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The Impact of Life Quality on Expectations of Medical Services' Patients

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Abstract:

Purpose: *To investigate whether a relationship exists between quality of life and expectations regarding healthcare service quality across OECD member states.*
Design/Methodology/Approach: *Data on over 36 000 healthcare-related facilities were collected via Google Places API. Ratings were aggregated and compared with Better Life Index measures using Spearman rank correlation coefficients to test the hypothesis of a negative relationship between well-being and perceived service quality.*
Findings: *Significant negative correlations were observed between facility ratings and dimensions such as Community, Education, Jobs and Life Satisfaction. Individual medical practices showed particularly strong negative associations. Aspects of well-being such as Income, Housing, Safety, Health, Work-Life Balance showed no significant correlation. Findings indicate that higher well-being is associated with elevated customer expectations.*
Practical implications: *Healthcare providers should recognize that higher patient expectations may negatively influence perceived quality of their services. Policymakers and business owners should contextualize online ratings alongside objective indicators.*
Originality value: *The study uniquely combines large-scale crowdsourced ratings from Google Maps with internationally recognized well-being measures to highlight the relationship between subjective service perception and countries' level of development.*

Keywords: *Service quality, quality of life, health and economic development.*

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1. Introduction

Economics since its beginnings has been gradually expanding beyond the material aspects of human life. For many years, researchers have been constantly making efforts to examine what's intangible in economy, with happiness and well-being among these intangibilities. Because of these aspirations, quality of life and well-being play an increasingly important role in current economic discourse.

Institutions like World Health Organization (WHO) and the Organization for Economic Cooperation and Development (OECD) have emphasized the importance of these concepts for years, mainly through including it in their policymaking. What is called well-being may be understood variously, WHO sees it as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns." (World Health Organization, 1998), while OECD sees it as "a multidimensional construct that has both material components (income and wealth, jobs and earnings, housing conditions) and non-material (i.e., quality of life) ones (health status, work-life balance, education and skills, social connections, civic engagement and governance, environmental quality, personal security and subjective well-being)".

Both of these definitions provide somewhat complementary views — WHO focusing on individual perception, and OECD emphasizing both material and non-material dimensions of well-being, together form a holistic picture of human well-being.

Traditional economic indicators, such as GDP and GNP, while great to give insights on the overall performance of the economy, fall short in capturing people's happiness. This is when alternative metrics, like Human Development Index (HDI) or OECD's Better Life Index (BLI) come in handy. Complex measures like these encapsulate more than a single well-being aspect and offer much more nuanced insights on people's life satisfaction.

Human's health, a state of complete physical, mental, and social well-being as it may be defined, is of great value as an aspect of well-being. This seems to be already emphasized by OECD's definitions of this term. Moreover, a healthy life expectancy and overall population's health are considered to be some of the most important indicators of a country's development.

Population's health has a significant impact on economic productivity and prosperity – healthy people work longer, retire later and are in general more productive. This is why health is considered within economic policymaking. A significant portion of modern economies budgets' is dedicated to maintaining healthcare systems, whose primary function is to promote public health through medical services. These services may be of various quality, which may be measured with models like SERVQUAL or SERVPERF.

According to the SERVQUAL model, the service quality is defined as the gap between consumer expectations and actual service performance. The SERVPERF model offers an alternative by focusing solely on service outcomes. Both models align around one central assumption: customer's satisfaction and his perception are what define the quality of service. How customers perceive the service may be affected by several factors, among them are: socioeconomic status, national development level, education, culture, and age.

Research indicates that more developed regions may have higher expectations, which can lead to lower satisfaction scores despite objectively better services. Perceptions vary not only cross-nationally but within subnational contexts, shaped by cultural norms, educational backgrounds, and previous service experiences.

With the rise of digital platforms like Google, Bing or Yahoo and thanks to reviews and ratings published on these platforms, insights to the service quality are readily available for everyone - including both service providers and recipients - and provide them with useful feedback, even though it tends to be mostly positive and perception driven.

