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RESEARCH ARTICLE

CHARACTERIZATION OF COUNTRIES WITH HIGH HAPPINESS INDEX: A CLUSTER ANALYSIS

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ABSTRACT

OBJECTIVE:
This study investigates the common characteristics of countries with high happiness index scores using a cluster analysis of 20 nations.

DESIGN:
The study is an ecological study where the unit of observation is the population in a country.

SETTING:
Data were drawn from the World Happiness Report, World Bank, WHO, and World Population Review (2023–2025).

MAIN OUTCOME MEASURES:
The study focused on five variables: social support, GDP per capita, healthy life expectancy, crude death rate, and health expenditure.

RESULTS:
Results revealed that countries in higher-performing clusters exhibited consistently strong social support systems, moderate to high GDP per capita, high healthy life expectancy, moderate crude death rates, and substantial public health spending. Among these factors, social support emerged as the most influential determinant, aligning with recent literature emphasizing the psychological and societal benefits of strong interpersonal networks. GDP alone was not a sufficient predictor of happiness; countries with high economic output but lower investment in health and social infrastructure ranked lower in overall well-being.

CONCLUSIONS:
This study demonstrates that countries with high happiness cannot be characterized by economic prosperity alone. The cluster analysis showed that high happiness may coexist with different combinations of economic, social, and health conditions. The study therefore characterizes countries with high Happiness Index scores as heterogeneous rather than uniform.

KEYWORDS
happiness index, social support, GDP, life expectancy, health expenditure, cluster analysis.

INTRODUCTION

Happiness has long been recognized as a central component of human well-being. In Nicomachean Ethics, Aristotle described happiness as the ultimate human good, something pursued for its own sake. Similarly, Freud emphasized happiness as a lifelong pursuit - a goal that individuals continually strive to attain and maintain [1]. Contemporary research supports these classical perspectives, indicating that happier individuals tend to live longer, healthier lives [2]. The relationship between happiness and life expectancy is influenced by various factors, including social relationships, socioeconomic status, geographic context, and religious participation, suggesting that happiness may both influence and be influenced by these variables.

In recent decades, the study of happiness, also referred to as subjective well-being, has gained considerable attention in academia, policy, and public discourse. This field began developing in the 1970s and significantly expanded after 2000, when the subjective quality of life became a widely accepted topic across disciplines such as psychology, sociology, and economics. Measures of subjective well-being typically rely on survey questions such as, "Taking all things together, how happy would you say you are?" or "All things considered, how satisfied are you with your life as a whole these days?" [3]. To assess happiness and its broader societal implications, researchers frequently use tools like the Happiness Index, developed by the Happiness Alliance. This instrument measures happiness, well-being, sustainability, and resilience across nations, offering a multifaceted view of how countries support the well-being of their populations [4, 5]. The Happiness Index has become a valuable resource for community organizers, researchers, and policymakers seeking data-driven approaches to improving quality of life.

In an increasingly dynamic global landscape, understanding the determinants of happiness is essential for promoting societal well-being and guiding public policy. The prosperity of a nation is closely linked to the quality of life it offers its citizens [6]. This study seeks to characterize countries with high levels of happiness through a cluster analysis, identifying common patterns among nations that report high subjective well-being.

METHODS

The study is an ecological study where the unit of observation is the population in a country. Often, in an ecological study, the information is abstracted from published statistics and therefore does not require expensive or time-consuming data collection. The populations compared may be defined in various ways [7].

In this study, existing data and statistics on happiness index, social support, GDP per capita, and healthy life expectancy were taken from the World Happiness Report. The Happiness Index was operationalized using the average life evaluation score reported for 2022–2024, measured on a 0–10 scale. The World Happiness Report identifies life evaluation as the basis of its country ranking and uses a three-year average to improve the stability of country-level comparisons. [8]. Social support is the national average of the binary responses (0=no, 1=yes) to the Gallup World Poll (GWP) question "If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?" GDP per capita is in terms of Purchasing Power Parity (PPP) adjusted to constant 2017 international dollars, taken from the World Development Indicators (WDI) by the World Bank (version 17, metadata last updated on January 22, 2023). The time series for healthy life expectancy at birth is constructed based on data from the World Health Organization (WHO) Global Health Observatory data repository, with data available for 2005, 2010, 2015, 2016, and 2019 [9]. The death rate is an important factor for the happiness index because it reflects broader aspects of a country's health, healthcare quality, safety, and overall living conditions. This is taken from the World Population Review 2024 report. Death rate, also known as mortality rate, is the number of deaths that occur in a particular population during a particular period. Typically, the death rate is expressed as the number of deaths per one thousand people per year [10]. Increased health expenditure can positively impact a country's happiness index by improving citizens' health, well-being, and overall quality of life. Country health expenditure is calculated by summing all financial resources, both public and private, used to purchase health goods

and services [11]. The nature of the data used qualified it for exemption from ethical review, and the researchers ensured compliance with ethical guidelines in the use of this publicly available data for research purposes.

