

Indonesian Population's Health Status and Happiness Index: A Comparison from 2017 and 2021

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Abstract A country's happiness index (HI) reflects its welfare and quality of life. Indonesia has assessed HI thrice, but the results have not been reviewed from a health perspective. This study aimed to compare the HI of the Indonesian population in 2017 and 2021 and determine the health status that affected the HI in 2017 and 2021. This study used data from the Happiness Level Measurement Survey (SPTK) reports 2017, 2021, and Health Statistics reports 2017, 2021. The SPTK was conducted in 34 provinces. There were 75,000 subjects with provincial-level representation who participated. Sample selection used two-stage one-phase sampling. Data were compiled and transferred to data entry and processed using the SPSS version 15 statistical program. Linear regression was used for analysis. Based on the analysis of the Indonesian HI in 2017 and 2021, there was an increase of 0.8 points, specifically in 2021, having health complaints and outpatients in the last month affecting the population's HI, namely $\beta=-302$, $p=0.047$, and $\beta=-0.117$, $p=0.036$ consecutively. This finding is also consistent with the dimensions of life satisfaction and affect. Meanwhile, health complaints experienced in the last month only affected the eudaimonia dimension, namely $\beta=-0.322$, $p=0.057$. In contrast to 2017, in the affect dimension, there was a relationship between health status, namely outpatient and inpatient, $\beta=-0.129$, $p=0.052$, and $\beta=1.52$, $p=0.006$, respectively. Concerning health status, there is a difference in the HI between 2021 and 2017, and one event that

should be considered is the COVID-19 pandemic. Undergoing outpatient treatment during a pandemic reduces happiness and affect. For this reason, it is necessary to improve the health system which allows people who are sick or need health assistance to still be able to visit their health facilities.

Keywords Happiness Index, Life Satisfaction, Affect, Eudaimonia, Indonesia

1. Introduction

The happiness index (HI) of a country or region reflects the welfare, quality of life, performance and good governance of the region [1–4]. Happiness is also often associated with income level, socio-economic status, and social support [5–7]. The assumption is that a prosperous region will bring happiness to its residents, although happiness is also determined by other variables such as social cohesion, spirituality, social value, health status and personal demographic characteristics (age, marital status, occupation and place of residence) [6,8–11]. Happiness is a personal and subjective concept that varies depending on the environment. It also depends on when the situation occurs, the context and the individual's values [12,13].

International data show that Finland has the highest HI

(rank 1), followed by several other European countries such as Denmark, Iceland, Switzerland, the Netherlands, Luxembourg, Sweden, Norway, Israel and New Zealand. Indonesia ranks 87th, while the neighbouring Association of Southeast Asian Nations (ASEAN) such as Singapore rank 27th, Malaysia 70th, Thailand 61st, Vietnam 77th, the Philippines 60th, Cambodia 114th and Laos 95th [8]. These data show that Indonesia still needs to catch up with Singapore, Malaysia, Thailand, and the Philippines.

The latest HI report in Indonesia in 2021 shows that certain provinces retained their high rank in happiness according to the HI in 2014 and 2017 [14,15]. Other findings have shown that not all rich provinces have a high HI [16]. Some provinces are less economically viable but show a high level of population happiness, which is similar to the human development index (HDI). However, the human development index, which includes the elements of health, education, and the economy, is not consistent with happiness. Provinces rich in mining, such as East Kalimantan, have an HI, which is in line with the HDI. This is not the case with provinces with a high HDI, such as Java, all of which have low HI [16].

Indonesia's HI in 2021 was measured during the COVID-19 pandemic [16]. This of course had an impact on the happiness of the population. In the same year, a survey on health statistics was also conducted; unfortunately, the survey was conducted separately, resulting in comprehensive results not being compiled. It is widely known that the COVID-19 pandemic has not only damaged the health system but also impacted the economy and social fabric of the population. The pandemic has caused fear, anxiety, depression, stress overload, and many mental and psychological problems due to fear of infection, activity restrictions and loneliness [17–19].

However, not all dimensions and aspects of happiness have been disrupted by the pandemic [20,21]. This study specifically discusses the health status of the Indonesian population in relation to their HI. Logically, happiness is disrupted by a pandemic. What health variables are affected and are all dimensions of happiness disturbed? Thus, the objectives of this study were: 1) to compare the HI of the Indonesian population in 2017 and 2021, and 2) to determine the health status affecting the HI in 2017 and 2021, respectively. The results of this analysis will be useful in providing appropriate policy inputs in the health sector to improve public health status, especially because, in 2021, a pandemic situation will affect the health of the community again.