Some practitioners treat online opinions as a performance metric, using them to enhance care delivery, which may lead to higher customer satisfaction and better ratings of their businesses. On the other hand, customers may use online ratings and reviews to decide which service provider to choose. Because of that, this study considers the role of online ratings and reviews as reflections of service quality.

It is important to distinguish between the quality of service (medical service in this case), which may be reflected by online reviews and ratings and the quality of care, which is more about the clinical effect of a medical service (e.g. whether the procedure has been performed correctly or not).

To evaluate the relationship between quality of life and perceived service quality in healthcare services across EU member states, this study employed publicly accessible online ratings and data on well-being provided by OECD's Better Life Index initiative. Google Maps has been chosen as the primary source of data on healthcare-related facilities' ratings, offering a rich and diverse dataset of scores.

Using the Google Places Application Programing Interface (New), over 36 000 of unique facilities marked as medical service providers — hospitals, pharmacies, doctors, dentists, dental clinics, and drugstores — were identified across NUTS level 2 regions of the European Union, aggregated and then compared with Better Life Index's measures of well-being using Spearman rank correlation coefficient.

The aim of this article is to determine whether a relationship exists between quality of life and expectations regarding service quality through comparing ratings of health-related facilities across various EU countries with internationally recognized

measures of life quality and healthcare performance, provided by the OECD's Better Life Index initiative. The authors hypothesize that, as the quality of life and the socio-economic status of a country's population increase, expectations toward medical service quality also rise. A moderate and statistically significant negative correlation, detected between Google Maps ratings of medical facilities — utilized in this study — and some of the established quality of life indicators seem to support this hypothesis.

2. Literature Review

Economics is not always about what's material, sometimes it is about much more intangible goods, such as happiness and overall well-being. Since years scientists were looking for connections between aspects of human life and the science of economics. Such an approach resulted in naissance of branches like economics of happiness or happiness economics that address the economic consequences of happiness.

One's happiness is an important aspect of life quality and even intuitively, we may find happier people to live better lives, lives of better quality as one may say. Quality of life is defined variously, as there is no single, agreed upon definition of that concept. WHO defines quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns." (World Health Organization. 1998).

On the other hand, Organization for Economic Cooperation and Development (OECD) sees quality of life as a part of what is called well-being, which is "a multidimensional construct that has both material components (income and wealth, jobs and earnings, housing conditions) and non-material (i.e., quality of life) ones (health status, work-life balance, education and skills, social connections, civic engagement and governance, environmental quality, personal security and subjective well-being)" (Balestra *et al.,* 2018).

As well-being is becoming a significant theme of current economic discussion, heavily connected with concepts like Sustainable Development Goals (De Neve and Sachs, 2020; United Nations General Assembly, 1987) or economics of happiness (Weimann *et al.,* 2015; Carpentier, 2023) an attempt to apply the WHO and OECD definitions of quality of life to the economic reality may be an interesting approach.

How one perceives their quality of life is subjective, but there are indicators that allow us to have some idea on the general level of life quality among countries. Both Gross Domestic Product (GDP) and Gross National Product (GNP) are simple and easily accessible measures, though they do not really reflect the well-being of a nation or geographical entity as much as its productivity and economic performance.

Luckily, there are numerous alternatives to GDP and GNP that researchers agreed upon, which may serve as measures of quality of life (Delhey and Kroll, 2013). Probably the best known of them being Human Development Index published annually since 1990 by United Nations Development Programme (Stanton, 2025) and Better Life Index published by OECD.

Measures of Quality of Life utilized by OECD constitute of over 20 variables, grouped into 11 thematical groups - Housing, Income, Community, Education, Jobs, Environment, Civic Engagement, Health, Safety, Life Satisfaction and Work-Life Balance. The set of determinants that OECD uses in their research seems to be well thought of and supported by due research and years of experience. Because of that and because they resonate well with what we understand as well-being, they were adopted in further analyses of this study.

