



**Electronic Journal of Applied Statistical Analysis
EJASA, Electron. J. App. Stat. Anal.**

<http://siba-ese.unisalento.it/index.php/ejasa/index>

e-ISSN: 2070-5948

DOI: 10.1285/i20705948v15n2p277

**Happiness among UAE undergraduates: one year
since COVID 19**

By Al Tal, AlRadaideh

Published: 20 June 2022

This work is copyrighted by Università del Salento, and is licensed under a Creative Commons Attribution - Non commerciale - Non opere derivate 3.0 Italia License.

For more information see:

<http://creativecommons.org/licenses/by-nc-nd/3.0/it/>

Happiness among UAE undergraduates: one year since COVID 19

Dr. Safwat Al Tal^{*a} and Dr. Ahmed AlRadaideh^b

^a*Higher Colleges Of Technology, UAE*

^b*University Of Science and Technology Of Fujairah, UAE*

Published: 20 June 2022

This paper comes to explore the level of happiness among a sample of university students in UAE by running the Oxford Happiness survey. In relation to happiness, the study continues to address the relationship between happiness and three variables: the academic achievement / performance represented by Grade Point Average GPA, the Gender and the Academic Progress (the year at which the student is in). The main results suggest that there is an association between happiness and academic achievement of students; however, females tend to be happier than males. In addition, it was found that as students' progress in their studies in the university their happiness level decreases. When comparing numbers with the numbers of a previous study, the researchers found that the current study showed lower happiness levels, the researchers interpreted it with the COVID19 consequences especially that the study was executed after a year since the start of the pandemic.

keywords: Academic Achievement, Academic Progress, Positive Psychology.

1 Introduction

In economics, happiness is becoming a trending topic. According to Kahneman and Krueger (2006), the number of economic papers analyzing data on self-reported life satisfaction or happiness increased from four in 1991–95 to more than 100 in 2001–05. Other recent reviews include Oliver (2006); Easterlin (2015); Frey and Stutzer (2010). During the past ten years economists have studied happiness in relation to earnings,

*Corresponding author: saltal@hct.ac.ae

economic growth, income inequality, inflation, institutions, human development index, consumption, globalization, and unemployment. On the other hand, several studies have investigated the connection between education and happiness. One does not have to look far to find plenty of evidence of the influence of education on many important aspects of people's lives. So, if 'happiness' is understood in the robust eudaemonist sense of overall human well-being, then education evidently has an enormous impact.

There are many things in life that matter to us – including health, freedom, autonomy, and achievement. But if we ask why they matter we can generally give further answers – for example, that they make people feel better or more able to enjoy their lives. But if we ask why it matters for people to feel better, we can give no further answer. It is self-evidently desirable. Our overall happiness – how we feel about our lives – is what matters to us most. Governments have become interested in the subjective well-being of their citizens. It has been known for decades that conventional measures of economic progress do not tell the whole story about a country's performance or well-being. In 2009, general consciousness was raised due to a report by Stiglitz, Sen and Fitoussi on this issue as it provided reasons why progress in terms of economic, social, and environmental sustainability need to be measured. The Organization for Economic Co-operation and Development (OECD) described this development as "better statistics for better policies for better lives". Since that time many countries have become more interested in finding better measures of national well-being and happiness. Attempts on this were in Europe such as Holland, Austria, and Finland and in the old commonwealth countries like Canada, Australia, and New Zealand.

Research studies on happiness reveal interesting results, as different early studies of happiness revealed that countries with the highest GDP per head did not have the highest average level of happiness Oliver (2006). Moreover, it was found that among developed countries increasing GDP per head was not associated with a corresponding increase in happiness. Easterlin (2015). This has led to increasing disenchantment with GDP per head as a measure of national well-being Stiglitz et al. (2009). Other surprising results showed that old people are happier than people in their middle years (Sorrell, 2009). As for the Middle East, the UAE was the first country to bring this interest into action. The UAE Cabinet, chaired over by His Highness Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President, Prime Minister and Ruler of Dubai, endorsed the launch of corporate happiness and positivity initiatives in the UAE Federal Government. His Highness said "happiness and positivity in the UAE are lifestyles, a government commitment and a spirit uniting the UAE community. The government system is evolving to realize the goals that every human seeks: happiness for him and his family." Under the pillar of Cohesive Society and Preserved Identity of National Agenda, the UAE Government aims to make the country among the top five happiest countries in the world by 2021. Education as a sector a vital sector in UAE is taking high attention by the government and it is developing expeditiously, and among other sectors, it is included in the UAE happiness initiative as well.

