Self-reported health-related experiences, psychological capital, and psychological wellbeing in Lithuanian adults sample

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Abstract
The purpose of this research was to examine psychological wellbeing and psychological capital in groups of subjectively healthy and unhealthy individuals and identify significant associations. We have analyzed the results of a Lithuanian representative sample of adults (n=1001). Results showed that adult respondents who reported the absence of cardiovascular diseases, nervous system diseases, autoimmune diseases, diabetes, vision disorders, physical or mental disability, and substance abuse demonstrated significantly higher scores for flourishing, life satisfaction, psychological capital, self-efficacy, hope, and resilience. The model on associations between the number of reported diseases, psychological capital, and wellbeing in the representative sample of adults (χ² = 110.786, df = 16; CFI = .981; RMSEA = .077; NFI = 0.978; TLI = 0.968) indicated that a higher number of diseases (per person) predicts a weakening effect on psychological capital, while psychological capital predicts psychological wellbeing.

Keywords
health, illness, Lithuania, psychological capital, psychological wellbeing

Introduction
Psychological wellbeing (flourishing, happiness, life satisfaction) is a widely researched construct, and there are many attempts to conceptualize this construct, focusing on emotional or cognitive, objective, or subjective factors of wellbeing (Boehm and Kubzansky, 2012; Diener, 2009; Efklides & Moraitou, 2013; Marsh et al., 2019; O’Brien, 2008; Staudinger et al., 1999; Tappolet and Rossi, 2015; Wiest et al., 2011). Interestingly, some authors (e.g. Veenhoven, 1993) proposed the concept of inner well-being which is conceptualized in terms of input conditions (e.g. ability to live a fulfilling life) versus outer well-being which is characterized in terms of the livability of the environment (the quality of the environment in the way the environment promotes personal well-being or life satisfaction, happiness, perceived life quality, or overall well-being).

Evidence suggests that high levels of psychological well-being may facilitate favorable health outcomes and longevity (e.g. Koopmans, 2010) as well as creative thinking, problem-solving, and professional achievement: participants who report higher levels of psychological well-being tend to perform better on decision-making tasks in terms of accuracy, clerical error checking, anagram problem-solving, and original and flexible thinking (Diener and Seligman, 2004). Experimental evidence suggests that well-being brings out the best in people, making them more social, cooperative, and ethical (Diener, 2009).

Much of the debate over psychological wellbeing has focused on the role of income. For decades, researchers considered that income levels are extremely important for psychological wellbeing: it was presumed that socioeconomic inequality, poverty, and Gross Domestic Product (GDP) significantly contribute to national happiness (Fischer and Boer, 2011; O’Brien, 2008). Ortiz-Ospina E. and Roser M. noted: “richer people tend to say they are happier than poorer people; richer countries tend to have

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higher average happiness levels; and across time, most countries that have experienced sustained economic growth have seen increasing happiness levels” (Ortiz-Ospina and Roser, 2020).

At first glance, the primary significance of income on psychological wellbeing seems reasonable. However, the World Health Organization (WHO) reports an alarming increase in numbers (1999–2019) of various diseases. Still, there is no established research on parallels between these numbers and scores of national happiness. It means that health or the absence of illness is still under-researched as a predictor of national psychological wellbeing.

However, there is an extensive literature that links psychological wellbeing to positive health outcomes. Researchers analyzed predictors of subjective physical health and global wellbeing (Staudinger et al., 1999), cultivating positive emotions to optimize health and well-being (Fredrickson, 2000), environmental and genetic contributions to the relationship between subjective well-being, perceived health, and somatic illness (Roysamb et al., 2003), psychosocial adjustment among cancer survivors (Costanzo et al., 2009), control striving in older adults with serious health problems (Hall et al., 2010), health, happiness and wisdom (Judge et al., 2010), nonspecific mechanisms that enhance well-being in health-promoting behaviors (Gaitan-Sierra and Hyland, 2011), singing, health and wellbeing (Gick, 2011), happiness and cardiovascular health (Boehm and Kubzansky, 2012), religious behavior, wellbeing and health (Levin, 2013), persistent psychological wellbeing as predicting improved self-rated health (Ryff et al., 2015), emotions and wellbeing (Tappolet and Rossi, 2015), age differences in the within-person coupling of individuals’ physical health and wellbeing (Schöllgen et al., 2016), psychological factors in health (Hilton and Johnston, 2017), defensive profile in breast cancer women (Di Giuseppe et al., 2019), improving employees wellbeing and physical health through a technology-based physical activity intervention (Lennefer et al., 2019).

Julia Boehm and Laura Kubzansky reviewed over 200 published studies to explore the link between life satisfaction, happiness, and cardiovascular health. Researchers concluded that life satisfaction and happiness were strongly associated with a reduced risk of cardiovascular disease: “the most optimistic individuals had an approximately 50% reduced risk of experiencing an initial cardiovascular event than their less optimistic peers” (Boehm and Kubzansky, 2012). Boehm et al. (2011) also found a link between optimism and the composition of cholesterol in the blood: optimistic individuals had higher levels of good cholesterol and lower triglycerides (Boehm et al., 2011).

Researchers have also established that the most optimistic individuals had a 55% reduced risk of all-cause mortality and a 23% reduced risk of cardiovascular death (Giltay et al., 2004). The most optimistic people had a 9% lower risk of developing coronary heart disease and a 14% lower risk of dying from any cause (Tindle et al., 2009), to name a few studies.

Research shows that psychological wellbeing contributes to better health, but what happens to wellbeing if someone is suffering a serious illness? Can people flourish and be satisfied with life if they are ill? These questions are extremely important nowadays when the world is facing the coronavirus COVID-19 outbreak. Moreover, the other facts about health in the world is no less dramatic. As stated by WHO, cardiovascular diseases are the number 1 cause of death globally, taking an estimated 17.9 million lives each year. Cancer is also a leading cause of death worldwide, accounting for an estimated 9.6 million deaths in 2018. About 422 million people worldwide have diabetes, viral hepatitis B and C affect 325 million people worldwide, more than 264 million people of all ages suffer from depression, the harmful use of alcohol results in 3.3 million deaths each year; about 270 million people (or about 6% of the global adult population) had used drugs in the previous year, about 35 million people are estimated to be suffering from drug use disorders, and about 0.5 million deaths annually are attributable to drug dependence (Disease and Injury Incidence and Prevalence Collaborators, 2018). Thus millions of people suffering from various diseases worldwide have to experience illness and its psychological outcomes.