This study refers to services and their quality and it would seem appropriate to explain these terms. According to Kotler et al., service is "…any act or performance that one party can offer to another that is essentially intangible and does not result in ownership of anything. Its production may or may not be tied to a physical product" (Kotler, 2003).

Medical services are the kind of services that allow customers to invest in their health, which in the eyes of economists may be seen as a form of capital (Santere and Neun, 2010). Not without reason, as health is of high importance for the state of the national economy and should be considered in economic policies (Fumagalli et al., 2024), healthy people can generally work more efficiently and longer, are more entrepreneurial, and do better in education (Frenk and De Ferranti, 2012).

More general definitions of health may be found in the constitution of WHO, where health is described as „a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization, 2006). Such a valuable resource as health requires protection and proper care, which is provided through health care.

According to Cambridge Dictionary, health care is 'the activity or business of providing medical services', which suggests the link between health care and economic activity. Rubenstein and Xenakis define healthcare as 'the prevention, treatment, and management of illness or the preservation of mental and physical well-being through the services offered by the medical, nursing, and allied health professions' (Rubenstein and Xenakis, 2010).

Eventually, the Merriam-Webster dictionary offers two definitions of health care 'efforts made to maintain, restore, or promote someone's physical, mental, or emotional well-being especially when performed by trained and licensed professionals' and 'the people and organizations that provide health care'.

Health care functions within what is called the health care system. A health care system "…consists of the organizational arrangements and processes through which a society makes choices concerning the production, consumption, and distribution of health care services" (Santere and Neun, 2010).

The health care systems may be centralized, decentralized or a combination of both. In centralized health care systems – the main decision-makers are the governments or other authorities. In decentralized systems health care is a subject to free market mechanisms and interactions of individual consumers and healthcare providers (Santere and Neun, 2010).

According to McCoy and Allotey health systems or health care systems are complex structures made up of multitude of interlinked components including organizations, people and actions that go beyond solely delivering healthcare. The role of such a system is to perform several functions: "delivering healthcare services, maintaining and improving health, protecting households from the costs of illness, enabling economic functioning; and shaping societal norms and values" (Martins *et al.,* 2021).

Health care systems "are also sites of competition and contestation between actors with different interests and visions." This competition concerns in particular the method of funding, resource allocation and setting health priorities (Martins *et al.,* 2021).

The quality of service is the degree to which a customer is satisfied with provided service. According to SERVQUAL model, proposed by Parasuraman *et al.* (1988), that is often used in measuring customer satisfaction, the quality of service is the difference between expectations towards the service and its actual performance.

This definition of service quality bases on the concept of existing disparity between what consumer expects and what he gets (Oliver, 1980). In context of this study this may mean that, even though the overall level of medical care services performance is better in countries with a higher level of development, the higher expectations towards the medical services there could be enough to result in lower ratings of healthcare service providers in Google Maps (or any other website that serves similar purpose).

Another way of measuring service quality is SERVPERF model, a modification of SERVQUAL proposed by Cronin and Taylor (1992). SERVPERF puts more emphasis on actual service performance, rather than on the difference between service performance and customers' expectations towards it.

It seems that after its introduction SERVPERF is more common and has been broadly accepted in research.

The technical difference between these two models is not significant in context of this study; what matters most is the underlying concept of service quality, that is the customer's perception of the service, which is subjective in nature. Since this subjectivity suggests that quality of service does not necessarily reflect the actual quality of medical care provided, a question is raised – what other conditions, along with socioeconomic characteristic of patients and customers, may shape the perception of medical service quality (or service quality in general)?

To understand what shapes the expectations of the customer may be very beneficial for service providers. (Bowers *et al.,* 1994) Available research points to various factors that may influence it. Among these are socioeconomic status, level of development of the country, cultural background, education or age. Studies have shown that there may be a relation between aspects of socio-economic status, reflected in education, employment, profession, age and satisfaction with educational and utility services (Clifton *et al,* 2014; Song *et al.,* 2025).