According to the study of Sun et al. (2018), the relationship between happiness and personality is more complex than we thought. According to the study the type of personality predicts happiness; however, emotion is the main element of our personality. It is

highly related to our reactions toward environment and all elements in it. Hyper-emotion and lack of emotion are both symptomatic. We learn to explain our emotions with specific expressions and terminology such as, gladness, happiness, and sorrow. Among positive emotions, happiness drew various researchers' attention to itself. Since we know happiness, motivates individual activities, raises awareness, strengthens creativity, and facilitates social relationships, so happiness could play a key role in educational systems. (Talebzadeh and Samkan, 2011). On the other hand, emotion has a significant relationship with motivation; it is the motivation which energizes and directs the person's behavior and his tendency to achieve goals. This kind of motivation is associated with special goals and ways of achieving them, planning, effort, and feelings of self-worth (Ghasemi et al., 2011).

2 Importance of the study

While it is somehow demanding to describe happiness (as it is perceived differently among different people), still people can be asked if they're happy or not! Frey and Stutzer (2010). Although the general view of age as an influence on happiness is considered close to nil Frey and Stutzer (2010), age was also found to be an important explanatory variable by Hirvonen and Mangeloja (2005). Their results indicated that older people in Finland seemed to be less happy than younger ones.

To describe the importance of this study, it is essential to start by describing what is meant by happiness. According to Webster's dictionary happiness is defined as, "an agreeable feeling or condition of the soul arising from good fortune or propitious happening of any kind; the possession of those circumstances or that state of being which is attended enjoyment; the state of being happy; contentment; joyful satisfaction; felicity; blessedness." As shown in the definition, happiness captures a huge variety of positive emotional responses, such as serenity, optimism, cheerfulness, and joy. Argyle (2013) reported that happiness consists of three basic components: positive affection, life satisfaction and negative affection.

When we think of the importance of scientific research on happiness, there are two sides to consider; it is possible to make an unimportant perception of this type of research claiming that it would lead to a trivial addition to knowledge in a superficial, even frivolous, field that could be highly tainted with subjectivity. However, the other side could address that it could be considered a breakthrough in human understanding with implications for improving the human condition that could translate into profound positive consequences. However, in recent years there has been a significant improvement in the ability to measure happiness and the confidence in its measurement (Diener et al., 2009). According to the knowledge of the researchers, this is the first study in UAE to examine happiness among university students.

2.1 Research on Happiness and its Relation to Higher Education 2.1

According to the reviews of education and happiness by Diener et al. (1999); Hills and Argyle (2002), there seems to be small (.12 -.06) but significant (positive) correlations

between education and happiness assessed by the number of years of education and or the level of highest qualification acquired. The effect of education on happiness comes from work (better and more satisfying jobs), from occupational status and, finally, from income. In short, studies show that education may increase happiness, but only indirectly and only after receiving it. So, in a way happiness is a return from schooling (see: (Hartog and Oosterbeek, 1997). But what about those who are still at university? What about their satisfaction with university life?

Human capital theory views education as an initial investment that generates a stream of later returns in the form of increased productivity, leading to better employment prospects and higher earnings (Becker 1962). However, increased education may offer benefits in a wide range of other spheres, such as health and marriage prospects Hartog and Oosterbeek (1998); Haveman and Wolfe (1984). These considerations point to persons with higher education having better life outcomes and, one would assume greater subjective well-being. Education is supposed to improve incomes and outcomes in non-financial life domains.