A lot of research investigated psychological outcomes of illness (Besharat et al., 2018; Boehm and Kubzansky, 2012; Costanzo et al., 2009; Di Giuseppe et al., 2019; Hall et al., 2010; Mittag et al., 2016; Sibulwa et al., 2019; Wiest et al., 2011). Results vary from one disease to another, but the most relevant questions are: What factors determine psychological wellbeing in illness and health? How illness contribute to diminished psychological wellbeing? What are the related factors, and what is their role in psychological outcomes?

Around a decade ago emerged a construct of psychological capital (PsyCap) which is defined as “individual’s positive state of development and is characterized by (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making positive attributions (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success” (Luthans et al., 2007: 3). In other words, PsyCap refers to a positive appraisal of one’s capacity to overcome obstacles with sustained effort, and this appraisal reflects four dimensions: hope, self-efficacy, resilience, and optimism.

Research has documented associations between psychological capital (PsyCap) and several wellbeing outcomes, including health (Avey et al., 2010; Cheung et al., 2011; Harms et al., 2017; Luthans et al., 2006; Varas et al., 2019). Even though PsyCap exploration has concentrated mostly on the work domain, the capacity to persevere and overcome
emotional difficulties may be particularly important in the health context. Moreover, individuals higher on PsyCap in the health domain are more likely to engage in opportunities to sustain and improve health and more likely to persist in efforts to achieve health-related goals (Luthans et al., 2010, 2013). Furthermore, positive health experiences, such as coping with illness or disability, are likely to set positive development whereby individuals come to see themselves as more capable of taking on more significant challenges with each success (Harms et al., 2017; Li et al., 2014).

Even though there are many interesting findings on health-related PsyCap (Harms et al., 2017; Li et al., 2014; Luthans et al., 2010), the importance of PsyCap in serious physical or mental illnesses and disabilities is under-researched. It is not clear whether experiences of illness or disability, which affect psychological wellbeing, could also influence health-related PsyCap, and whether high PsyCap could serve as a mediating factor that helps improve psychological wellbeing in case of illness.

Our research aimed to compare psychological wellbeing (life satisfaction, flourishing, negative emotions, and positive emotions) and psychological capital (self-efficacy, hope, resilience, and optimism) in groups of subjectively healthy and unhealthy individuals.

In this paper, we analyze the results of a representative sample of adults (n = 1001). We hypothesized that the quantity of self-reported illnesses associates with diminished psychological capital and psychological wellbeing in individuals who have suffered the illness in the past even though they are living an active life at present.

**Materials and methods**

**Sample**

This study on self-reported health-related experiences, psychological wellbeing (life satisfaction, flourishing, negative emotions, and positive emotions), and psychological capital (self-efficacy, hope, resilience, optimism) used a test design utilizing a heterogeneous random sample of 1001 persons representing the Lithuanian population. All the participants were personally asked to participate in the study. Lithuanian sample was selected in a multi-scaled probabilistic way so that every citizen of Lithuania might have an equal probability to be interviewed. Thus the survey was conducted in the selected 20 cities and 29 villages. The Lithuanian subjects of the study included 46.8% of men (n = 469) and 53.2% of women (n = 533). The mean age of the respondents was 49.29 years (± 16.206 SD, Minimum – 18 years old, Maximum – 90 years old). The majority of the participants were married (48.9%), some were widows (13.8%), some indicated that they are separated (12.2%), lived alone (12%), or lived with a partner (9.7%). Lithuanian respondents were personally interviewed at their home, the interview took approximately 1.5 hours.

**Measures**

To assess psychological flourishing, we applied the Flourishing Scale (FS) of Ed Diener and colleagues (Diener et al., 2009), consisting of eight items. The Flourishing Scale is a measure of the respondent’s self-perceived success in important areas such as relationships, self-esteem, purpose, and optimism. The scale provides a single psychological wellbeing score. In adults’ study, the response pattern followed a 7-point Likert scale ranging from 7 (totally agree) to 1 (totally disagree). This scale includes the following items: “I lead a purposeful and meaningful life,” “My social relationships are supportive and rewarding,” “I am engaged and interested in my daily activities,” “I actively contribute to the happiness and wellbeing of others,” “I am competent and capable in the activities that are important to me,” “I am a good person and live a good life,” “I am optimistic about my future,” “People respect me.” Cronbach’s alpha for the FS items in the adults’ sample was .91 (n = 1001).

To assess life satisfaction, we applied the Satisfaction with Life Scale (SWLS) of E. Diener and colleagues (Diener et al., 1985). The SWLS is a short 5-item instrument designed to measure global cognitive judgments of satisfaction with one’s life. In adults’ study, the response pattern followed a 7-point Likert scale ranging from 7 (totally agree) to 1 (totally disagree). The internal consistency of the life satisfaction scale in this research was high. Cronbach’s alpha for the estimate of the adult respondents was .89 (n = 1001).

We applied the PCQ-24 scale (Luthans et al., 2007) to assess respondents’ positive psychological capital. Psychological Capital or PsyCap is a higher-order construct consisting of four subscales, each comprised of six items each for a total of 24 items. The subscales include hope, efficacy, resilience, and optimism. Some sample items for PsyCap are the following: “I feel confident analyzing a long – term problem to find a solution” (Efficacy subscale); “There are lots of ways around my problem” (Hope subscale); “I always look on the bright side of things” (Optimism scale); and “I usually manage difficulties one way or another” (Resilience scale). In adults’ study, the response pattern followed a 6-point Likert scale ranging from 6 (totally agree) to 1 (totally disagree). In the present study, Cronbach’s alpha was .85 for adults’ sample (n = 1001) and ranged from .83 to .88 for the subscales of self-efficacy, hope, optimism, and resilience.