Another factor may be the level of country's development. Customers from developing countries pay attention to different aspects of service, than the ones in developed countries (Malhotra *et al.,* 2005). Citizens of developed countries may expect much more than just a service and expect their experience to be somehow extraordinary. What may also affect perception of service may be the intercultural differences, even on subnational level.

As been found, cultural differences concern mostly aspects of service such as reliability, access, relations with customer, competence, courtesy, communication, credibility, security and tangibility (Donthu and Yoo, 1998). Not without the influence on customers perception of a service is the level of education – people with higher level of education typically expect more personalized approach of the service provider (Bellio and Buccoliero, 2021).

Researchers also suggest that the previous experiences, social structures and relations in which the customer participates may also shape peoples' expectations towards the quality of health care services in particular (Lakin and Kane, 2022).

As this study considers online ratings in its analysis, the important question is rising - to what extent do online ratings and reviews reflect the quality of service and has this type of information already been used in a similar context by other researchers? It has been found that online reviews and ratings do not necessarily reflect the quality of service provided as much as customers perception of it.

A study conducted in five US states, California, Massachusetts, New Jersey, New York, and Pennsylvania found that 96.1% of the 614 cardiac surgeons listed in state reports were rated online, with an average rating of 4.4 out of 5. Despite the high online ratings, there was no correlation between them and the risk-adjusted mortality rates.

The study concluded that online ratings may not accurately reflect the actual quality of care provided by physicians (Okike *et al.,* 2016)

Despite the above, there is evidence that online ratings of healthcare specialists can be used to improve the quality of provided service. In 2015 study researchers examined the use of online rating websites by health care providers and whether these ratings contribute to improving patient care. The study surveyed 2360 physicians and other specialists.

Results showed that over half of the respondents (54.66%) used online ratings to implement measures improving patient care, with ophthalmologists and gynecologists being the most proactive. The most common improvements were in communication with patients, appointment scheduling, and office workflow. The study concluded that online ratings have an impact on patient care, despite some limitations and unintended consequences (Emmert *et al.,* 2016).

This suggests that some of the medical specialists use online ratings as a form of performance indicator, which they try to optimize through responding to needs and expectations of patients, increasing their satisfaction with a service. Trehan and Daluiski found relation between positive ratings and satisfaction with the medical service provided. Most of the ratings tend to be positive, which may, but do not have to necessarily indicate the high quality of the service (Trehan and Daluiski, 2016).

This could mean that patients seem to be more likely to leave a review when they are at least somewhat satisfied. The study of Daskivich *et al.* (2018) aimed to determine whether online ratings of specialist physicians from five platforms predict quality of care, value of care, and peer-assessed physician performance. The observational study included 78 physicians from eight medical and surgical specialties. The researchers assessed the association of consumer ratings with specialty-specific performance scores, primary care physician peer-review scores, and administrator peer-review scores.

The results showed no significant association between mean consumer ratings and specialty-specific performance scores, primary care physician scores, or administrator scores. Additionally, there was no correlation between ratings and subdomains addressing quality or value-based care. Ratings were consistent across platforms, suggesting they measure a latent construct unrelated to performance.

The study concluded that online consumer ratings should not be used in isolation to select physicians due to their poor association with clinical performance (Daskivich *et al.,* 2018). Gavilan, Avello and Martinez-Navarro found that online reviews and ratings affect how online users perceive the service provider (Gavilan *et al.,* 2018).

It is more common to use online ratings in researching and analyzing commercial products and services unrelated to health. Some studies point to the limited

usefulness of online reviews and ratings in measuring product quality – de Langhe, Fernbach and Lichtenstein in their study from 2016 found a lack of convergence between online ratings and actual product quality, as measured by Consumer Reports. Product reviews are often in short supply, which limits their reliability.

Also, more expensive products and premium brands tend to have higher user ratings than the cheaper ones. (De Langhe *et al.,* 2016) The findings of cited studies suggest that online ratings do not actually reflect the actual quality of medical procedures provided as part of the service, that is the quality of care. Reviews and rating may therefore be more about perception of how good the medical service was from patients' personal perspective, instead of its actual quality from a medical point of view.