Individuals, therefore, are likely to expect better outcomes if they have achieved more education, and to a big extent, they have participated in education for the specific purpose of achieving these improved outcomes. If this raises their aspirations, the contribution of education to happiness will decrease, given that people's circumstances about their desires determine their happiness. In addition, if ambitions were disproportionately higher than outcomes, education would lead to a lower level of enjoyment. The link between education and happiness may be ambiguous. It follows that as education levels generally have increased over time, we should not expect any general increase in happiness, rather more-educated people should still on average be happier than less-educated people. However, level of education may change the reference group of people against which they assess their relative standing University students make up a substantial section of any country's active population, and various variables could jeopardize their mental health. This combination of factors may be internal stimuli like personality, which could lead to the defeat and surrender to the underlying problems or environmental factors such as stress.

Extreme stress among students causes educational failure, unemployment, addiction, drug abuse, health problems, poor performance, dropouts, and in some cases even lead to suicide and murder. Faced with various stress and reactions from them, students usually try to use coping mechanisms such as sports, seeking social support or religious practices, at the same time there is the possibility of negative coping mechanisms such as alcohol and drug use. Happiness is a broad concept and has both cognitive and emotional components. Emotional component means balance between pleasant and unpleasant emotions.

When decomposing education, it is essential to think of the two sides of the coin: the dimensions of Teaching and Learning. The learning side mainly exists within students, however, the goal of it; is to provide students with the knowledge, skills and competencies that would help them acquire what is supposed to help them build better future. Accordingly, the importance of research on happiness and higher education could be based on the following reasons:

1. It is relevant to the purpose of higher education as the main purpose of higher education is to prepare students for their lives as graduates after university. This mainly applies to preparing students for work after graduation, but this is only a proximate and instrumental goal; the reason for preparing them for work is to help them improve their lives and well-being. Past research has shown that people who have high levels of happiness show greater job performance and productivity than those who are less happy (Lyubomirsky et al., 2005).

2. Education is perceived by families as an investment to prepare students for work and life but there is also a cost aspect to acquiring a university education represented by time, money, and effort; however, students can reasonably expect to enjoy the experience as well. Seeking a university education that supports the well-being of students would make no sense to ignore the knowledge that is accumulating on human well-being, fulfillment and what constitutes a good life. The findings of research on happiness can contribute to this. This is likely to be an increasingly significant factor now that the financial costs for higher education are substantial.

3. In 2011, when Harvard University was ranked as the top university in the world by the UK's Times Higher Education Supplement, the positive psychology course was the most popular. Positive psychology has emerged as a recognized discipline to provide a home for the findings of the new scientific study of happiness. Positive Psychology is a young specialization in psychology. The movement began in the 1990s when psychologists began thinking critically about psychology's tendency to focus primarily on the illnesses and problems of the human mind, rather than what makes humans thrive and succeed. Another consequence of enhancing subjective well-being is heightened performance in work and performance-related domains (Lyubomirsky et al., 2005). Thus there is significant practical value in exploring the relationship between happiness and success in academic and organizational contexts. This obviously can be a learning experience for other higher education institutions.

4. If we think of the students as future employees who will contribute to the wellbeing of society, then we should consider that happier workplaces are workplaces that are more productive and happier employees are more productive (Diener et al., 2009).

5. From a higher education institution perspective, students' satisfaction is one of the major KPIs of performance. Happy students are more satisfied students and are more likely to record higher scores in students' satisfaction surveys. This directly affects the national standing of an institution which affects student recruitment and funding of the higher education institution.

Nevertheless, the relationship between education and happiness may depend in part on how broadly education is defined (Lavalley et al., 2007). Defining education as formal education leading to certification as opposed to the more general sense of the many ways in which learning occurs may be a substantial oversimplification. While this is an important and valid point, it is the more limited formal definition of education that is of interest here, since this paper seeks to explain the relationship between happiness and three educational variables related to undergraduate students in the university.

3 Literature Review

The field of happiness research has similarly been perceived from different perspectives through many lenses. Despite the lack of new studies on the topic, there are research papers that have addressed the relationship between happiness and education from different aspects. Wilkinson (2007) noted that "happiness research is seriously hampered by confusion and disagreement about the definition of its subject as well as the limitations inherent in measurement technique". Different studies were done on happiness among university students, Abecia et al, 2014, revealed that the top five (5) sources of happiness are family, health, academic achievement, recognition and extending help to others.