2. Materials and Methods

This study compared the results of the 2017 and 2021 national scale surveys.

2.1. Data Source

Happiness Index 2021 [16]: The HI results were obtained through the Happiness Level Measurement Survey (SPTK) conducted by the Central Bureau of Statistics (CBS) in 2021 in 34 provinces. Of an estimated 75,000 (response rate=99.5%) subjects, 74,684 with provincial-level representation participated. Sample selection used two-stage one-phase sampling. The subject was the head or the spouse of the head of the household.

The HI measuring tool was developed by BPS in 2012 and has been tested and implemented in a 2014 survey using the New Economic Foundation (NEF) framework. The 2017 survey was combined with the Organisation for Economic Co-operation and Development (OECD) framework, while the survey approach was conducted using the Gallup World Pool method for the World Happiness Index; therefore, this survey method can be compared with international data.

Each indicator that constitutes the HI is the result of an assessment in the form of a ladder of life scale with a scale range of 0–10. Subjects provided answers on a scale ranging from 0 to 10 where a score of 0 indicated that the respondent's answer was the most dissatisfied/lowest. However, the score of 10 represents the condition of the respondents who are the most satisfied/highest. A score of 5 (five) is the middle score. The final value is multiplied by 10. A HI above 50 and close to 100 indicates that the living conditions of the population are getting better. However, a HI below 50 describes an increasingly unhappy level of life of the population.

The dimensions assessed were life satisfaction, affect and eudaimonia. Nineteen factors contribute to the HI. Life satisfaction consists of questions on education, work/main activity, house facilities, household income, health, family harmony, availability of free time, social relations in the environment, environmental conditions and security conditions. The affect dimension consists of questions about feeling happy/joyful, not feeling worried/anxious, and not feeling depressed. The eudaimonia dimension consists of questions about independence, environmental control, self-development, positive relationships with others, life goals and self-acceptance.

Data were collected through interviews with officers using structured questionnaires and tools. Interview officers are officers who have passed the officer training and are experienced in various survey activities or field data collection. The visual display is in the form of pictures/aids (visual aids) that help respondents determine their answer to the rating scale. CBS calculated each factor with a principal component analysis (PCA) and the results are shown in Figures 1 and 2.