3. Research Methodology

To achieve the goal of this study it was necessary to obtain some kind of satisfaction measure for a number of healthcare service facilities. Since the access to information on reviews and ratings of different places of interest is freely available there, the Google Maps service has been chosen as the source of customers' opinions of various health-related services across the EU. Even though it is possible to search for every hospital, clinic, individual medical practice, etc. manually, Google provides the tool that allows it to be done automatically – Google Places (New) API.

This API - Application Programming Interface - has been used by the authors to retrieve ratings of over 36 000 unique healthcare related facilities. How was it done? The aforementioned API offers a text search functionality, which allows to search for all of the places containing a given phrase in their displayed name.

This can be limited to a given area with additional possibility of adding specific criteria to the servers response. To indicate that a place searched through Google Maps indeed is of a given type, locations often have a kind of tag, that define what type of facility a given place is – this may be a hospital, a bookstore, a park or a parking lot, etc.

These tags were used in 'included_type' parameter of the application. The parameter 'strictTypeFiltering' was set as TRUE, which limited the servers response exclusively to locations of desired type. Combined with the text search functionality (text queries contained only the type of searched facility, for example: "hospital", "pharmacy", etc.) they were used in the query to find all available places related to healthcare.

Not every type of such place has its own tag, but from the available set 6 were chosen as fitting to the subject of the study – 'dental clinic', 'dentist', 'doctor', 'drugstore', 'hospital' and 'pharmacy'. It was assumed that these tags are, most of the time, correctly assigned to the places they describe and that there are not many

significant discrepancies among them.

The number of results returned for every request provided through API to Google's server is limited to 60 (3 pages, 20 per page), so it was necessary to perform multiple searches to cover an entire EU area. The geographical boundaries of every search has been set using 'locationRestriction' parameter in the query.

This parameter allows to define a square range, using geographical coordinates, and limit the returned results exclusively to area indicated through such boundary.

QGIS geographical information software has been used to create these geometries in advance - for every NUTS level 2 region of the European Union a rectangular border has been set that would cover an entire regions area. Coordinates of these boundaries' vortices – vortex 0 (lower-left or South-Western) and vortex 2 (upper right or North-Eastern) were used to describe the search area for every region and passed to 'locationRestriction' parameter of the query.

To collect all the information on analyzed places, the application has been run 6 times – once for every tag describing a medical facility. During each run 244 searches were performed - one per NUTS level 2 region. Each request to server resulted with a set of information - the places unique Google Maps ID, its name, geographical coordinates, address, average rating and the number of ratings.

All 6 runs of the purposely-programmed application resulted in 76337 records. After filtering out the duplicates, places with no ratings or with the total rating count of less than 10 and places in countries for which the data from the OECD Better Life Index was not available, the count dropped to 36228 individual medical service facilities.

Obtained data has then been aggregated. For each country and facility type the median rating has been calculated, also an overall median rating – calculated for all types of the facilities in a given country - has been added. The structure of aggregated facilities' ratings across the countries (along with their number in parentheses) is shown in Table 1.

Data from OECD's Better Life Index, regarding the quality of life, has also been aggregated. Better Life Index contains 25 measures describing life quality in 11 thematical groups – Housing, Income, Community, Education, Jobs, Environment, Civic Engagement, Health, Safety, Life Satisfaction and Work-Life Balance.

Not all of the 21 countries available had complete set of values. The missing values in each variable have been replaced with the median value of the remaining observations.