However, many of the studies came out with surprising results. (Zulkiffi et al., 2013) in his study Happiness and Students' Performance in Quantitative Subjects, tried to examine undergraduates perceptions of happiness and quantitative subjects, as well as the relationship between the two. The study concluded that university students tend to be happier when they are satisfied with their studies, have good relationships with family and friends, possess good time management, active in extra-curricular activities, have a good balance between work and play, and are in good health. Despite the perceived difficulty, most students didn't find quantitative courses as boring and tended to develop an interest in those subjects depending on the teaching styles of their course instructors. While exploring the relationship between happiness, quality of sleep, and academic achievement, (Mushtaq et al., 2014) the linear regression analysis revealed that happiness predicted the quality of sleep. Stepwise regression analysis revealed that the subjective sleep quality sub-scale of the Pittsburg sleep quality index appeared as the only significant predictor of happiness while other sub-scales were excluded from the model. Though academic achievement was not correlated with quality of sleep and happiness, the sub-scale of quality of sleep, i.e. use of sleep medication, appeared as the only significant predictor of academic achievement.

Positive psychology principles and approaches have been applied in educational settings at the individual level, group, and school levels with now widespread and conclusive evidence in existence (for instance, multi-site replication studies, meta-analyses, and both cross-sectional and longitudinal studies) highlighting the strong link between well-being and academic success (El Ansari and Stock, 2010; Verkuyten and Thijs, 2002). One example of such research is Quinn and Duckworth's study Quinn and Duckworth (2007) which found that , participants reporting higher well-being were more likely to earn higher final grades, even when controlling variables of IQ, age, and the previous year's GPA. Hassanzadeh and Mahdinejad (2013), worked on identifying the relationship between happiness and achievement motivation among male and female randomly selected students. Two questionnaires were used: Oxford Happiness Questionnaire (OHQ) and Achievement Motivation Questionnaire (AMQ) The two questionnaires measured happiness and achievement motive levels in students in similar conditions. The findings showed a relationship between happiness and achievement motive among the students.

Tabbodi et al. (2015), investigated the relationship between happiness and academic achievement among students. A stratified random sample of students was examined

in a correlation kind of study and the Oxford Happiness Questionnaire was used for data collection. They concluded that there is a significant positive relationship between happiness and achievement of students. The results of Tabbodi et al. (2015) were also in line with the findings of Mirzamani et al. (2006) which showed happiness rate of females is more than that of males, and happiness in married students is much more than single students. It has also confirmed a direct and positive relationship between happiness and age. The research was also in line with the previously reported findings which showed a positive relationship between happiness and educational attainments. Research leads us to know that positive emotions are certainly advantageous, as they can "broaden and build" one's experience in life. The "broaden and build" theory (Fredrickson and Joiner, 2002) states that positive emotions are deceptively important in that they will broaden one's skills and resources in life.

Such research fits within a larger research base linking well-being to success via increased engagement in various life domains from work to relationships, to health status (Lyubomirsky et al., 2005). Accordingly, the relationship between well-being and engagement is that higher well-being leads to higher engagement, and higher engagement leads to better academic outcomes.

4 Methodology

The scientific study of happiness requires accurate measurement of the construct that satisfies assumptions of parametric statistics and thus allows researchers to make reliable and valid comparisons with the relevant data sources. So that in any study related to this subject, one can examine the statistical hypotheses and thus make comparisons with a high degree of accuracy with the relevant studies.