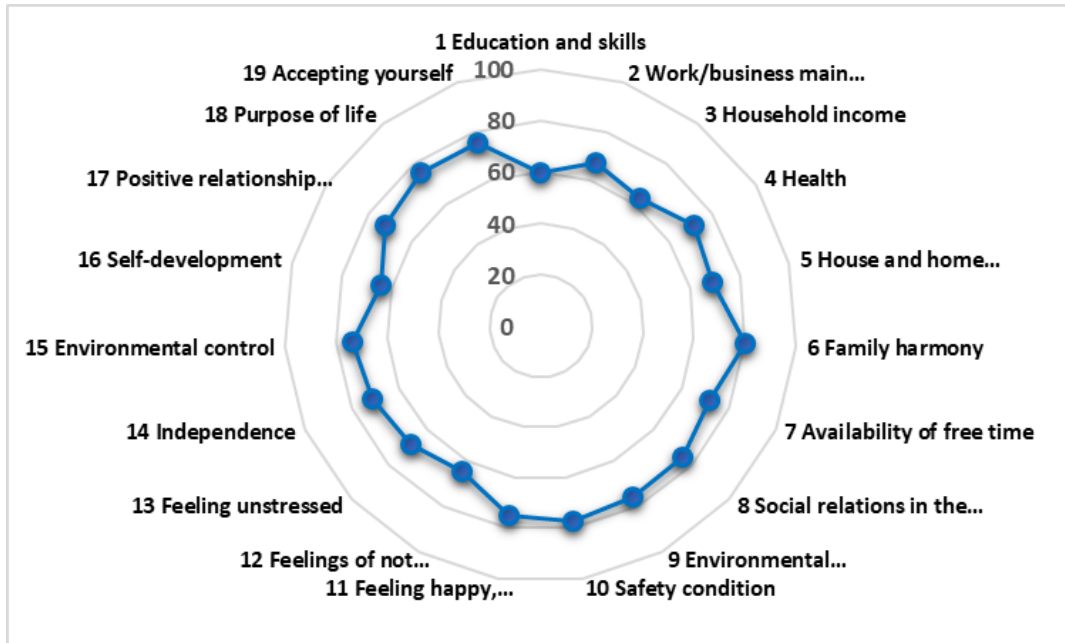


Figure 1. Factors contributing Happiness index, 2017

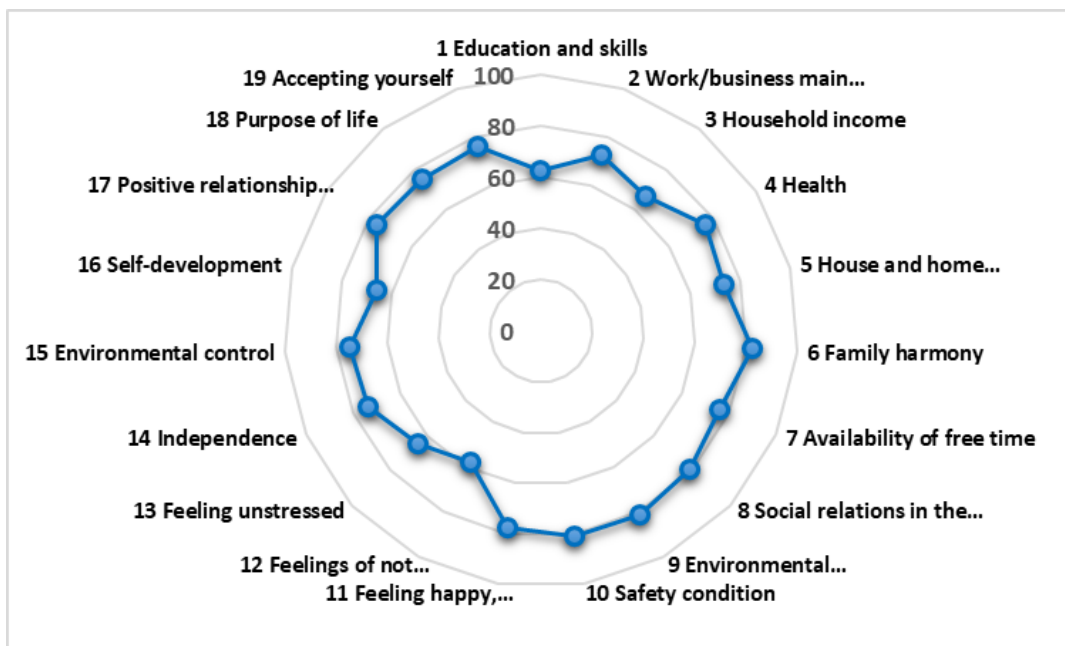


Figure 2. Factors contributing Happiness index, 2021

Happiness Index 2017 [15]: This index has a method and sample size similar to 2021.

Health statistic 2021 [22]: This index was compiled by the CBS in 2021 and integrated with the National Socio-economic Survey (SUSENAS). Questions were asked about the health of the population, especially in relation to the COVID-19 pandemic. The variables used in this analysis were the percentage of the adult population in each province who had health complaints that interfered with daily work in the last month, outpatients in the last month and inpatients in the last

year.

Health statistic 2019 [23]: For this, a method similar to that of 2021 was used. In the 2019 Health Statistics report, health statistics data were reported for 2017, 2018 and 2019, respectively. Therefore, the 2017 data were obtained from the 2019 report.

2.2. Data Analysis

The data analysed were the 2017 and 2021 data, while the 2014 HI data were not analysed in this study because

those have slight differences in terms of measurement variables. The unit of analysis in this study was each province. Data obtained from reports on the results of the National Statistics Board were compiled and assessed by multiple linear regression analysis using the enter method. The level of significance was set at $p < 0.05$. The statistical software that was used was SPSS version 15. The dependent variable is the provincial HI, while the independent variable is health complaints that interfere with activities in one month, outpatients in one month, and inpatients in the last year. Additionally, an analysis of each dimension of life satisfaction, affect and eudaimonia was performed as the dependent variable.

