mental health, negatively associated with Neuroticism, are important influences on peoples Life Satisfaction.

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Appendix 1: *Reliability Statistics (Cronbach's alpha) for Life Satisfaction, Extraversion, and Neuroticism*

Scale	Cronbach's alpha
Life Satisfaction 2008	.88
Life Satisfaction 2009	.89
Life Satisfaction 2010	.88
Life Satisfaction 2011	.9
Life Satisfaction 2012	.89
Life Satisfaction 2013	.89
Life Satisfaction 2014	.89
Life Satisfaction 2015	.89
Life Satisfaction 2017	.89
Life Satisfaction 2018	.9
Life Satisfaction 2019	.91
Life Satisfaction 2020	.9
Life Satisfaction 2021	.91
Life Satisfaction 2022	.91
Extraversion 2008	.86
Neuroticism 2008	.88

Appendix 2: *R Libraries used for the Data Analysis*

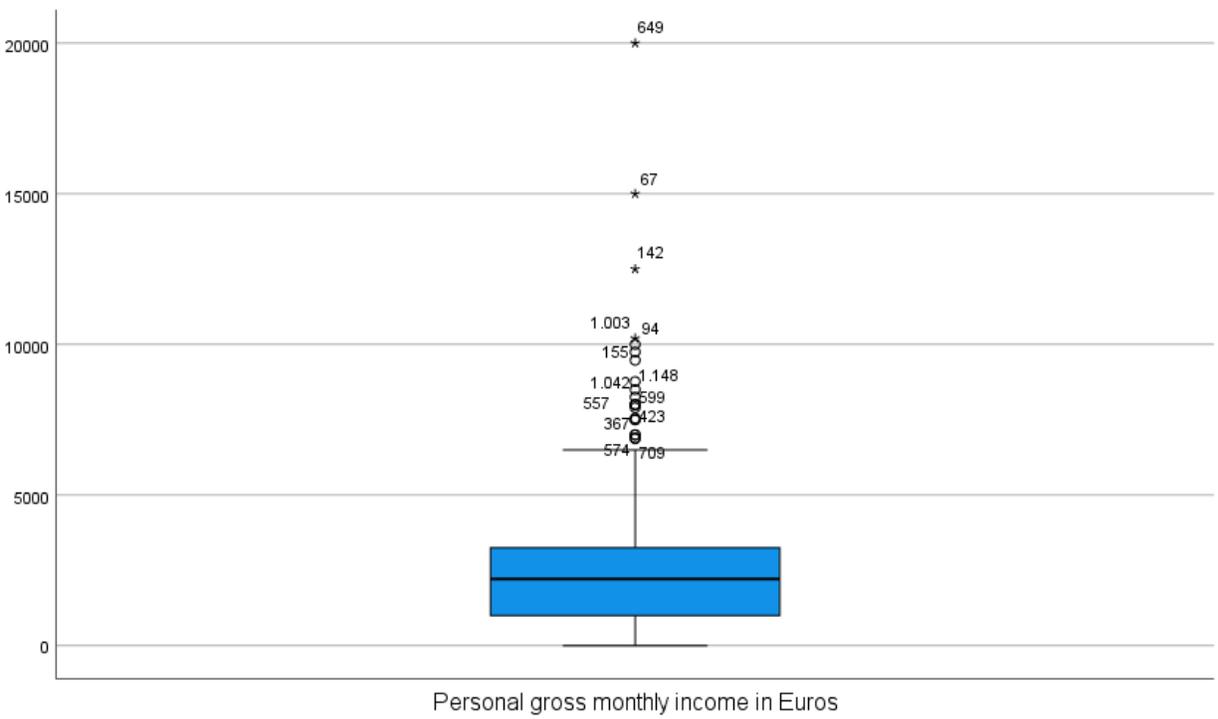
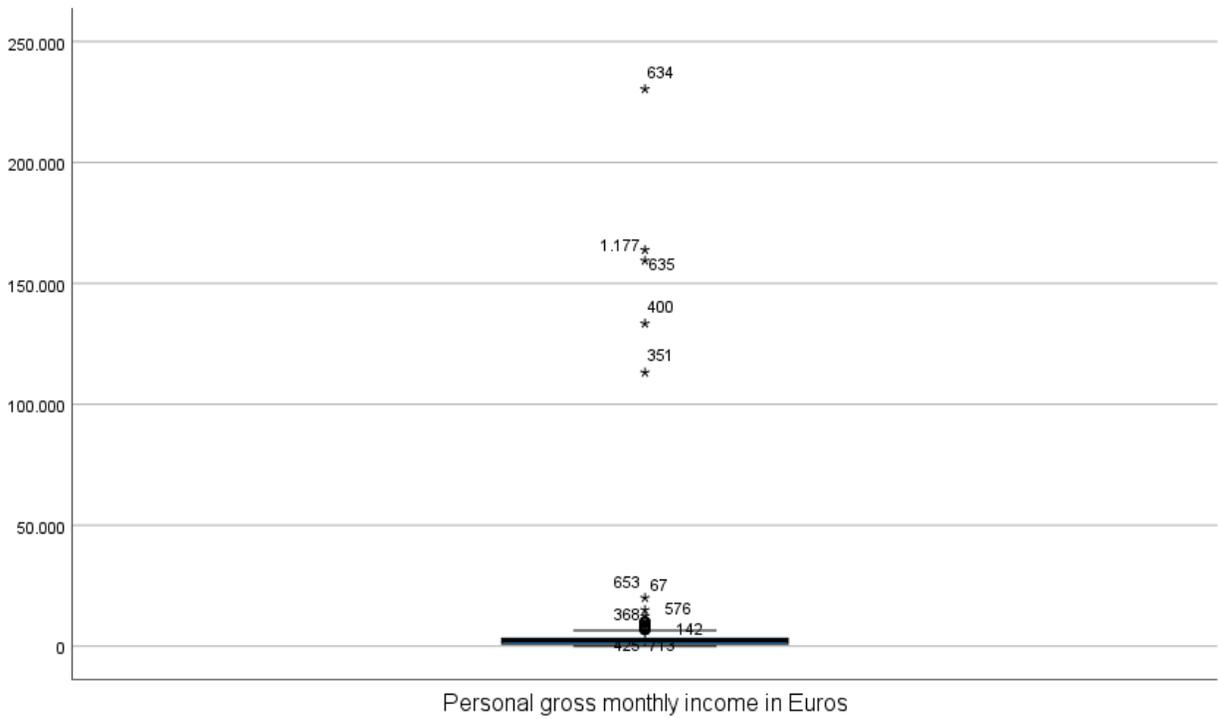
Name	Description	Version
tidyverse	The tidyverse package is designed to make it easy to install and load core packages from the tidyverse in a single command.	1.3.2
psych	Procedures for Psychological, Psychometric, and Personality Research	2.2.9
summarytools	Tools to quickly and neatly summarize data	1.0.1
corrplot	Visualization of a correlation matrix	0.92
haven	Import and export ‘SPSS’, ‘Stata’ and ‘SAS’ Files	2.5.1
lavaan	Latent Variable Analysis	0.6-12
