

Wealth, happiness, and suicide; Any meaningful relationship in the countries?

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II. METHOD

Abstract: In randomly selected 29 countries, it has been investigated whether there is a relationship between happiness indices, GDP/capita as an income rate, and suicide incidences based on countries and whether there is a clustering of countries.

In our study we showed that positive correlation between income rate and happiness rate ($r=0.89$, $p<0.001$), and a positive correlation were also found between GDP/capita values and suicide rates ($r=0.57$, $p=0.001$).

It has been also shown that there is a positive correlation between the happiness rate and the suicide rate ($r=0.57$, $p=0.001$). The higher the happiness rate, the higher the suicide rate, or the lower the happiness rate, the lower the suicide rate are together. This relationship and correlation were discussed. The positive relationship between the happiness rate and the suicide rate may be secondary to the increase in the expectation levels associated with the increase in the income rate.

Besides the positive correlation and relationships between income, happiness, and suicide rates, by looking at the values of the countries, it was concluded that 29 countries could be examined in five separate clusters.

Subject Areas; Social Policies, Sociology, Public Health

Key Words; GDP/capita, Income rate, Happiness rate, Suicide incidence

I. INTRODUCTION

Much research has been done on whether there is a direct correlation between happiness and wealth. Conflicting results have been obtained on this subject, but most of the studies are at the personal level. Similar studies based on the countries are very limited (Agerbo 2001, Bantijes 2016, Altinanahtar 2009, Fleischmann 2005).

This study aims to investigate whether there is a relationship between happiness rates, GDP/capita, and suicide rates among countries, and to examine whether there is a clustering among the countries. Suicide rates may depend on many different factors such as belief, history, family structure, disasters, and a political regime based on countries. The clusters and correlations that can be revealed because of the analysis of income and happiness rates and suicide on a country basis will provide important clues for the prevention of suicide, which is an important public health problem.

Twenty-nine countries selected by randomly from the countries which recognized by UN. The correlation between GDP/capita, happiness rates, and suicide was investigated in Algeria, Austria, Brazil, Cambodia, Canada, China, Denmark, Egypt, Finland, France, Germany, Iceland, India, Italy, Japan, Kenya, Luxembourg, Malaysia, Netherlands, New Zealand, Norway, Pakistan, Romania, Sweden, Switzerland, Turkey, UK, USA, Venezuela. GDP/capita, happiness indices, and suicide rates for countries were obtained from open sources (worldometers.info/gdp/gdp-by-country/,

worldpopulationreview.com/country-rankings/happiest-countries-in-the-world,

en.wikipedia.org/wiki/List_of_countries_by_financial_assets_per_capita,

stats.oecd.org/index.aspx?queryid=81611#,

en.wikipedia.org/wiki/List_of_countries_by_suicide_rate).

Statistical correlation analysis was done using the IBM SPSS 27 package program. Whether the distribution of continuous variables was normal or not was determined by the Shapiro-Wilk test. The relationship between the non-normally distributed income ratio (GDP/Capita), happiness score (happiness score), and suicide rate (suicide rate per 100,000) variables were analyzed with the Spearman Correlation coefficient.

While comparing the income rate (GDP/capita), happiness rate, and suicide frequency in selected countries, which will be randomized to be one out of every seven or eight countries from a total of 208 countries in the world, clusters were also investigated with the thought that there may be religious and ethnic differences based on the countries.

III. RESULTS

GDP/capita, happiness indices, and suicide rates for countries are given in Table 1 (from open resources; (worldometers.info/gdp/gdp-by-country/,

worldpopulationreview.com/country-rankings/happiest-countries-in-the-world,

en.wikipedia.org/wiki/List_of_countries_by_financial_assets_per_capita,

stats.oecd.org/index.aspx?queryid=81611#,

en.wikipedia.org/wiki/List_of_countries_by_suicide_rate .

Tablo 1. Countries, GDP/capita, Happiness Index, and Suicide Rates

Algeria	4.048	4.88	2.5
Austria	47.261	7.26	23.8
Brazil	9.881	6.33	6.4
Cambodia	1.384	4.83	4.9
Canada	44.841	7.1	16.9
China	8.612	5.33	9.8
Denmark	57.545	7.6	7.6
Egypt	2.441	4.28	3
Finland	45.778	7.8	22.8
France	39.827	6.69	9.7
Germany	44.680	7.15	11.29
Iceland	73.233	7.5	12.3
India	1.938	3.81	13
Italy	32.038	6.48	12.7
Japan	38.214	5.94	23.1
Kenya	1.587	4.6	6.1
Luxembourg	105.280	7.3	8.6
Malaysia	10.118	5.38	5.7
Netherlands	48.799	7.4	17
New Zealand	43.415	7.27	10.3
Norway	75.428	7.4	12.8
Pakistan	1.467	6.14	8.9
Romania	10.781	6.14	9.7
Sweden	54.075	7.36	14.7
Switzerland	80.296	7.5	17
Turkey	10.498	4.91	6.34
UK	39.532	7.06	6.9
USA	59.039	6.9	21.8
Venezuela	11.028	4.89	2.1