2.3. Ethic Approval

This study was based on data sourced from reports from the Indonesian Central Statistics Agency. The authors submitted a review of the ethical request to the National Research and Innovation Agency or National Research and Innovation Agency (BRIN) Ethics Committee and stated that the research does not require research ethics clearance. Letter Number 129/KE.01/SK/7/2022.

3. Result

From the four available data sources, the HI reports for 2017,2021 and Health Statistics reports 2019,2021 are compiled in Table 1.

Table 1 shows the HI and each of its dimensions, namely, based on life satisfaction, affect, and eudaimonia.

Meanwhile, health status consists of health complaints in the last month, outpatients in the last month and inpatients in the last year. A comparison of the happiness indices in 2017 and 2021 is shown in Figure 3. There is an increase of 0.8 points from 2017 to 2021, $p=0.02$.

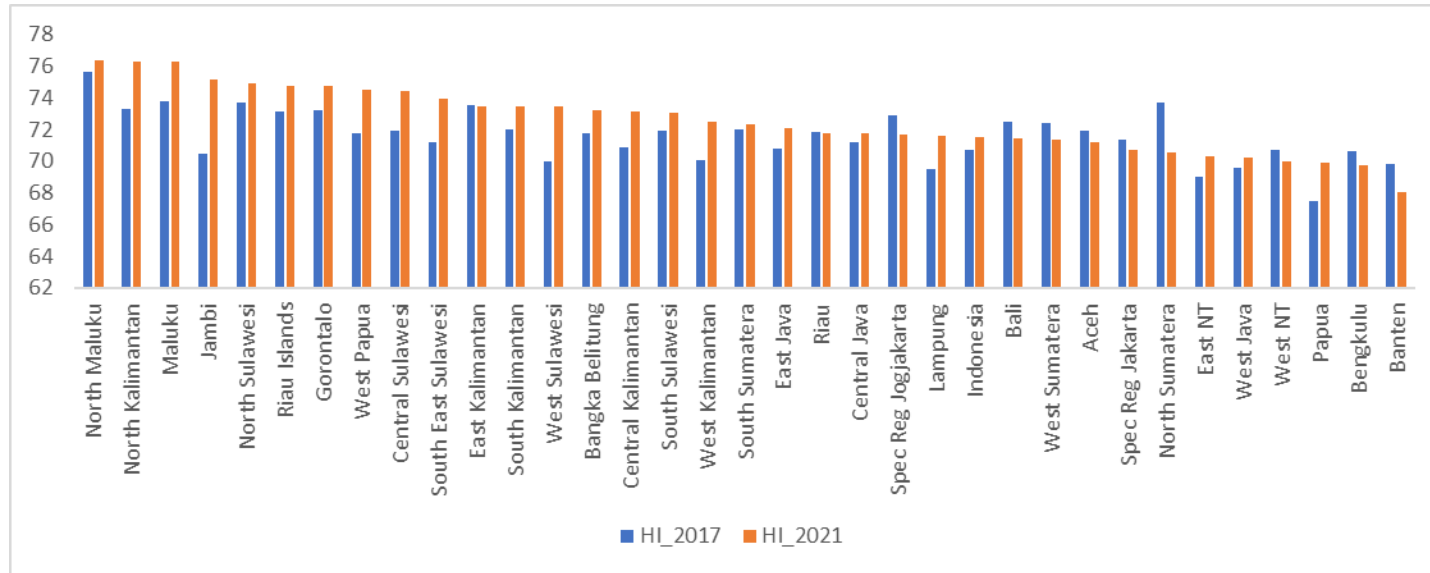
Figure 3 ranks provinces based on the highest HI in 2021. The five provinces with the highest HI in 2021 are North Maluku, North Kalimantan, Maluku, Jambi, and North Sulawesi. Even though the rankings were different in 2017, several provinces still ranked high, for example North Maluku, Maluku and North Sulawesi and East Kalimantan.