The Oxford Happiness Questionnaire (OHQ) Survey is considered one of the most important measures that have been adopted in research to measure and evaluate personal happiness, this questionnaire consists of many questions related to personality, direct and indirect social relations, and the extent of a person's satisfaction with many qualities that any person should have. It is worth noting that collecting data using survey questionnaires is a common practice when conducting psychological research/ happiness-related research. The Oxford Happiness Questionnaire (OHQ) is a widely used scale for the assessment of personal happiness. The Oxford Happiness Questionnaire (OHQ) psychometric properties are widely acknowledged to be acceptable. The study used the modified Oxford Happiness Questionnaire to study the relationship between student happiness as the dependent variable and three main variables in the educational process (Independent variables): Gender, Academic Achievement represented by the Grade Point Average GPA, and Academic Progress (1st,2nd,3rd,4th year). The IBM-SPSS 26 statistical package was used to conduct the analysis. As a first step, reliability analysis was performed then the correlation coefficient was calculated and the Chi-square test to understand the relationship between students' happiness and the three mentioned variables.

After modifying the 29-item Oxford Happiness Questionnaire (OHQ) fit with the

current study by adding some questions related to the educational experiences of students and their academic achievements, the questionnaire was programmed using Google forms, a simple random sample of size 600 students from the university of science and technology of Fujairah were selected randomly, then they were invited to voluntarily participate in the study by e-mail. The sample size is sufficient since the university has 1800 students, and it was obtained by a simple random sampling (SRS) that involved the sample being drawn randomly from the university students. The normality assumption was checked and it shows that the disruption of our data set was normally distributed.

There were 60% Female students and 40% Male students, and in terms of their academic progress (the Academic Year level), there were 36% of the sample first-year students, 29% of second-year students, 18% of the third year, and 17% of fourth-year students. The happiness indication was calculated and then classified according to the modified questionnaire so that we can have both scale and categorical variables for the same indicator for the analysis.

5 Results

Reliability or internal consistency was measured using Alpha coefficient (Cronbach Alpha). that the overall Cronbach's alpha is 0.801. This suggests that there is consistency between the questions through which happiness was measured. For studying the relationship between happiness and students Academic Achievement Chi-square analysis was used. The Chi Square statistic is commonly used for testing the association between categorical variables. The null hypothesis of the Chi-Square test is that no association exists between the categorical variables in the population; they are independent. The results show that there is a significant association between the students happiness level and their academic achievements.

Furthermore, the correlation was used to check the extent to which the two variables fluctuate together. A positive correlation indicates the extent to which those variables increase or decrease in parallel; a negative correlation indicates the extent to which one variable increases as the other decreases. The correlation analysis shows that the two variables have a significant positive relationship 0.25, which means that if students happiness increases, their academic achievement will increase as well.

Table 1: The Chi Square Test between the Academic Achievement and Happiness

	Value.	DF	Sig.
Pearson Chi-Squar	47.828	4	0.00
Likelihood Ratio	49.811	4	0.000
N of Valid Cases	600		

Table.1 shows that there is a significant association between academic achievement (represented by GPA) and happiness at the significant level Alpha=0.05. Afterward, the association between happiness and gender in the sample was examined using Chi-square test.

Table 2: The Chi Square Test between the Gender and Happiness

	Value.	DF	Sig.
Pearson Chi-Squar	41.765	2	0.00
Likelihood Ratio	43.249	2	0.00
N of Valid Cases	600		

The Chi-square test from Table.2 shows a significant association between gender and happiness; moreover; the Female happiness Mean 3.01 and standard deviation 0.79 and for the Male the Mean 3.24 with a Standard deviation 0.77, the difference was statistically significant at the significant level 0.05, which indicates that if a student is taken randomly and he turns out to be a Male, then, most probably he will be feeling happier than if she was a Female.

To examine if there is an association between happiness and Academic Progress (the year in which the student is), Chi-Square test was conducted, the results in Table 3. indicates that at the significant level of at Alpha=0.05 there is an association between happiness and the academic progress of the student.

Table 3: the Chi Square Test between the Academic Progress and Happiness

	Value.	DF	Sig.
Pearson Chi-Squar	38.309	6	0.00
Likelihood Ratio	39.932	6	0.00
N of Valid Cases	600		

Finally, comparing the results from this study with a previous study (Altal and Al-Radaiadeh, 2019) conducted at the university before and after the presence of the Covid 19 virus, the following Table 6 shows the Chi-Square Test for happiness and Academic Achievement based on the study group.