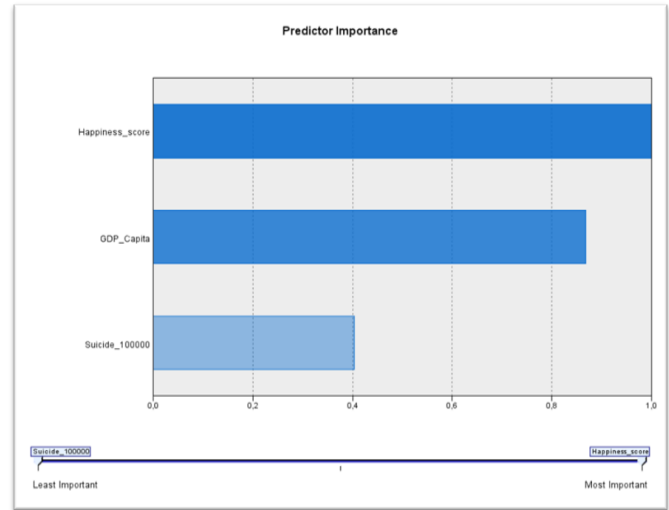
A positive correlation was found between the income ratio and the happiness ratio ($r = 0.89, p < 0.001$). As the income ratio increases, the happiness ratio also increases, or as the income ratio decreases, the happiness ratio also decreases.

A positive correlation was found between the income rate and suicide rate ($r=0.57, p=0.001$). As the income rate increases, the suicide rate also increases, or as the income rate decreases, the suicide rate also decreases.

A positive correlation was found between the happiness rate and the suicide rate ($r=0.57, p=0.001$). The higher the happiness rate, the higher the suicide rate, or the lower the happiness rate, the lower the suicide rate.

The most important variable when performing the cluster analysis was the happiness rate. The order of importance of the variables was happiness rate (100%), income rate (87%), and suicide rate (40%).

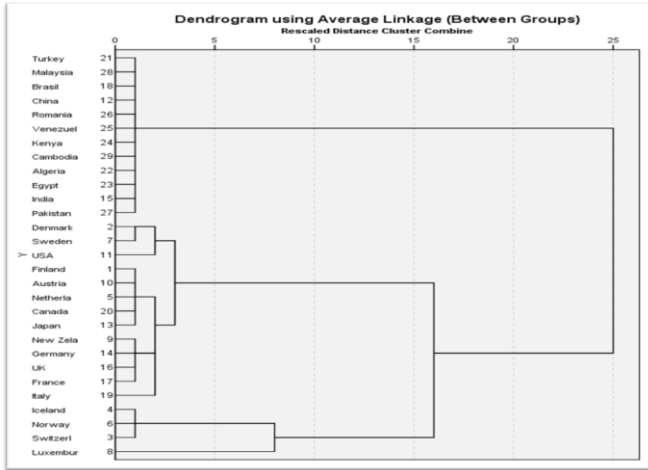
Table 2. Predictor importance



As a result of the cluster analysis, considering the happiness rate, income rate, and suicide rate in the countries, they can be divided into two clusters: 29 countries, 17 (58.6%) countries in the 1st cluster, and 12 (41.4%) countries in the 2nd cluster. While the average happiness rate of the first cluster was 7.16, the mean income rate was 54.72 and the suicide rate was 14.69. The average happiness rate of the second cluster was 5.03, while the average income rate was 6.40 and the suicide rate was 6.54.

When the dendrogram is examined, Denmark, Sweden, USA, Finland, Austria, Netherlands, Canada, Japan, New Zealand, Germany, UK, France, Italy, Iceland, Norway, Switzerland, Luxembourg countries are in the first cluster, while Turkey, Malaysia, Brasil are in the second cluster. China, Romania, Venezuela, Kenya, Cambodia, Algeria, Egypt, India, Pakistan. However, the first cluster consists of four clusters: Luxembourg, the second cluster Iceland, Norway, Switzerland, the third cluster Denmark, Sweden, USA and the fourth cluster Finland, Austria, Netherlands, Canada, Japan, New Zealand, Germany, UK, France, Italy. can be grouped. Luxembourg can be distinguished from other countries due to its very good income ratio, its good level of happiness, and its low suicide rate. In this way, it can be said that 29 countries are gathered in five clusters on the dendrogram.