Furthermore, Table 2 shows the results of the linear regression with four dependent variables: the total HI and the dimensions of life satisfaction, affect and eudaimonia. The results of the 2017 HI showed that only the affect domain was related to the health status of the population. Each increase in the incidence of outpatients in the last month by 1-unit reduced happiness in terms of affect of the population by 0.129 ($\beta=-0.129$, $p=0.052$). In addition, every increase in the incidence of hospitalization in the last year by 1 unit will increase the affect by 1.52 ($\beta=1.52$, $p=0.006$). In contrast to the HI in 2021, the HI for every 1 unit increase in health complaints in the last month will decrease happiness by -0.302 ($\beta=-0.302$, $p=0.047$). In addition, every 1 unit increase in outpatient events in the last month will reduce happiness by 0.117 ($\beta=-0.117$, $p=0.036$). In the affect dimension, every 1 increase in outpatient units in the last month will decrease affect by 0.186 ($\beta=-0.186$, $p=0.015$). In the eudaimonia domain, every increase in 1 unit of health complaint in the last month will decrease eudaimonia by 0.322 ($\beta=-0.322$, $p=0.057$).

Table 1. Happiness Index, and Health Status by Province

No	Province	Happiness Index		Life Satisfaction	Affect	Eudaimonia	Life Satisfaction	Affect	Eudaimonia	Complaints	Outpatient	Inpatient	Complaints	Outpatient	Inpatient
		2017	2021	2017			2021			2017			2021		
1	Aceh	71.96	71.24	73.74	72.95	68.56	74.05	63.75	73.74	13.84	62.55	5.76	12.35	52.34	4.43
2	North Sumatra	73.69	70.57	72.71	68.54	64.75	71.62	64.14	72.71	11.35	43.05	3.46	8.78	38.57	2.77
3	West Sumatra	72.43	71.34	73.25	72.27	70.21	74.64	65.75	73.25	15.05	57.38	4.04	12.38	55.12	3.33
4	Riau	71.89	71.8	73.84	71.74	71.74	73.56	65.36	73.84	13.16	35.74	3.58	9.93	39.17	2.52
5	Jambi	70.45	75.17	75.44	71.02	71.02	71.61	75.15	75.44	10.75	41.33	3.61	7.16	31.82	2.58
6	South Sumatra	71.98	72.37	74.11	72.02	72.02	73.18	67.16	74.11	11.21	39.15	2.81	12.06	42.88	2.48
7	Bengkulu	70.61	69.74	70.21	70.45	70.45	72.68	65.77	70.21	12.22	42.73	3.69	12.46	39.16	3.05
8	Lampung	69.51	71.64	73.81	69.69	69.69	71.24	65.53	73.81	13.97	44.12	3.8	12.17	40.13	3.23
9	Babel Islands	71.75	73.25	72.85	73.46	73.46	72.23	70.13	72.85	11.58	46.16	3.35	9.81	37.65	3.53
10	Riau Islands	73.11	74.78	76.68	73.14	69.11	76.75	69.42	76.68	10.36	42.83	3.88	5.06	32.87	2.71
11	Spec Reg Jakarta	71.33	70.68	73.60	71.6	68.06	74.04	62.37	73.60	12.34	52.96	4.31	10.75	44.12	3.69
12	West Java	69.58	70.23	72.63	70.22	66.83	71.43	63.21	72.63	14.74	47.81	4.01	13.94	43.41	3.45
13	Central Java	71.22	71.73	72.00	70.92	70.45	71.36	68.03	72.00	16.01	49.28	5.61	16.84	40.33	3.98
14	Spec Reg Jogja	72.93	71.70	72.86	71.98	73.38	73.49	67.29	72.86	15.20	52.74	6.16	13.94	44.29	4.34
15	East Java	70.77	72.08	73.19	71.68	68.79	71.66	66.43	73.19	15.54	44.42	4.32	14.87	39.66	3.40
16	Banten	69.83	68.08	70.28	70.37	67.80	71.13	60.61	70.28	13.87	47.68	3.25	12.91	38.13	2.80
17	Bali	72.48	71.44	72.92	72.40	71.71	73.27	65.98	72.92	16.00	58.85	5.11	12.91	53.31	3.54
18	West Nusa Tenggara	70.76	69.98	71.18	71.59	67.50	72.72	64.25	71.18	18.03	51.05	4.85	21.02	43.32	5.25
19	East Nusa Tenggara	68.98	70.31	72.48	65.23	65.23	71.53	63.14	72.48	19.25	48.03	3.64	14.24	36.19	3.70
20	West Kalimantan	70.08	72.49	74.02	70.64	67.55	71.84	67.34	74.02	12.88	38.98	2.69	8.44	32.85	2.58
21	Central Kalimantan	70.85	73.13	74.05	71.02	69.52	71.89	68.63	74.05	13.24	32.99	3.06	8.27	25.59	2.12
22	South Kalimantan	71.99	73.48	74.61	70.40	72.31	73.32	69.2	74.61	13.46	33.46	3.09	12.49	25.84	2.78
23	East Kalimantan	73.57	73.49	75.91	73.50	71.63	75.41	66.74	75.91	10.36	41.24	4.35	8.97	38.36	3.49
24	North Kalimantan	73.33	76.33	77.10	71.94	73.42	74.67	71.68	77.10	15.13	38.6	4.93	10.23	34.60	3.79
25	North Sulawesi	73.69	74.96	77.54	74.27	69.29	77.11	66.72	77.54	15.21	52.56	5.22	9.90	34.60	3.82
26	Central Sulawesi	71.92	74.46	77.30	71.14	70.08	74.4	66.77	77.30	17.44	35.02	4.82	12.34	41.52	3.64
27	South Sulawesi	71.91	73.07	73.96	72.27	70.63	72.71	68.35	73.96	13.07	44.32	4.76	11.65	35.27	3.56
28	Southeast Sulawesi	71.22	73.98	75.63	73.63	68.77	73.63	68.38	75.63	14.50	38.6	3.12	12.82	26.70	3.10
29	Gorontalo	73.19	74.77	75.67	75.41	69.21	75.41	69.47	75.67	20.56	44.27	5.12	16.23	43.12	4.13
30	West Sulawesi	70.02	73.46	76.19	69.67	67.89	72.33	66.7	76.19	13.45	38.02	2.68	13.26	31.84	2.57
31	Maluku	73.77	76.28	79.12	75.05	69.00	76.84	68.54	79.12	10.75	33.15	1.91	8.31	35.88	1.59
32	North Maluku	75.68	76.34	79.41	77.09	70.48	79.00	67.92	79.41	11.27	46.56	2.38	9.53	35.88	2.39
33	West Papua	71.73	74.52	76.37	72.44	67.95	74.46	68.30	76.37	11.47	39.91	3.54	8.89	40.93	2.53
34	Papua	67.52	69.87	72.07	68.42	63.82	69.98	63.72	72.07	8.43	43.47	2.31	6.54	39.32	1.50
	Indonesia	70.69	71.49	73.12	71.07	68.59	72.23	65.61	73.12	14.31	46.32	4.19	13.04	40.47	3.36