To evaluate adult respondents’ subjective health, we have applied these questions: “Have you ever suffered. . . (Cardiovascular diseases, Cancer, Diabetes, Hepatitis, etc.)?” The response alternatives provided were “yes” and “no.”

To assess the emotional wellbeing of adults (n = 1001), we applied the Scale of Positive and Negative Experience (SPANE) of Diener et al. (2009). The SPANE is a 12-item questionnaire that includes six items to assess positive
feelings and six items to assess negative feelings. For both the positive and negative items, three items are general (e.g. positive, negative), and three per subscale are more specific (e.g. joyful, sad). The instructions are as follows: “Please think about what you have been doing and experiencing during the past 4 weeks. Then report how much you experienced each of the following feelings, using the scale below. For each item, select a number from 1 to 5, and indicate that number on your response sheet.” The response pattern followed a 5-point Likert scale ranging from 1 (very rarely or never) to 5 (very often or always). Cronbach’s alpha was .84 for the adults’ sample (n = 1001).

Statistical analyses
We used SPSS, AMOS 26.0 programs for data analysis. A Shapiro–Wilks test showed a significant departure from normality for the variables of psychological flourishing (W (958) = .972, p < .001), life satisfaction (W (958) = .990, p < .001), positive emotions (W (958) = .980, p < .001), negative emotions (W (958) = .984, p < .001), psychological capital (W (958) = .994, p < .001), self-efficacy (W (958) = .978, p < .001), hope (W (958) = .992, p < .001), optimism (W (958) = .986, p < .001), psychological capital (W (958) = .990, p < .001). Similarly, Kolmogorov–Smirnov test showed that data were non-normally distributed for the variables of psychological flourishing, life satisfaction, positive and negative emotions, self-efficacy, hope, resilience, and optimism when comparing the groups based on self-reported experience of physical disability or absence of it. Mann–Whitney U test indicated that adult respondents who reported absence of physical disability demonstrated significantly lower mean ranks for negative emotions (U = 51,981,000, Z = −2.292, p = 0.022) and significantly higher mean rank scores for flourishing (U = 38,086,500, Z = −7.095, p < .001), life satisfaction (U = 42,020,000, Z = −5.871, p < .001), positive emotions (U = 38,016,000, Z = −47.469,000, p < .001), psychological capital (U = 36,456,000, Z = −7.072, p < .001), self-efficacy (U = 40,653,000, Z = −6.010, p < .001), hope (U = 36,041,000, Z = −7.746, p < .001), resilience (U = 40,835,000, Z = −6.142, p < .001) and optimism (U = 42,053,000, Z = −5.777, p < .001) than those who reported experience of disability (Table 4).

Furthermore, Mann–Whitney U test indicated that adult respondents who reported absence of mental disability demonstrated significantly higher mean rank scores for flourishing (U = 9119,000, Z = −2.677, p = 0.007), life satisfaction (U = 9856,000, Z = −2.183, p = 0.029), positive emotions (U = 9576,000, Z = −2.342, p = 0.019), psychological capital (U = 9559,000, Z = −2.252, p = 0.024), self-efficacy (U = 10,172,000, Z = −1.920, p = 0.055), hope (U = 9816,500, Z = −2.204, p = 0.028) and resilience (U = 10,084,000, Z = −2.024, p = 0.043) than those who reported experience of mental disability (Table 5).

Moreover, Mann–Whitney U test revealed that adult respondents who reported absence of cardiovascular diseases demonstrated significantly lower mean ranks for negative emotions (U = 92,453,000, Z = −3.648, p < .001) and significantly higher mean rank scores for flourishing (U = 82,970,000, Z = −5.990, p < .001), life satisfaction (U = 89,821,000, Z = −4.369, p < .001), positive emotions (U = 76,309,500, Z = −7.307, p < .001), psychological capital (U = 72,393,500, Z = −7.768, p < .001), self-efficacy (U = 81,855,000, Z = −5.970, p < .001), hope (U = 70,461,500, Z = −8.948, p < .001), resilience (U = 81,142,000, Z = −6.358, p < .001) and optimism (U = 87,162,500, Z = −4.968, p < .001) than those who reported cardiovascular diseases (Table 6).

In addition, Mann–Whitney U test showed that adult respondents who reported absence of autoimmune diseases demonstrated significantly lower mean ranks for negative emotions (U = 66,049,000, Z = −3.543, p < .001) and significantly higher mean rank scores for flourishing (U = 60,046,000, Z = −5.266, p < .001), life satisfaction (U = 62,563,000, Z = −4.594, p < .001), positive emotions (U = 9277,000, Z = −6.329, p < .001) than those who reported experience of autoimmune diseases (Table 7).

Results
Just 1.1% of respondents reported that they have never experienced any health-related difficulties. The frequency of the adult representative sample’s self-reported health-related experiences are presented in Table 1. In this sample, 32% of respondents reported cardiovascular disorders, and 37% of respondents reported vision disorders.

Means and standard deviations of flourishing, life satisfaction, positive and negative emotions, and self-reported health-related experiences of adults’ representative sample (n = 1001) are presented in Table 2.
Table 1. Frequency of adult (males and females) representative sample’s self-reported health-related experiences (n = 1001).