Table 1. *Median Google Maps rating (and rating count) of medical facilities in selected OECD countries.*

Country	Dentist	Doctor	Hospital	Pharmacy	Overall
Austria	4.60 (364)	4.50 (292)	3.80 (198)	4.30 (565)	4.40 (1419)
Belgium	4.40 (558)	4.50 (264)	3.50 (277)	4.40 (697)	4.30 (1796)
Czechia	4.70 (307)	4.30 (118)	3.55 (218)	4.10 (306)	4.20 (949)
Denmark	4.70 (263)	3.60 (193)	4.00 (123)	4.10 (272)	4.20 (851)
Estonia	4.40 (80)	4.30 (21)	3.65 (34)	4.30 (34)	4.20 (169)
Finland	4.40 (96)	3.50 (78)	3.80 (47)	4.10 (142)	4.00 (363)
France	4.30 (1189)	4.20 (564)	3.10 (647)	4.30 (1506)	4.10 (3906)
Germany	4.80 (2025)	4.30 (1389)	3.50 (1383)	4.40 (2762)	4.40 (7559)
Greece	4.90 (612)	4.90 (338)	3.90 (202)	4.70 (700)	4.80 (1852)
Hungary	4.80 (325)	4.15 (56)	3.60 (209)	4.40 (414)	4.50 (1004)
Ireland	4.70 (275)	4.20 (161)	3.80 (102)	4.60 (168)	4.50 (706)
Italy	4.90 (1161)	4.60 (240)	3.50 (673)	4.40 (1403)	4.50 (3477)
Latvia	4.60 (74)	4.40 (26)	3.80 (43)	3.95 (30)	4.30 (173)
Lithuania	4.70 (114)	4.55 (44)	3.50 (87)	3.90 (86)	4.20 (331)
Luxembourg	4.60 (118)	4.50 (103)	3.40 (24)	4.10 (70)	4.40 (315)
Netherlands	4.40 (810)	3.70 (311)	3.90 (203)	3.90 (840)	4.00 (2164)
Poland	4.60 (1379)	4.00 (439)	3.20 (696)	4.10 (956)	4.20 (3470)
Portugal	4.80 (434)	4.40 (128)	3.30 (206)	4.40 (354)	4.50 (1122)
Slovenia	4.70 (72)	4.40 (21)	4.00 (36)	4.35 (68)	4.40 (197)
Spain	4.80 (1395)	4.60 (539)	3.30 (555)	4.40 (865)	4.60 (3354)
Sweden	4.70 (428)	3.70 (121)	3.40 (166)	3.80 (336)	4.10 (1051)

Source: *Google Maps service.*

After solving the problem of incomplete data, all of the countries have been ranked. Rank 1 meant the worst performance – lowest value of variable affecting the quality of life positively or highest value of variable affecting the quality of life negatively. Rank 21 meant the best performance - highest value of variable affecting the quality of life positively, lowest value of variable affecting the quality of life negatively.

These variables were then grouped thematically and the mean value of all variables in each thematic group has been calculated for every country. This resulted in 11 aggregates, variables describing various aspects of the quality of life across European countries. The aggregated variables from Better Life Index are shown on Table 2. Data from both Table 1 and Table 2 has then been used to determine the relation between ratings of medical service facilities and thematically aggregated well-being measures from OECD's Better Life Index. Due to the ordinal scale of the

variables and relatively short length of the data series (21 observations of each variable) the statistical measure chosen for this purpose was Spearman rank correlation coefficient with the Student's t-test to evaluate the statistical significance of the results.

Table 2. *Ranks (21 – best, 1 – worst) of selected OECD countries life quality measures.*