After the process of harmonization, the researchers utilized data from 20 countries to include Finland, Denmark, Iceland, Sweden, Netherlands, Costa Rica, Norway, Israel, Mexico, Australia, New Zealand, Switzerland, Belgium, Ireland, Lithuania, Austria, Canada, Slovenia, Czechia, and United Arab Emirates. The selected countries represented different geographic regions and levels of economic development, allowing the study to examine whether countries with relatively high happiness shared common socioeconomic and health characteristics. The data were analyzed using cluster analysis utilizing Statistics Kingdom, an online calculator. Clustering is used to identify groups of similar objects in datasets with two or more variable quantities. In practice, this data may be collected from marketing, biomedical, or geospatial databases, among many other places. The k-means cluster algorithm classifies information based on the similarities of the data points.

RESULTS

The cluster analysis presents a compelling view of how national happiness is shaped by interconnected socioeconomic and health-related factors. The most prominent determinant among high-performing clusters is social support, followed closely by healthy life expectancy and health spending. Interestingly, gross domestic product per capita, while important, is not a sufficient predictor of happiness when considered in isolation.

TABLE 1. CLUSTER ANALYSIS

Cluster	Social Support	GDP per Capita	Healthy Life Expectancy	Crude Death Rate	Health Expenditure
0	0.915	-0.066	0.269	0.750	0.307
1	0.904	-0.191	0.780	-0.792	-0.367
2	-1.473	-1.892	-3.027	-0.717	-1.604
3	0.091	2.001	0.583	-0.378	-0.939
4	-0.099	0.258	0.292	0.550	0.855
5	-0.353	-1.649	-0.594	-1.055	-0.866
6	0.714	-0.667	-1.438	1.672	-0.494
7	-3.227	0.399	-0.712	-2.409	-2.131
8	-0.163	0.057	0.560	-0.144	0.944

Denmark and Iceland formed Cluster 0. Both countries demonstrated very high social support, relatively high GDP per capita, favorable healthy life expectancy, and moderate crude death rates. Their Happiness Index scores were also among the highest in the dataset. The clustering of these two countries suggests a profile in which strong social connectedness, economic resources, and favorable population health occur together. This profile illustrates that high happiness may be associated with the interaction of social and health conditions rather than with economic resources alone.

The United Arab Emirates (UAE) formed a distinct single-country cluster (Cluster 1). It had relatively high GDP per capita but the lowest social support in the dataset, together with below-average healthy life expectancy and health expenditure. Its crude death rate was also substantially lower than those of the other countries. The UAE's distinct clustering demonstrates that economic prosperity can coexist with a substantially different social and health profile from that observed among other high-happiness countries. Its inclusion highlights the heterogeneity of countries with relatively high Happiness Index scores.

Australia, New Zealand, and Canada formed Cluster 2. These countries shared relatively favorable healthy life expectancy and comparatively high health expenditure, while maintaining relatively strong social-support levels and moderate-to-

high GDP per capita. Their clustering indicates a profile characterized by favorable population health and substantial investment in healthcare. This suggests that health-related conditions and health-system investment constitute important dimensions in understanding high national well-being.

Mexico formed a single-country cluster (Cluster 3) characterized by substantially lower GDP per capita, social support, healthy life expectancy, and health expenditure than most of the countries included in the study. Despite these comparatively less favorable socioeconomic and health indicators, Mexico recorded a Happiness Index of 6.979. This finding is particularly relevant because it demonstrates that high happiness does not necessarily require uniformly high economic and health resources. Factors not included in the present analysis, such as family and community relationships, cultural characteristics, and other dimensions of subjective well-being, may also contribute to national happiness.

Lithuania formed a separate cluster (Cluster 4). It was characterized by very high social support but comparatively low healthy life expectancy and the highest crude death rate among the countries analyzed. GDP per capita and health expenditure were also below the overall average. Lithuania therefore represents a profile in which strong social support coexists with substantial population-health challenges. The finding reinforces the importance of examining social and health characteristics together when characterizing countries with high happiness.