| Subjective health report                  | n (%) | Gender | n (%) | p-Value | 95% CI  |
|-------------------------------------------|-------|--------|-------|---------|---------|
| Physical disability                      | 142 (14.2) | Male | 73 (15.5) | 0.273 | [1.12, 1.19] |
|                                          |       | Female | 69 (13.0) |        | [1.10, 1.16] |
| Mental disability                        | 27 (2.7) | Male | 12 (2.5) | 0.771 | [1.01, 1.04] |
|                                          |       | Female | 15 (2.8) |        | [1.02, 1.04] |
| Cardiovascular diseases                  | 323 (32.3) | Male | 145 (30.7) | 0.323 | [1.27, 1.35] |
|                                          |       | Female | 178 (33.6) |        | [1.29, 1.37] |
| Autoimmune disorders and allergies       | 200 (20.0) | Male | 84 (17.8) | 0.106 | [1.14, 1.21] |
|                                          |       | Female | 116 (21.9) |        | [1.19, 1.25] |
| Nervous system disorders                 | 119 (11.9) | Male | 47 (10.0) | 0.075 | [1.07, 1.13] |
|                                          |       | Female | 72 (13.6) |        | [1.10, 1.16] |
| Cancer                                   | 51 (5.1) | Male | 24 (5.1) | 0.972 | [1.03, 1.07] |
|                                          |       | Female | 27 (5.1) |        | [1.03, 1.07] |
| Vision disorders                         | 372 (37.2) | Male | 153 (32.4) | 0.003 | [1.28, 1.37] |
|                                          |       | Female | 219 (41.4) |        | [1.37, 1.46] |
| Diabetes                                 | 132 (13.2) | Male | 45 (9.5) | 0.001 | [1.07, 1.12] |
|                                          |       | Female | 87 (16.4) |        | [1.13, 1.20] |
| Substance abuse                          | 49 (4.9) | Male | 27 (5.7) | 0.253 | [1.04, 1.08] |
|                                          |       | Female | 22 (4.2) |        | [1.03, 1.06] |
| Hepatitis B or C                         | 25 (2.5) | Male | 7 (1.5) | 0.052 | [1.00, 1.03] |
|                                          |       | Female | 18 (3.4) |        | [1.02, 1.05] |
| Other                                    | 12 (1.2) | Male | 5 (1.1) | 0.701 | [1.00, 1.02] |
|                                          |       | Female | 7 (1.3) |        | [1.00, 1.02] |

Table 2. Descriptives of flourishing, life satisfaction, positive and negative emotions, and self-reported health-related experiences of adults’ representative sample (n = 1001).

| Subjective health report | Flourishing Mean | SD | Life satisfaction Mean | SD | Negative emotions Mean | SD | Positive emotions Mean | SD |
|--------------------------|------------------|----|------------------------|----|------------------------|----|------------------------|----|
| Healthy                  | 5.8409           | 0.8044 | 4.8364                | 0.9502 | 2.4394                 | 0.7159 | 4.0455                | 0.5005 |
| Physical disability      | 4.3671           | 1.1131 | 3.4761                | 1.13830 | 2.7222                 | 0.69913 | 3.0681                | 0.73447 |
| Mental disability        | 4.4167           | 1.23986 | 3.5037                | 1.38605 | 2.6975                 | 0.58294 | 3.1543                | 0.75380 |
| Cardiovascular diseases  | 4.6991           | 1.11480 | 3.8025                | 1.23865 | 2.7069                 | 0.63557 | 3.2353                | 0.64455 |
| Autoimmune disorders and allergies | 4.6275 | 1.15811 | 3.6945                | 1.22776 | 2.7424                 | 0.65311 | 3.2113                | 0.67745 |
| Nervous system disorders | 4.2962           | 1.15575 | 3.3661                | 1.19723 | 2.8079                 | 0.66831 | 3.1535                | 0.69333 |
| Cancer                   | 4.7868           | 1.22813 | 4.0588                | 1.34420 | 2.4252                 | 0.72093 | 3.3264                | 0.73735 |
| Vision disorders         | 4.8073           | 1.16106 | 3.8862                | 1.28970 | 2.6780                 | 0.68130 | 3.3393                | 0.66841 |
| Diabetes                 | 4.7185           | 1.11074 | 3.8366                | 1.16798 | 2.6323                 | 0.66722 | 3.3756                | 0.60229 |
| Substance abuse          | 4.3036           | 1.46019 | 3.2694                | 1.53599 | 2.7326                 | 0.74356 | 3.0532                | 0.72906 |
| Hepatitis B or C         | 4.9550           | 1.12840 | 3.9760                | 1.38000 | 2.4600                 | 0.72374 | 3.2400                | 0.82647 |
| Other                    | 5.0208           | 0.75910 | 3.6333                | 0.87732 | 2.7778                 | 0.79878 | 3.4028                | 0.54799 |

Z = -5.322, p < 0.001, psychological capital (U = 54,451.000, Z = -6.091, p < 0.001), self-efficacy (U = 59,612.000, Z = -5.045, p < 0.001), hope (U = 55,838.500, Z = -6.433, p < 0.001), resilience (U = 58,314.500, Z = -5.681, p < 0.001) and optimism (U = 65,460.500, Z = -3.650, p < 0.001) than those who reported autoimmune diseases, allergies (Table 7).

Similarly, Mann–Whitney U test showed that adult respondents who reported absence of nervous system diseases demonstrated significantly lower mean rank scores for negative emotions (U = 40,645.000, Z = -3.803, p < 0.001) and significantly higher mean rank scores for flourishing (U = 31,091.500, Z = -7.156, p < 0.001), life satisfaction (U = 33,628.500, Z = -6.201, p < 0.001), positive emotions (U = 36,773.000, Z = -4.948, p < 0.001), psychological capital (U = 29,989.500, Z = -6.782, p < 0.001), self-efficacy (U = 32,878.500, Z = -6.371, p < 0.001), hope (U = 31,855.500, Z = -6.796, p < 0.001), resilience (U = 34,934.500, Z = -5.640, p < 0.001) and optimism (U = 38,718.000, Z = -4.474, p < 0.001) than those who reported nervous system diseases (Table 8).
Interestingly, Mann–Whitney $U$ test showed that adult respondents who reported absence of vision disorders demonstrated significantly lower mean rank scores for negative emotions ($U=103,018.000$, $Z=-2.785$, $p=0.005$) and significantly higher mean rank scores for flourishing ($U=97,490.000$, $Z=-4.096$, $p<0.001$), life satisfaction ($U=100,273.500$, $Z=-4.096$, $p<0.001$), and flourishing ($U=97,490.000$, $Z=-4.096$, $p<0.001$), respectively. 