rstatix	Pipe-Friendly Framework for Basic Statistical Tests	0.7.1
semTools	Useful Tools for Structural Equation Modeling	0.5-6
lcmm	Extended Mixed Models Using Latent Classes and Latent Processes	2.0.0
meantables	Make Quick Descriptive Tables for Continuous Variables	0.1.2
mice	Multivariate Imputation by Chained Equations	3.15.0
naniar	Data Structures, summaries, and Visualisations for Missing Data	0.6.1
QuantPsyc	Quantitative Psychology Tools	1.6
ggpubr	‘ggplot2’ Based Publication Ready Plots	0.5.0

ggplot2

Create Elegant Data
Visualizations Using the
Grammar of Graphics

3.4.0

Appendix 3: *Boxplot to identify outliers for Gross Monthly Income.*



Appendix 4: *Collinearity Statistics of Independent Variables**Coefficients^a*

Model		Unstandardized Coefficients		Standardize	t	Sig.	Collinearity Statistics	
		B	Std. Error	d Coefficients Beta			Tolerance	VIF
1	(Constant)	1,742	,165		10,572	,000		
	Mean_Extraversion_08	,012	,027	,014	,455	,649	,866	1,154
	Mean_Neuroticism_08	,028	,026	,033	1,078	,281	,825	1,212
	Gender	-,008	,032	-,007	-,246	,806	,941	1,062
	SUM_imp_per_08	,003	,010	,011	,368	,713	,927	1,079
	How satisfied are you with your social contacts?	-,007	,011	-,020	-,697	,486	,894	1,119
	age_2008	,003	,001	,076	2,690	,007	,963	1,039

a. Dependent Variable: pprob.class