Norway and Ireland formed Cluster 5 and were distinguished primarily by exceptionally high GDP per capita. They also demonstrated favorable healthy life expectancy and relatively low crude death rates. Interestingly, their health expenditure was not among the highest in the dataset. This cluster illustrates that high economic capacity is an important but not sufficient characteristic of countries with high happiness. The findings suggest that national income should be considered alongside social and health conditions rather than treated as a standalone explanation of national well-being.

Cluster 6 was the largest cluster and included Sweden, the Netherlands, Switzerland, Belgium, and Austria. These countries shared relatively high GDP per capita, favorable healthy life expectancy, and the highest average health expenditure among the clusters. Their social-support levels were also relatively strong, although not as pronounced as those observed in Denmark, Iceland, Finland, or Lithuania. The clustering of these five countries indicates a profile characterized by economic development accompanied by substantial investment in health. Their grouping suggests that health expenditure and population health may be important contextual characteristics of high-happiness countries, even when countries differ in their absolute Happiness Index scores.

Costa Rica and Israel formed Cluster 7. Both countries exhibited relatively high social support, favorable healthy life expectancy, and relatively low crude death rates. However, their GDP per capita differed considerably, with Costa Rica having substantially fewer economic resources than Israel. Their grouping is therefore particularly informative. It demonstrates that countries can share favorable social and health characteristics despite substantial differences in economic capacity. Costa Rica, in particular, provides evidence that relatively high happiness can coexist with considerably lower GDP per capita than that observed in many of the high-income countries in the study.

Finland, Slovenia, and Czechia formed Cluster 8. The three countries shared relatively high social-support levels, although their economic and health indicators differed. Finland had the highest Happiness Index in the dataset, while Slovenia and Czechia recorded lower scores. Nevertheless, their common clustering indicates similarities in the multidimensional characteristics used in the analysis, particularly social support. The inclusion of Finland in this cluster is noteworthy because it demonstrates that the country with the highest Happiness Index does not necessarily form a cluster by itself. Rather, clustering identifies similarities across multiple socioeconomic and health dimensions that may not correspond directly to the rank order of happiness.

Overall, the cluster analysis demonstrates that countries with high Happiness Index scores are not characterized by a single socioeconomic or health profile. The nine clusters identified distinct combinations of social support, economic resources, population health, mortality, and health expenditure.

Denmark and Iceland represented a profile combining strong social support with favorable health conditions, while Norway and Ireland were distinguished primarily by very high economic capacity. Sweden, the Netherlands, Switzerland, Belgium, and Austria shared a profile of relatively strong economic resources and health investment, whereas Australia, New Zealand, and Canada were characterized by favorable health outcomes and substantial health expenditure. At the same time, Costa Rica and Israel demonstrated that favorable happiness, social support, and health conditions may occur across substantially different levels of economic resources. Mexico and Lithuania further illustrated that high happiness may coexist with comparatively challenging economic or health indicators. The distinct profile of the United Arab Emirates similarly demonstrates that high income does not necessarily correspond to the social-support characteristics observed in other high-happiness countries. Taken together, these findings support a multidimensional characterization of national happiness, in which economic prosperity, social connectedness, and population health interact rather than operate as independent determinants.

The findings also have differentiated implications for countries across levels of economic development. For countries with comparatively fewer economic resources, such as Mexico and Costa Rica, improving population well-being may require strengthening basic health-system capacity, preventive healthcare, education, social protection, and economic opportunities while recognizing that material resources alone do not determine happiness. For countries with moderate economic capacity, the experiences reflected in clusters involving Lithuania, Slovenia, and Czechia suggest the importance of combining economic development with investments in population health and social support. For high-income countries such as Denmark, Iceland, Norway, Ireland, Sweden, the Netherlands, Switzerland, Belgium, Austria, Australia, New Zealand, and Canada, the findings indicate that continued economic prosperity should be accompanied by sustained attention to social connectedness, healthy life expectancy, and effective health-system investment. The distinct profile of the United Arab Emirates further demonstrates that high national income may coexist with a different pattern of social and health characteristics.

Across economic contexts, therefore, the findings support context-specific and multidimensional approaches to national well-being, integrating economic development with social support and population health rather than relying on income as the principal indicator of happiness.