### Table 3. Descriptives of psychological capital, self-efficacy, hope, resilience, optimism, and self-reported health-related experiences of adults’ representative sample ($n=1001$).

| Subjective health report | Psychological Capital | Self-efficacy | Hope | Resilience | Optimism |
|--------------------------|----------------------|---------------|------|------------|----------|
|                          | Mean | SD  | Mean | SD  | Mean | SD  | Mean | SD  | Mean | SD  |
| Healthy                  | 4.7008 | 0.5082 | 5.0303 | 0.4989 | 4.6970 | 0.5313 | 4.4242 | 0.6026 | 4.6515 | 0.6211 |
| Physical disability      | 3.5779 | 0.8037 | 3.6417 | 1.0207 | 3.1972 | 0.9840 | 3.5626 | 0.8991 | 3.8818 | 0.7044 |
| Mental disability        | 3.6836 | 0.8572 | 3.6852 | 1.1679 | 3.3395 | 1.1467 | 3.6852 | 0.9283 | 4.0247 | 0.6516 |
| Cardiovascular diseases  | 3.7664 | 0.7482 | 3.8495 | 0.1057 | 3.4141 | 0.9432 | 3.7438 | 0.8056 | 4.0443 | 0.6825 |
| Autoimmune disorders and allergies | 3.7373 | 0.7424 | 3.8095 | 0.9762 | 3.4179 | 0.9367 | 3.6835 | 0.8470 | 4.0305 | 0.6817 |
| Nervous system disorders | 3.5570 | 0.8030 | 3.5494 | 1.0764 | 3.2062 | 1.0166 | 3.5655 | 0.8759 | 3.9280 | 0.6718 |
| Cancer                   | 3.8793 | 0.8405 | 3.9082 | 1.0458 | 3.5327 | 1.1435 | 3.8100 | 0.8902 | 4.1333 | 0.7053 |
| Vision disorders         | 3.8834 | 0.7724 | 3.9702 | 0.9986 | 3.5924 | 0.9883 | 3.8170 | 0.8924 | 4.1333 | 0.7053 |
| Diabetes                 | 3.8998 | 0.7424 | 3.9284 | 0.9708 | 3.5878 | 0.9673 | 3.8295 | 0.8009 | 4.1489 | 0.6492 |
| Substance abuse          | 3.6528 | 0.9678 | 3.6771 | 1.1872 | 3.2211 | 1.1791 | 3.6735 | 1.0279 | 3.9549 | 0.8641 |
| Hepatitis B or C         | 4.0799 | 0.8175 | 4.1867 | 1.1378 | 3.6533 | 1.1220 | 4.0833 | 0.9402 | 4.2200 | 0.7886 |
| Other                    | 3.8090 | 0.4436 | 3.9028 | 0.7015 | 3.5278 | 0.5633 | 3.7222 | 0.5238 | 4.0833 | 0.5100 |

### Table 4. Mann–Whitney ($U$) test comparisons based on representative sample’s self-reported presence or absence of physical disability.

| Physical disability | N    | Mean rank | Sum of ranks | Mann–Whitney U     | Wilcoxon W  | Z      | p     |
|---------------------|------|-----------|--------------|--------------------|-------------|--------|-------|
| Flourishing         | No   | 853       | 524.35       | 447,270.50         | 38,086.500  | 48,239.500 | −7.095 | 0.000 |
|                     | Yes  | 142       | 339.71       | 48,239.50          |             |         |       |
|                     | Total| 995       |              |                    |             |         |       |
| Life satisfaction   | No   | 854       | 520.30       | 444,333.00         | 42,020.000  | 52,173.000 | −5.871 | 0.000 |
|                     | Yes  | 142       | 367.42       | 52,173.00          |             |         |       |
|                     | Total| 996       |              |                    |             |         |       |
| Negative emotions   | No   | 857       | 489.65       | 419,634.00         | 51,981.000  | 419,634.000 | −2.292 | 0.022 |
|                     | Yes  | 138       | 549.83       | 75,876.00          |             |         |       |
|                     | Total| 995       |              |                    |             |         |       |
| Positive emotions   | No   | 853       | 519.43       | 443,076.00         | 38,016.000  | 47,469.000 | −6.606 | 0.000 |
|                     | Yes  | 137       | 346.49       | 47,469.00          |             |         |       |
|                     | Total| 990       |              |                    |             |         |       |
| PsyCap              | No   | 838       | 515.00       | 431,567.00         | 36,456.000  | 46,186.000 | −7.072 | 0.000 |
|                     | Yes  | 139       | 332.27       | 46,186.00          |             |         |       |
|                     | Total| 977       |              |                    |             |         |       |
| Self-efficacy       | No   | 849       | 517.12       | 439,032.00         | 40,653.000  | 50,523.000 | −6.010 | 0.000 |
|                     | Yes  | 140       | 360.88       | 50,523.00          |             |         |       |
|                     | Total| 989       |              |                    |             |         |       |
| Hope                | No   | 853       | 526.75       | 449,316.00         | 36,041.000  | 46,194.000 | −7.746 | 0.000 |
|                     | Yes  | 142       | 325.31       | 46,194.00          |             |         |       |
|                     | Total| 995       |              |                    |             |         |       |
| Resilience          | No   | 854       | 520.68       | 444,664.00         | 40,835.000  | 50,846.000 | −6.142 | 0.000 |
|                     | Yes  | 141       | 360.61       | 50,846.00          |             |         |       |
|                     | Total| 995       |              |                    |             |         |       |
| Optimism            | No   | 855       | 519.82       | 444,442.00         | 42,053.000  | 52,064.000 | −5.777 | 0.000 |
|                     | Yes  | 141       | 369.25       | 52,064.00          |             |         |       |
|                     | Total| 996       |              |                    |             |         |       |
Z = −3.443, p = 0.001), positive emotions (U = 96,652,500, Z = −4.023, p < 0.001), psychological capital (U = 91,491,000, Z = −4.618, p < 0.001), self-efficacy (U = 97,260,500, Z = −3.914, p < 0.001), hope (U = 91,179,000, Z = −5.466, p < 0.001) and resilience (U = 94,838,500, Z = −4.630, p < 0.001) than those who reported vision disorders (Table 9).