Table.4 shows that there are differences in the happiness index between the two studies that led to differences in the distribution of students based on their academic achievement and their happiness status, as there are statistically significant differences for each group where the p-value is 0.00, this difference can be attributed to the emergence of new factors

Table 4: the Chi-Square Test between the two Studies Happiness Index

GPA	Chi-Square	DF	Sig.
Weak	39.478	2	0.00
Good	70.871	2	0.00
Excellent	18.414	2	0.00

such as the Covid-19 virus and the accompanying measures had a negative impact on students' happiness levels, such as shifting from direct learning to distance learning, which led to the absence of student life and social interaction as it was before, this may cue the negative effect on the happiness Index.

Table 5: ANOVA analysis for happiness indicators.

Happiness Indicator	SS	DF	MS	F	Sig
Between Groups	2.635	1	2.635	3.943	0.047
Within Groups	479.892	718	0.668		
Total	482.527	719			

Moreover, it is possible to observe the negative impact of the emergence of the Covid 19 virus and its accompanying factors on the average happiness index. Using the ANOVA analysis shown in Table 5, verified that there is a statistical significance variation between the averages of the two studies. as when comparing the student's average happiness index for the current study, it is equal to 3.05 with a standard deviation of 1.31, which is less than what we obtained in the previous study, the average was equal to 3.38 and a standard deviation of 1.02, and the t-test confirmed that the differences between the two means were significant at 0.05. Therefore, it is possible to say that the current study came to confirm the importance of happiness among students and the extent of its association with university achievement even with the different circumstances related to the educational process and the students feeling of these new conditions imposed on them by the new circumstances related to the emergence of the Covid-19 virus, which had a negative impact on the general happiness index of students and its association to their academic achievement.

6 Discussion

The result of this paper proves the relationship between happiness and the three variables of Academic Achievement, Gender and Academic Progress (the year at which the student is in). It was found that there is a relationship between happiness and academic achievement represented by GPA, a positive relationship revealed that as students happiness increases, their GPA increases as well. This is supported by the literature which reports that people who have high levels of happiness show greater job performance and productivity than those who are less happy. As for the gender, the results showed that female students tend to have higher levels of happiness than male students, this can be justified by different reasons, one of which could be better academic achievement among female students compared to male students.

Finally, the results showed that as students move from being freshmen to become seniors, their happiness levels decrease due to a negative correlation between happiness and academic progress (the year the student is in). This can be due to many reasons including the fact that students get closer to real-life experiences that carry higher levels of responsibility than students life. However, when compared to the previous study, the happiness index has shown a decrease, this requires further research, as the new circumstances of the pandemic of COVID 19 must-have affected on students happiness. This could be related to many reasons like the personal health concerns of students or their relatives, it could also be coming from the new form of students educational experiences through online classes and online assessment. This opens the door for further research on a larger scale to improve educational policies and procedures in times of pandemics.

References

- Altal, S. and AlRadaiadeh, A. (2019). Gender, academic achievement and academic progress in relation to happiness among uae undergraduates. *ACBSP, region 8 Conference*.
- Argyle, M. (2013). *The psychology of happiness*. Routledge.
- Diener, E., Suh, E. M., Lucas, R. E., and Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological bulletin*, 125(2):276.
- Diener, E., Wirtz, D., Biswas-Diener, R., Tov, W., Kim-Prieto, C., Choi, D.-w., and Oishi, S. (2009). New measures of well-being. In *Assessing well-being*, pages 247–266. Springer.
- Easterlin, R. A. (2015). Happiness and economic growth—the evidence. In *Global handbook of quality of life*, pages 283–299. Springer.
- El Ansari, W. and Stock, C. (2010). Is the health and wellbeing of university students associated with their academic performance? cross sectional findings from the united kingdom. *International journal of environmental research and public health*, 7(2):509–527.