DISCUSSION

These patterns are strongly supported by contemporary empirical research. A multinational longitudinal study covering 155 countries found that high levels of social support and perceived freedom of life choice consistently predicted greater positive affect and lower negative emotional states across time [12]. This reinforces the central role of social cohesion in shaping both individual and collective well-being. Parallel findings from a European panel study demonstrated that individuals embedded in strong friendship networks reported significantly higher levels of life satisfaction, independent of economic status. These interpersonal relationships not only enhance subjective well-being but also buffer against stressors that often erode quality of life [13].

Community-level social capital has also emerged as a key determinant of psychological flourishing. Social cohesion at the neighborhood level improves life satisfaction, especially among individuals with lower educational attainment [14]. This suggests that social support can moderate the negative effects of socioeconomic disadvantage, reinforcing its role as a structural asset in promoting national happiness. Similarly, longitudinal evidence from Indonesia showed that older adults who experienced higher levels of both structural and cognitive social capital reported fewer depressive symptoms and greater overall happiness, highlighting the protective function of community engagement in later life [15].

Health system strength and investment further differentiate higher-performing clusters. Equitable access to quality primary and preventive care significantly contributes to societal well-being. Countries with limited health spending, such as Mexico, continue to face persistent gaps in healthcare delivery, which hinder improvements in life expectancy and diminish happiness outcomes. In contrast, nations with substantial investment in public health infrastructure demonstrate

stronger outcomes in both health and subjective well-being, supporting the idea that public spending is a necessary condition for translating national wealth into citizen satisfaction [16].

Recent findings from the Harvard Study of Adult Development also affirm the critical role of relationships in determining long-term health and happiness. Quality social connections, rather than income or occupational success, are the strongest predictors of both longevity and psychological well-being. These results underscore why economic indicators such as GDP per capita must be understood within the broader context of social support and health access. High national income, as observed in countries like Norway and Ireland, does not automatically yield high happiness if health investment or social cohesion is lacking [17, 18].

Countries that rank high on the happiness index consistently demonstrate a convergence of interrelated strengths. These include strong and accessible social support systems, sustained investment in public health infrastructure, high life expectancy, moderate crude death rates, and stable economic conditions marked by moderate to high gross domestic product per capita. Such nations often uphold values of equity and cohesion, supported by democratic institutions that facilitate trust and civic engagement. Moreover, the capacity to convert economic wealth into tangible well-being outcomes—through inclusive healthcare, strong community ties, and widespread public services—is what sets these countries apart. It is not the presence of wealth alone, but how that wealth is utilized to enhance social and health capital, that most significantly influences national happiness [19].

The present study contributes to the literature by shifting the analysis from simply identifying countries with high happiness scores toward characterizing the socioeconomic and health profiles that distinguish groups of highly happy countries. Rather than treating happiness as a phenomenon explained by a single factor, the cluster analysis demonstrates that countries with high happiness can possess substantially different combinations of economic resources, social support, population health, mortality, and healthcare expenditure.

The analysis also contributes to understanding health as a component of happiness. Healthy life expectancy and healthcare expenditure vary considerably across clusters, demonstrating that countries with similar levels of happiness may arrive at that outcome through different combinations of health and socioeconomic conditions. The findings therefore support a multidimensional conceptualization of national well-being.

LIMITATIONS

The researchers accept that the study focuses on a relatively small and purposively selected group of countries with high Happiness Index scores. The clustering variables are based on country-level indicators and therefore represent national averages, which should not be interpreted as evidence that the same relationships necessarily exist at the individual level.

CONCLUSION

This study demonstrates that countries with high happiness cannot be characterized by economic prosperity alone. The cluster analysis showed that high happiness may coexist with different combinations of economic, social, and health conditions. The findings indicate three broad insights. First, social support is an important characteristic of several high-happiness country profiles, demonstrating the relevance of social connectedness to national well-being. Second, economic prosperity does not automatically translate into higher happiness, as countries with substantial GDP can still exhibit relatively weaker social or health characteristics. Third, health investment and healthy life expectancy distinguish several country profiles, suggesting that population health is an important component of the broader conditions associated with happiness.

The study therefore characterizes countries with high Happiness Index scores as heterogeneous rather than uniform. Countries may achieve high levels of life evaluation through different combinations of social, economic, and health resources. This finding adds to the literature by demonstrating the value of a cluster-based approach in identifying distinct

patterns among highly happy countries rather than assuming that all high-happiness nations share the same characteristics.

RECOMMENDATIONS

Governments should prioritize the development of social capital networks, investment in universal health infrastructure, and inclusive governance as the foundation for sustainable national well-being. Researchers should look into the other aspects of health and well-being that contribute to the increase in happiness and conduct qualitative studies on individual views on factors affecting happiness.

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