Furthermore, Mann–Whitney U test showed that adult respondents who reported absence of diabetes demonstrated significantly higher mean rank scores for flourishing (U = 46,541,500, Z = −3.282, p = 0.001), life satisfaction (U = 49,663,500, Z = −2.282, p = 0.022), psychological capital (U = 46,882,000, Z = −2.277, p = 0.023), self-efficacy (U = 47,526,000, Z = −2.519, p = 0.012), hope (U = 47,727,000, Z = −2.897, p = 0.004) and resilience (U = 49,278,000, Z = −2.279, p = 0.023) than those who reported diabetes (Table 10).

Moreover, Mann–Whitney U test indicated that adult respondents who reported absence of substance abuse demonstrated significantly higher mean rank scores for flourishing (U = 15,956,500, Z = −3.684, p < 0.001), life satisfaction (U = 15,687,000, Z = −3.831, p < 0.001), positive emotions (U = 14,811,500, Z = −3.861, p < 0.001), psychological capital (U = 16,353,000, Z = −3.118, p = 0.002), self-efficacy (U = 16,951,500, Z = −2.924, p = 0.003), hope (U = 15,945,500, Z = −3.692, p < 0.001), resilience (U = 17,993,500, Z = −2.649, p = 0.008) and optimism (U = 17,876,500, Z = −2.515, p = 0.012) than those who reported substance abuse (Table 11).

Surprisingly, the Mann–Whitney U test indicated no significant differences in flourishing, life satisfaction, positive or negative emotions, psychological capital, self-efficacy, hope, resilience, and optimism in adult respondents who reported cancer or absence of cancer. Similarly, the Mann–Whitney U test indicated no significant differences in these variables between groups of respondents who reported viral infection like Hepatitis B or C, or the absence of viral infection.

Thus our research has not confirmed the assumption that any illness experience diminishes the psychological capital or psychological wellbeing of adults. Based on the results of a representative sample, we assumed that the number of illnesses in the adult population might contribute to diminished psychological capital and psychological wellbeing.

### Table 5. Mann–Whitney (U) test comparisons based on representative sample’s self-reported presence or absence of mental disability.

| Mental disability | N  | Mean rank | Sum of ranks | Mann–Whitney U | Wilcoxon W | Z     | p     |
|-------------------|----|-----------|--------------|----------------|------------|-------|-------|
| Flourishing       | No | 967       | 501.57       | 485,018.00     | 9119.000   | 0.007 |
|                   | Yes| 27        | 351.74       |                | 9497.00    | −2.677| 0.029 |
|                   | Total| 994     |              |                |            |       |       |
| Life satisfaction | No | 968       | 501.32       | 485,276.00     | 9856.000   | 0.002 |
|                   | Yes| 27        | 379.04       |                | 10,234.00  | −2.183| 0.031 |
|                   | Total| 995     |              |                |            |       |       |
| Negative emotions | No | 967       | 495.99       | 479,618.50     | 11,590.500 | 0.001 |
|                   | Yes| 27        | 551.72       |                | 14,896.50  | −2.342| 0.019 |
|                   | Total| 994     |              |                |            |       |       |
| Positive emotions | No | 962       | 498.55       | 479,601.00     | 9576.000   | 0.001 |
|                   | Yes| 27        | 368.67       |                | 9954.00    | −2.342| 0.019 |
|                   | Total| 989     |              |                |            |       |       |
| PsyCap            | No | 949       | 491.93       | 466,839.00     | 9559.000   | 0.002 |
|                   | Yes| 27        | 368.04       |                | 9937.00    | −2.252| 0.024 |
|                   | Total| 976     |              |                |            |       |       |
| Self-efficacy     | No | 961       | 497.42       | 478,016.00     | 10,172.000 | 0.001 |
|                   | Yes| 27        | 390.74       |                | 10,550.00  | −1.920| 0.055 |
|                   | Total| 988     |              |                |            |       |       |
| Hope              | No | 967       | 500.85       | 484,320.50     | 9816.500   | 0.001 |
|                   | Yes| 27        | 377.57       |                | 10,194.50  | −2.204| 0.028 |
|                   | Total| 994     |              |                |            |       |       |
| Resilience        | No | 967       | 500.57       | 484,053.00     | 10,084.000 | 0.001 |
|                   | Yes| 27        | 387.48       |                | 10,462.00  | −2.024| 0.043 |
|                   | Total| 994     |              |                |            |       |       |
| Optimism          | No | 968       | 500.73       | 484,706.50     | 10,425.500 | 0.001 |
|                   | Yes| 27        | 400.13       |                | 10,803.50  | −1.800| 0.072 |
As the data were distributed not normally, we conducted a square root transformation of right-skewed variables to create normally distributed variables. Then we created a model on associations between the number of reported diseases, psychological capital, and wellbeing in the representative sample of adults.

To assess the model fit, we applied the Comparative Fit Index (CFI), the Normed Fit Index (NFI), the Tucker–Lewis coefficient (TLI), and the Root Mean Square Error of Approximation (RMSEA). The values higher than .90 for CFI, NFI, TLI and values lower than .08 for RMSEA are indicative of an acceptable fit. Findings revealed that the fit of the model was good, \( \chi^2 = 110.786, \) \( df = 16; \) CFI = .981; RMSEA = .077; NFI = .978; TLI = .968; \( p = 0.000. \) Significant results are reported in Figure 1.

The model indicates that a higher number of diseases (per person) predicts a weakening effect on psychological capital, while psychological capital predicts psychological wellbeing. To the point, to achieve an acceptable fit of the model, we have excluded a variable of negative emotions even though there was a significant negative association with the latent variable of wellbeing (\( r = −0.48, p < 0.001). \)

### Table 6. Mann–Whitney (U) test comparisons based on representative sample’s self-reported presence or absence of cardiovascular diseases.