Country	Civic Engagement	Community	Environment	Education	Health	Housing	Income	Jobs	Life Satisfaction	Safety	Work-Life Balance
Austria	9.00	8.50	13.25	8.17	12.50	8.00	18.00	14.50	15.00	16.50	2.50
Belgium	15.50	5.50	6.00	12.00	14.75	14.33	18.50	11.25	12.00	3.25	12.50
Czechia	5.50	20.00	8.00	13.83	6.50	6.17	9.50	15.00	13.00	10.50	8.75
Denmark	14.50	17.00	16.75	13.50	10.00	9.67	9.00	15.88	19.50	16.00	14.50
Estonia	14.50	17.00	15.50	16.50	4.50	11.67	5.50	11.00	8.50	7.75	9.50
Finland	12.25	20.00	20.75	19.33	12.25	10.83	10.00	15.00	21.00	12.00	11.00
France	13.50	13.00	8.00	7.00	13.75	11.67	15.50	8.38	11.00	13.25	10.50
Germany	11.75	5.50	13.25	12.17	7.50	15.67	18.00	18.00	16.50	14.25	14.00
Greece	6.50	1.00	3.50	7.83	15.00	7.00	2.00	1.25	1.50	5.00	5.75
Hungary	6.00	13.00	5.50	6.33	3.75	8.17	3.50	9.25	3.00	7.75	11.50
Ireland	4.75	20.00	12.00	13.33	19.00	16.33	15.50	12.50	14.00	12.25	3.50
Italy	15.25	3.50	4.00	3.17	17.50	5.83	12.50	4.25	8.50	10.50	16.50
Latvia	8.75	8.50	8.75	10.67	1.50	4.33	1.00	7.62	5.00	3.00	13.50
Lithuania	10.00	3.50	11.25	12.17	1.75	8.83	7.00	9.12	6.00	2.00	15.00
Luxembourg	13.50	7.00	13.00	2.50	15.00	16.00	21.00	14.12	18.00	20.00	12.00
Netherlands	18.25	13.00	12.50	13.33	16.25	18.33	14.50	18.62	19.50	13.75	18.50
Poland	14.25	13.00	4.50	16.33	5.00	4.33	6.00	11.25	4.00	9.50	6.00
Portugal	2.50	2.00	15.25	4.50	7.00	11.50	9.50	5.50	1.50	12.75	6.75
Slovenia	9.75	17.00	10.50	14.67	9.25	15.00	8.00	9.25	8.50	20.00	6.75
Spain	10.00	10.00	8.50	8.17	19.25	12.33	14.00	4.25	8.50	12.00	16.50
Sweden	15.00	13.00	20.25	15.50	19.00	15.00	12.50	15.00	16.50	9.00	15.50

Source: *Based on OECD Better Life Index data.*

4. Research Results and Discussion

For the main hypothesis of this article to be supported, the Spearman correlation coefficients between measures of the quality of life and the ratings of healthcare related facilities from Google Maps should show a negative correlation. Table 3 shows the Spearman rank correlation coefficients between median ratings of healthcare related facilities in Google Maps and the aggregated quality of life measures used in the latest edition of Better Life Index published by OECD.

P-values of the t-test are shown in the parentheses, bold font underscores values of correlation that are statistically significant at alpha = 0.05. What are the conclusions? The Overall score of all of the healthcare related facilities in studied countries has significant and relatively strong negative correlation with Civic Engagement,

Education, Jobs and Life Satisfaction and moderate, but significant, correlation with Community. When it comes to individual types of health care related places, facilities tagged as Doctor (individual practices) show strong and significant negative correlation with Community, Education and Jobs and moderate negative correlation with Environment, and Life Satisfaction.

Moreover, ratings of Pharmacies are significantly correlated with only a single measure of the quality of life provided by OECD – Jobs. Dentists' and Hospitals' ratings do not show any significant level of correlation with available quality of life measures.

All of the significant correlation measures are negative, which means that the direction of relation between the analyzed variables is as expected – the higher the standard of life and overall happiness, the lower the median score in Google Maps and vice versa. What does it mean? It may mean, that the more educated, less overworked and more satisfied with life Europeans are, the higher are their expectations towards the medical service they are provided, which results in lower perceived service quality.

Surprisingly, there is no significant correlation between the Health, Housing, Income, Safety and Work-Life Balance aspects of the quality of life and ratings of healthcare related facilities. This may mean that some aspects of quality of life do not influence perception of medical service, or influence it to a lesser extent, which is worth further investigation.