Indonesian Population's Health Status and Happiness Index:
A Comparison from 2017 and 2021



HI= Happiness Index

Figure 3. Happiness Index 2017, 2021

Table 2. The Model of Linear Regression of Happiness index, and Health status

	2017															
	Happiness index				Life Satisfaction				Affect				Eudaimonia			
	β	95%CI		p	β	95%CI		p	β	95%CI		p	β	95%CI		p
Complaints	-0.163	-0.431	- 0.105	0.224	-0.192	-0.556	- 0.171	0.288	-0.243	-0.6	- 0.109	0.169	-0.1	-0.441	- 0.241	0.554
Outpatient	-0.034	-0.134	- 0.143	0.065	-0.007	-0.141	- 0.128	0.922	-0.129	-0.26	- 0.001	0.052	-0.012	-0.138	- 0.114	0.844
Inpatient	0.704	-0.104	- 1.512	0.085	0.535	-0.561	- 1.631	0.327	1.54	0.478	- 2.602	0.006	0.331	-0.697	- 1.358	0.516
	2021															
	Happiness index				Life Satisfaction				Affect				Eudaimonia			
	β	95%CI		p	β	95%CI		p	β	95%CI		p	β	95%CI		p
Complaints	-0.302	-0.6	- -0.004	0.047	-0.283	-0.6	- 0.034	0.078	-0.332	-0.736	- 0.072	0.104	-0.322	-0.655	- 0.01	0.057
Outpatient	-0.117	-0.226	- -0.008	0.036	-0.1	-0.216	- 0.016	0.088	-0.186	-0.334	- -0.038	0.015	-0.077	-0.198	- 0.045	0.207
Inpatient	0.775	-0.464	- 2.013	0.211	0.828	-0.491	- 2.147	0.210	1.128	-0.554	- 2.809	0.181	0.447	-0.935	- 1.829	0.514