Table 3. Dendrogram of the evaluation



Cluster	Countries	No
1	Luxembourg	1
2	Iceland, Norway, Switzerland	3
3	Denmark, Sweden, USA	3
4	Finland, Austria, Netherlands, Canada, Japan, New Zealand, Germany, UK, France, Italy	10
5	Turkey, Malaysia, Brazil, China, Romania, Venezuela, Kenya, Cambodia, Algeria, Egypt, India, Pakistan	13

Table 4. Five Clusters of 29 Countries

Table 4. Statistics of the countries in five Clusters

			GDP/capita	Happiness Score	Suicide/100.000
Fifth Cluster	N	Valid	12	12	12
		Missing	0	0	0
	Mean		6.3983	5.0259	6.5367
	Median		6.3300	4.9000	6.2200
	Std.Deviation		4.9586	8.70561	3.30467
	Min		1.38	3.81	2.10
	Max		14.03	6.33	13.00
Third Cluster	N	Valid	3	3	3
		Missing	0	0	0
	Mean		57.1863	7.2867	14.7000
	Median		57.5450	7.3600	14.7000
	Std. Deviation		2.94841	.35572	7.10000
	Min		54.08	6.90	7.60
	Max		59.94	7.60	21.80
Fourth Cluster	N	Valid	10	10	10
		Missing	0	0	0
	Mean		42.4385	7.0150	15.4990
	Median		44.0475	7.1250	14.8000
	Std. Deviation		5.03211	.52329	6.15814
	Min		32.04	5.94	6.90
	Max		48.80	7.80	23.80

Second Cluster	N	Valid	3	3	3
		Missing	0	0	0
	Mean	76.3190	7.4667	14.0333	
	Median	75.4280	7.5000	12.8000	
	Std.Deviation	3.61482	.05774	2.58134	
	Min	73.23	7.40	12.30	
	Max	80.30	7.50	17.00	
First Cluster	N	Valid	1	1	1
		Missing	0	0	0
	Mean	105.2800	7.3000	8.6000	
	Median	105.2800	7.3000	8.6000	
	Min	105.28	7.30	8.60	
	Max	105.28	7.30	8.60	

Wealth, Happiness and Suicide Incidence

The results show that wealth brings happiness. There is a positive correlation between wealth and happiness. But there is a similar correlation between suicide incidence and wealth and happiness ratios. As the income ratio increases, the happiness ratio also increases, or as the income ratio decreases, the happiness ratio also decreases. As the income rate increases, the suicide rate also increases, or as the income rate decreases, the suicide rate also decreases. The higher the happiness rate, the higher the suicide rate, or the lower the happiness rate, the lower the suicide rate. Suicide is more common in happy and high-income countries. WHO claimed that Japan, China, and India might account for about 40% of the world's suicides depending on population density (Reddy 2010).

In their study, Pfeti and colleagues showed that in Italy, the regional distribution of suicide rates in 1992 showed a significant positive relationship with indicators of wealth and social disintegration in both genders (Pfeti 2007). Negative socio-economic conditions as a risk factor admission psychiatric clinical assessments of suicidal behavior have also been shown in some personal-based studies (Ferrada-Noli 1997). Ferrada-Noli showed that the relative frequency of suicide was greater for Swedes from the low-income municipalities than those from the high-income ones. In addition to socioeconomic factors, many cultural variables that affect suicide are also emphasized (Schwarzenthal 2016). It is studied that low socioeconomic status and high social isolation are linked to increased suicide rates in administrative districts since socioeconomic status and social isolation are associated with mental illness and the effects of socioeconomic status on suicide rates were expected to be with individuals showing high social isolation levels as social isolation reduces the

reception of social support and moderates the impact of low socioeconomic status on poor mental health (Naher 2020).

As a different information people at higher risk of suicide, such as those who are socially and economically disadvantaged, are also at high risk of being admitted to hospital with a mental illness (Sloggett 1998).

Richer people with a mental disorder may be more suicidal before they are admitted to hospital, or they may feel more stigmatized, vulnerable, and ashamed about having a mental illness (Abergo 2001).

IV. CONCLUSION

It is discussed to what extent it is correct to take GDP/capital as wealth when comparing countries. In countries where wealth is not distributed in a socially equitable manner, it will not be a valuable benchmark for GDP/capita comparison. This may be the weak point of the study. In addition, it would be useful to compare the rates of female and male suicide separately with unemployment rates.