| Cardiovascular diseases | N  | Mean rank | Sum of ranks | Mann–Whitney U | Wilcoxon W | Z    | p    |
|-------------------------|----|-----------|--------------|----------------|------------|------|------|
| Flourishing             |    |           |              |                |            |      |      |
| No                      | 673| 535.72    | 360,537.00   | 82,970.000     | 134,973.000| −5.990| 0.000|
| Yes                     | 322| 419.17    | 134,973.00   |                |            |      |      |
| Total                   | 995|           |              |                |            |      |      |
| Life satisfaction       |    |           |              |                |            |      |      |
| No                      | 675| 525.93    | 355,004.00   | 89,821.000     | 141,502.000| −4.369| 0.000|
| Yes                     | 321| 440.82    | 141,502.00   |                |            |      |      |
| Total                   | 996|           |              |                |            |      |      |
| Negative emotions       |    |           |              |                |            |      |      |
| No                      | 676| 475.26    | 321,279.00   | 92,453.000     | 321,279.000| −3.648| 0.000|
| Yes                     | 319| 546.18    | 174,231.00   |                |            |      |      |
| Total                   | 995|           |              |                |            |      |      |
| Positive emotions       |    |           |              |                |            |      |      |
| No                      | 672| 540.94    | 363,514.50   | 76,309.500     | 127,030.500| −7.307| 0.000|
| Yes                     | 318| 399.47    | 127,030.50   |                |            |      |      |
| Total                   | 990|           |              |                |            |      |      |
| PsyCap                  |    |           |              |                |            |      |      |
| No                      | 661| 537.48    | 355,273.50   | 72,393.500     | 122,479.500| −7.768| 0.000|
| Yes                     | 316| 387.59    | 122,479.50   |                |            |      |      |
| Total                   | 977|           |              |                |            |      |      |
| Self-efficacy           |    |           |              |                |            |      |      |
| No                      | 670| 532.33    | 356,660.00   | 81,855.000     | 132,895.000| −5.970| 0.000|
| Yes                     | 319| 416.60    | 132,895.00   |                |            |      |      |
| Total                   | 989|           |              |                |            |      |      |
| Hope                    |    |           |              |                |            |      |      |
| No                      | 673| 554.30    | 373,045.50   | 70,461.500     | 122,464.500| −8.948| 0.000|
| Yes                     | 322| 380.32    | 122,464.50   |                |            |      |      |
| Total                   | 995|           |              |                |            |      |      |
| Resilience              |    |           |              |                |            |      |      |
| No                      | 675| 537.79    | 363,008.00   | 81,142.000     | 132,502.000| −6.358| 0.000|
| Yes                     | 320| 414.07    | 132,502.00   |                |            |      |      |
| Total                   | 995|           |              |                |            |      |      |
| Optimism                |    |           |              |                |            |      |      |
| No                      | 676| 529.56    | 357,983.50   | 87,162.500     | 138,522.500| −4.968| 0.000|
| Yes                     | 320| 432.88    | 138,522.50   |                |            |      |      |
| Total                   | 996|           |              |                |            |      |      |

**Discussion**

The current study aimed to examine adults’ self-reported health and its associations with psychological flourishing, life satisfaction, positive and negative emotions, psychological capital, self-efficacy, hope, resilience, and optimism.

Based on the literature, we have chosen to investigate a sample of adults, and we assumed that any illness experience diminishes psychological wellbeing as psychological wellbeing is related to health (Boehm and Kubzansky, 2012; Cimpean and David, 2019; Costanzo et al., 2009; Di Giuseppe et al., 2019; Fredrickson, 2000; Gick, 2011; Lai and Ma, 2016; Levin, 2013; Ma and Lai, 2018; Mittag et al., 2016; Roysamb et al., 2003; Schöllgen et al., 2016; Sibulwa et al., 2019; Staudinger et al., 1999; Wiest et al., 2011).

Moreover, as psychological wellbeing relates to psychological capital, we presumed that illness experience also diminishes the psychological capital of adults or adolescents. We have also hypothesized that the number of illnesses might contribute to reduced psychological capital and psychological wellbeing: the more illnesses people have, the slighter their psychological capital and wellbeing is.
We analyzed differences in self-reported psychological flourishing, life satisfaction, negative emotions, positive emotions, psychological capital, self-efficacy, hope, resilience, and optimism when comparing the groups of adults based on self-reported health as prior research has documented possible associations (Hall et al., 2010; Hilton and Johnston, 2017; Staudinger et al., 1999; Van Dick et al., 2017).

Results showed that adult respondents who reported the absence of physical disability demonstrated significantly lower scores for negative emotions and significantly higher scores for flourishing, life satisfaction, positive emotions, psychological capital, self-efficacy, hope, resilience, and optimism than those who reported experience of physical disability. Our research modestly complements the findings of other authors on cognitive and affective facets of well-being (Wiest et al., 2011).

Moreover, this research has revealed that adult respondents who reported absence of cardiovascular diseases demonstrated significantly lower scores for negative emotions and significantly higher scores for flourishing, life satisfaction, positive emotions, psychological capital, self-efficacy, hope, resilience, and optimism than those who reported cardiovascular diseases which is in line with many other findings (Besharat et al., 2018; Boehm and Kubzansky, 2012; Gaitan-Sierra and Hyland, 2011; Hall et al., 2010; Mittag et al., 2016).

In addition, this study showed that adult respondents who reported absence of autoimmune diseases demonstrated significantly lower scores for negative emotions and significantly higher scores for flourishing, life satisfaction, positive emotions, psychological capital, self-efficacy, hope, resilience, and optimism than those who reported experience of mental disability. These findings are in line with other findings that demonstrate the relationship between psychological wellbeing and mental health; moreover, some researchers have found that people with better mental health displayed a lower likelihood of engagement in unhealthy behaviors (Ma and Lai, 2018).