Table 3. *Spearman correlation coefficient values between life quality measures and medical facilities' ratings in analyzed OECD countries (p-value of t-test in parenthesis)*

Life quality measure	Dentist	Doctor	Hospital	Pharmacy	Overall
Civic Engagement	-0.4281 (0.053)	-0.2148 (0.350)	-0.1107 (0.633)	-0.3746 (0.094)	**-0.5293 (0.014)**
Community	-0.4009 (0.072)	**-0.7116 (0.000)**	0.3166 (0.162)	-0.2629 (0.249)	**-0.4687 (0.032)**
Education	-0.3720 (0.097)	**-0.5953 (0.004)**	0.3039 (0.180)	-0.4230 (0.056)	**-0.6190 (0.003)**
Environment	-0.2686 (0.239)	**-0.4632 (0.034)**	0.1689 (0.464)	-0.3973 (0.074)	-0.4109 (0.064)
Health	0.1042 (0.653)	0.1194 (0.606)	-0.0674 (0.771)	0.2459 (0.238)	0.1828 (0.427)
Housing	-0.1989 (0.387)	-0.1907 (0.408)	0.0088 (0.970)	0.0543 (0.815)	-0.0909 (0.695)
Income	-0.2389 (0.297)	0.0509 (0.826)	-0.2889 (0.204)	0.1064 (0.646)	-0.0352 (0.879)

Jobs	-0.3758 (0.093)	**-0.6697 (0.001)**	0.2551 (0.264)	**-0.4560 (0.038)**	**-0.5828 (0.006)**
Life Satisfaction	-0.4152 (0.061)	**-0.4764 (0.029)**	0.2270 (0.322)	-0.3801 (0.089)	**-0.5178 (0.016)**
Safety	-0.0657 (0.777)	-0.1881 (0.414)	0.1261 (0.586)	0.0427 (0.854)	0.0161 (0.945)
Work-life Balance	0.073 (0.753)	-0.0306 (0.895)	-0.1401 (0.545)	-0.3695 (0.099)	-0.2402 (0.294)

Source: *Authors' calculations.*

5. Conclusions, Proposals, Recommendations

This study set out to examine whether there is a relation between quality of life and expectations regarding healthcare service quality, using publicly available Google Maps ratings across EU countries and quality of life indicators derived from the OECD's Better Life Index. Through large-scale data collection — comprising over 36 000 healthcare-related facilities — and statistical analysis using the Spearman rank correlation coefficient, the results seem to affirm the main hypothesis that countries with higher quality of life tend to exhibit lower ratings of medical service providers.

Notably, significant and relatively strong negative correlations were observed between Google Maps service ratings and quality of life aspects such as Civic Engagement, Education, Community, Jobs, and Life Satisfaction. These findings suggest that in societies where well-being is high, people may have elevated expectations, resulting in more critical evaluations of healthcare services.

Conversely, more material dimensions of life quality — such as Income, Housing, or Safety — showed no meaningful correlation with service ratings, implying that psychosocial and experiential factors may be more influential in shaping consumer perceptions. Importantly, this study reinforces a distinction recognized in service quality theory: customer ratings reflect subjective perception of a customer, not necessarily clinical excellence.

While medical professionals may use online feedback as a performance metric — as evidenced in previous studies — these reviews should not be viewed in isolation when evaluating service quality from a policy or institutional standpoint.

The main implication for healthcare providers is that understanding expectation levels — especially in higher-developed regions — may be critical from the point of view of their businesses. Improvements in communication, empathy, and service delivery may help to increase their service quality. Policymakers should invest more into patient experience and personalize care as it may yield more favorable public sentiment than investments in infrastructure or spending alone. Researchers should be aware that online ratings should be used cautiously and contextually, ideally alongside objective indicators. Further research could expand the scope of the study

to other public services (e.g., education and transport) and/or other geographies, reaching well beyond European Union.

Other improvements may include incorporating temporal trends to capture changes over time, adding qualitative studies to better understand why consumers rate services as they do, comparing cross-platform data to examine consistency of consumer feedback across digital ecosystems, utilizing more advanced statistical methods and models.

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