4. Discussion

Based on the results of this analysis, the HI in 2021 compared to 2017 shows an increase of 0.8 points (from 70.69 to 71.49) even during a pandemic. This is an interesting fact to study further. In 2021, health complaints and outpatients had an effect on happiness, and health complaints were also related to the eudaimonia dimension. Outpatient care is also related to the affect dimensions. It is interesting that being an outpatient reduced happiness. Why people feel that undergoing outpatient care interferes with their happiness requires further study. Based on the 2021 health statistics report, the average percentage of residents who do not seek outpatient treatment due to a lack of funds, fear of contracting COVID-19, and feelings of not needing it is very small, below 10% [22]. Outpatients are people who require treatment at a polyclinic. It is possible that some do outpatient treatment not because they are sick but because they do health checks to get routine medicine. However, having to receive outpatient care interferes with happiness. This happens because during a pandemic people are limited in going out of the house and have to avoid crowds, especially places where there are many diseases [17–19].

When these results are compared with the results in 2017, namely the conditions when the COVID-19 pandemic had not yet occurred, the 2017 HI is only on the affect dimension which is related to health status, namely outpatient and inpatient status. Surprisingly, in 2017, hospitalisation increased happiness. This is difficult to explain but may have something to do with factors outside of health.

Based on previous studies, at the individual level, many variables play a role, such as age, gender, marital status, and occupation [24–27]. Certain groups have specific role variables; for example, elderly people are very dependent on health, while in workers, eudaimonia happiness is more prominent [1–3]. According to a report on the results of the happiness index, GDP per capita is not correlated with HI, but family income is related to happiness, especially in developing countries [11]. Similar to mental health, several studies have shown that mental health is related to happiness, especially stress, which makes people less happy [24]. Living in an area with high HI does not guarantee mental health, but happiness affects healing and the degree of mental disorders [28–30]. Happiness also causes longevity, therefore, in the assessment of the HI there is a life expectancy variable [16,31].

In addition to health and good economic conditions, happiness is largely determined by social support, including an individual's position in social relationships [32–34]. Racism and living in conflict areas are also associated with happiness [35,36]. Fortunately, Indonesia does not currently have a serious conflict area. The concept of happiness differs between Western and Eastern

countries. Western countries prioritise self-centred (independent) relationships, while Eastern countries are more concerned with interpersonal relationships, emphasising harmony and connectedness to others [37].

For Asian countries, happiness is also determined by spirituality and social relations with the environment, family, social relationships, and family factors, including having offspring, friends, and neighbours [9,10,38,39]. In this study, those who prioritised extrinsic achievements (money, power, educational attainment, work, and leisure) and health were least likely to be happy [9]. Specifically, for Indonesia, the main variables are socio-culture and religiosity, although macroeconomic variables and income inequality play a negative role in happiness [38].

The strength of this study is the use of national data obtained from large surveys conducted by a reputable institution, namely, the CBS. These data represent the data of each province as well as national data because they cover all provinces in Indonesia (34 provinces). The method used is also a standardised method with the measurement of dimensions which are broadly the same as HI in other countries. The limitation is that the unit of analysis is the province, not the individual; therefore, sociodemographic variables cannot be considered. The data were processed using secondary data derived from survey reports. This has an effect because the subject who answers is not the same.

The results of this analysis show a difference between the 2017 and 2021 happiness indices related to public health. In 2017 (no pandemic), only the outpatient and inpatient variables were related to the affective dimension. In 2021, the general HI was related to health complaints and outpatients. Outpatients also play a role in affect, whereas in the eudaimonia dimension, there is a relationship with health complaints. These results support previous research which states that happiness consists of various aspects and is influenced by the time of the incident, but it does not interfere with all aspects of life [20,21].

5. Conclusions

Based on the analysis of the Indonesian happiness index in 2017 and 2021, an increase of 0.8 points occurred, specifically in 2021, the experience of undergoing outpatient treatment in the last month affected the population's HI. This finding is also consistent with the dimensions of affect. Meanwhile, health complaints experienced in the last month and use of activities only affected the eudaimonia dimension. The COVID-19 pandemic has been an event to be reckoned. Based on these findings, the need for improvement of the health system, namely, at certain times, such as an epidemic, social restrictions are needed to enable people who are sick or need health assistance to still be able to visit their health facilities with a sense of security. These

interventions can be adapted to local conditions, which would be better prepared based on special research on them. Therefore, it would be better if the health interventions provided were based on research involving robust methods of modifying subjective well-being over prolonged periods [6].

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