- Fredrickson, B. L. and Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological science*, 13(2):172–175.
- Frey, B. S. and Stutzer, A. (2010). Happiness and economics. In *Happiness and Economics*. Princeton University Press.
- Ghasemi, F., Rastegar, A., Jahromi, R. G., and Marvdashti, R. R. (2011). The relationship between creativity and achievement motivation with high school students' entrepreneurship. *Procedia-Social and Behavioral Sciences*, 30:1291–1296.
- Hartog, J. and Oosterbeek, H. (1997). Health, wealth and happiness: Why pursue a higher education? Technical report, Tinbergen Institute Discussion Paper.
- Hartog, J. and Oosterbeek, H. (1998). Health, wealth and happiness: why pursue a higher education? *Economics of education review*, 17(3):245–256.
- Hassanzadeh, R. and Mahdinejad, G. (2013). Relationship between happiness and achievement motivation: A case of university students. *Journal of Elementary Education*, 23(1):53–65.
- Haveman, R. H. and Wolfe, B. L. (1984). Schooling and economic well-being: The role of nonmarket effects. *Journal of human Resources*, pages 377–407.
- Hills, P. and Argyle, M. (2002). The oxford happiness questionnaire: a compact scale for the measurement of psychological well-being. *Personality and individual differences*, 33(7):1073–1082.
- Hirvonen, T. and Mangelaja, E. (2005). Miksi tutkia onnellisuutta maassa, jossa kahdeksan kymmenestä ilmoittaa olevansa onnellisia? *Tieteessä tapahtuu*, 23(5).
- Kahneman, D. and Krueger, A. B. (2006). Developments in the measurement of subjective well-being. *Journal of Economic perspectives*, 20(1):3–24.
- Lavallee, L. F., Hatch, P. M., Michalos, A. C., and McKinley, T. (2007). Development of the contentment with life assessment scale (clas): Using daily life experiences to verify levels of self-reported life satisfaction. *Social Indicators Research*, 83(2):201–244.
- Lyubomirsky, S., King, L., and Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological bulletin*, 131(6):803.
- Mirzamani, S., Safari, A., Jena, S., and Safara, M. H. M. (2006). Role of psychological problems in efficacy of transcutaneous electrical nerve stimulation in patients suffering from chronic pain. *Acta Medica Iranica*, pages 181–187.
- Mushtaq, R., Shoib, S., Shah, T., and Mushtaq, S. (2014). Relationship between loneliness, psychiatric disorders and physical health? a review on the psychological aspects of loneliness. *Journal of clinical and diagnostic research: JCDR*, 8(9):WE01.
- Oliver, A. (2006). Happiness: Lessons from a new science, richard layard. allen lane, 2005, ix+ 310 pages. *Economics & Philosophy*, 22(2):299–307.
- Quinn, P. D. and Duckworth, A. L. (2007). Happiness and academic achievement: Evidence for reciprocal causality. In *The annual meeting of the American Psychological Society*, volume 24, page 2007. Citeseer.
- Sorrell, J. M. (2009). Aging toward happiness. *Journal of Psychosocial Nursing and Mental Health Services*, 47(3):23–26.

- Stiglitz, J. E., Sen, A., Fitoussi, J.-P., et al. (2009). Report by the commission on the measurement of economic performance and social progress.
- Sun, J., Kaufman, S. B., and Smillie, L. D. (2018). Unique associations between big five personality aspects and multiple dimensions of well-being. *Journal of personality*, 86(2):158–172.
- Tabbodi, M., Rahgozar, H., and Makki Abadi, M. M. (2015). The relationship between happiness and academic achievements. *European Online Journal of Natural and Social Sciences: Proceedings*, 4(1 (s)):pp–241.
- Talebzadeh, F. and Samkan, M. (2011). Happiness for our kids in schools: A conceptual model. *Procedia-Social and Behavioral Sciences*, 29:1462–1471.
- Verkuyten, M. and Thijs, J. (2002). School satisfaction of elementary school children: The role of performance, peer relations, ethnicity and gender. *Social indicators research*, 59(2):203–228.
- Wilkinson, W. (2007). In pursuit of happiness research: Is it reliable? what does it imply for policy? *What does it imply for policy*.
- Zulkifli, I. et al. (2013). Happiness and students' performance in quantitative subjects—a preliminary study. *Prosiding Book of ICEFMO*.