It is not uncommon for science to make unrelated things seem related (Tuncer 2021). While four people, A, B, C, and D dine at a restaurant, A eats shrimp; B eats shrimp and fish; C eats shrimp and octopus; and D has only tasted shrimp, octopus, fish, and mussels. All four people get sick afterward. Then, what food caused the illness? The answer to this scientific way is shrimp. However, the real reason for illness might not be in that way at all. Without resolving the following, this question cannot be answered. Where did this incident take place and at that time, what is the illness rate among those who had never happened to be at that restaurant? What are the health compliance rules followed in the restaurant? Are there any other people eating at that restaurant and getting sick in the aftermath? Is there any possibility that the water used, or any

other liquid has happened to cause illness? Therefore, it is important to look holistically when examining a problem (Tuncer 2021). For this reason, research on the relationship between income, suicide, and happiness should be expanded with the participation of different factors. By considering the details of the socio-cultural structures of the countries, their beliefs and traditional habits, social assistance forms and political administrations, and their histories in the studies, perhaps it will be possible to capture wider and more detailed clusters.

Luxembourg can be distinguished from other countries due to its very good income ratio, its good level of happiness, and its low suicide rate. A more in-depth study is needed to better understand this divergence.

A strong association between suicide and parasuicide, with socioeconomic deprivation and this strong association provides supporting evidence for the importance of social and health policies on mental health (Gunnell 1995).

For a better understanding of the subject, more detailed studies are needed based on this study.

REFERENCES

- [1]. Altinanahtar A, Halicioglu F (2009). A dynamic econometric model of suicides in Turkey. *Journal of Socio-Economics* 38, 903–907.
- [2]. Bantjes J, Iemmi V, Coast E, Channer K, Leone T, McDaid D, Palfreyman A, Stephens B and Lund C (2016). Poverty and suicide research in low- and middle-income countries: systematic mapping of literature published in English and a proposed research agenda. *Etiology, Sustainable Development Goals and Global Mental Health, Review .Glob Ment Health* 3;1-18. doi:10.1017.
- [3]. Ferrada-Noli M (1997). Social Psychological Variables in Populations Contrasted by Income and Suicide Rate: Durkheim Revisited. *Psychological Reports*, 1;307-316. doi.org/10.2466/pr0.1997.81.1.307
- [4]. Fleischmann A, Bertolote JM, Leo DD, Botega N, Phillips M, Sisask M (2005). Characteristics of attempted suicides seen in emergency-care settings of general hospitals in eight low- and middle-income countries. *Psychological Medicine* 35, 1467–1474.
- [5]. Gunnell DJ, Peters TJ, Kammerling RM, Brooks J (1995). Relation between parasuicide, suicide, psychiatric admissions, and socioeconomic deprivation. *BMJ* 311;226. doi.org/10.1136/bmj.311.6999.226
- [6]. Naher A-F, Rummel-Kluge C, Hegerl U (2020). Associations of Suicide Rates With Socioeconomic Status and Social Isolation: Findings From Longitudinal Register and Census Data. *Frontiers in Psychiatry* 10;1-9. Doi: 10.3389/fpsyt.2019.00898
- [7]. Pfeti A, Miotto P (2007). Social and economic influence on suicide: A study of the situation in Italy. *Archives of Suicide Research*, 141-156. doi.org/10.1080/13811119908258324
- [8]. Reddy MS (2010). Suicide incidence and epidemiology. *Indian J Psychol Med.*32: 77–82. Doi 10.4103/0253-7176.78501
- [9]. Agerbo E, Mortensen PB, Eriksson T, Quin P, Westergaard-Nielsen N (2001) Risk of suicide about income level in people admitted to hospital with mental illness nested case-control study. *BMJ*. 322: 334–335. Doi:10.1136/bmj.322.7282.334
- [10]. Sloggett LG (1998). A. Suicide, deprivation, and unemployment: record linkage study. *BMJ*.317:1283–1286.
- [11]. Schwarzenthal JM, Milfont TL (2016) Suicide, and Culture: Exploring Country-Level Relations between Suicide Rates and Dimensions of Cultural Variability. *Papers from IACCP (International Association Cross-Cultural Psychology) Conferences*, p.242-247.
- [12]. Tuncer AM (2021). Science and Scientific Methodology with A Critical View; Does Science Make Mistakes? *International Journal of Research and Innovation in Social Science (IJRISS)* V;785-789.
- [13]. Wasserman D (Ed). *Suicide; An unnecessary death*. Oxford University Press. 2016.
- [14]. <https://www.worldometers.info/gdp/gdp-by-country/> (March 2022)
- [15]. <https://worldpopulationreview.com/country-rankings/happiest-countries-in-the-world> (March 2022)
- [16]. https://en.wikipedia.org/wiki/List_of_countries_by_financial_assets_per_capita (March 2022)
- [17]. <https://stats.oecd.org/index.aspx?queryid=81611#> (March 2022)
- [18]. https://en.wikipedia.org/wiki/List_of_countries_by_suicide_rate (March 2022)