### Table 7. Mann–Whitney (U) test comparisons based on representative sample’s self-reported presence or absence of autoimmune diseases, allergies.

| Autoimmune diseases, allergies | N   | Mean rank | Sum of ranks | Mann–Whitney U | Wilcoxon W | Z     | p    |
|-------------------------------|-----|-----------|--------------|----------------|------------|-------|------|
| Flourishing                   |     |           |              |                |            |       |      |
| No                            | 795 | 521.47    | 414,569.00   | 60,046.000     | 79,946.000 | −5.266| 0.000|
| Yes                           | 199 | 401.74    | 79,946.00    |                |            |       |      |
| Total                         | 994 |           |              |                |            |       |      |
| Life satisfaction             |     |           |              |                |            |       |      |
| No                            | 796 | 518.90    | 413,047.00   | 62,563.000     | 82,463.000 | −4.594| 0.000|
| Yes                           | 199 | 414.39    | 82,463.00    |                |            |       |      |
| Total                         | 995 |           |              |                |            |       |      |
| Negative emotions             |     |           |              |                |            |       |      |
| No                            | 796 | 481.48    | 383,255.00   | 66,049.000     | 383,255.000 | −3.543| 0.000|
| Yes                           | 198 | 561.92    | 111,260.00   |                |            |       |      |
| Total                         | 994 |           |              |                |            |       |      |
| Positive emotions             |     |           |              |                |            |       |      |
| No                            | 791 | 519.06    | 410,577.00   | 59,277.000     | 78,978.000 | −5.322| 0.000|
| Yes                           | 198 | 398.88    | 78,978.00    |                |            |       |      |
| Total                         | 989 |           |              |                |            |       |      |
| PsyCap                        |     |           |              |                |            |       |      |
| No                            | 782 | 515.87    | 403,410.00   | 54,451.000     | 73,366.000 | −6.091| 0.000|
| Yes                           | 194 | 378.18    | 73,366.00    |                |            |       |      |
| Total                         | 976 |           |              |                |            |       |      |
| Self-efficacy                 |     |           |              |                |            |       |      |
| No                            | 792 | 517.23    | 409,648.00   | 59,612.000     | 78,918.000 | −5.045| 0.000|
| Yes                           | 196 | 402.64    | 78,918.00    |                |            |       |      |
| Total                         | 988 |           |              |                |            |       |      |
| Hope                          |     |           |              |                |            |       |      |
| No                            | 795 | 526.76    | 418,776.50   | 55,838.500     | 75,738.500 | −6.433| 0.000|
| Yes                           | 199 | 380.60    | 75,738.50    |                |            |       |      |
| Total                         | 994 |           |              |                |            |       |      |
| Resilience                    |     |           |              |                |            |       |      |
| No                            | 796 | 523.24    | 416,499.50   | 58,314.500     | 78,015.500 | −5.681| 0.000|
| Yes                           | 198 | 394.02    | 78,015.50    |                |            |       |      |
| Total                         | 994 |           |              |                |            |       |      |
| Optimism                      |     |           |              |                |            |       |      |
| No                            | 798 | 514.47    | 410,546.50   | 65,460.500     | 84,963.500 | −3.650| 0.000|
| Yes                           | 197 | 431.29    | 84,963.50    |                |            |       |      |
| Total                         | 995 |           |              |                |            |       |      |
autoimmune diseases, allergies. Having in mind some research (Gaitan-Sierra and Hyland, 2011), our findings needs further analysis.

Furthermore, this research revealed that adult respondents who reported the absence of diabetes demonstrated significantly higher scores for flourishing, life satisfaction, psychological capital, self-efficacy, hope, and resilience than those who reported diabetes.

Similarly, this research demonstrated that adult respondents who reported the absence of nervous system diseases demonstrated significantly lower scores for negative emotions and significantly higher scores for flourishing, life satisfaction, positive emotions, psychological capital, self-efficacy, hope, resilience, and optimism than those who reported nervous system diseases.

Likewise, our findings showed that adult respondents who reported the absence of vision disorders demonstrated significantly lower scores for negative emotions and significantly higher scores for flourishing, life satisfaction, positive emotions, psychological capital, self-efficacy, hope, and resilience than those who reported vision disorders.

Moreover, this research indicated that adult respondents who reported the absence of substance abuse demonstrated significantly higher scores for flourishing, life satisfaction, positive emotions, psychological capital, self-efficacy, hope, resilience, and optimism than those who reported substance abuse.

Thus our research is in line with the findings of many authors who analyzed the associations between health, psychological capital, and psychological wellbeing (Avey et al., 2010; Cheung et al., 2011; Efklides & Moraitou, 2013; Fredrickson, 2000; Levin, 2013; O’Brien, 2008; Satici, 2019; Schöllgen et al., 2016; Staudinger et al., 1999; Van Dick et al., 2017; Varas et al., 2019).

Surprisingly, this research indicated no significant differences in flourishing, life satisfaction, positive or negative emotions, psychological capital, self-efficacy, hope, resilience, and optimism in adult respondents who reported viral infection like Hepatitis B or C, or absence of viral infection, and respondents who reported cancer or absence of cancer. Having in mind other findings (Costanzo et al., 2009; Di Giuseppe et al., 2019; Hall et al., 2010; Staudinger et al., 1999), our results need further investigation.

Table 8. Mann–Whitney (U) test comparisons based on representative sample’s self-reported presence or absence of nervous system diseases.

| Nervous system diseases | N | Mean rank | Sum of ranks | Mann–Whitney U | Wilcoxon W | Z | p |
|-------------------------|---|-----------|--------------|----------------|------------|---|---|
| Flourishing             |   |           |              |                |            |   |   |
| No                      | 876 | 522.01 | 457,278.50 | 31,091.500 | 38,231.500 | −7.156 | 0.000 |
| Yes                     | 119 | 321.27 | 38,231.50 |                |            |   |   |
| Total                   | 995 |         |             |                |            |   |   |
| Life satisfaction       |   |           |              |                |            |   |   |
| No                      | 878 | 519.20 | 455,856.50 | 33,628.500 | 40,649.500 | −6.201 | 0.000 |
| Yes                     | 118 | 344.49 | 40,649.50 |                |            |   |   |
| Total                   | 996 |         |             |                |            |   |   |
| Negative emotions       |   |           |              |                |            |   |   |
| No                      | 877 | 485.35 | 425,648.00 | 40,645.000 | 425,648.000 | −3.803 | 0.000 |
| Yes                     | 118 | 592.05 | 69,862.00 |                |            |   |   |
| Total                   | 995 |         |             |                |            |   |   |
| Positive emotions       |   |           |              |                |            |   |   |
| No                      | 873 | 511.88 | 446,869.00 | 36,773.000 | 43,676.000 | −4.948 | 0.000 |
| Yes                     | 117 | 373.30 | 43,676.00 |                |            |   |   |
| Total                   | 990 |         |             |                |            |   |   |
| PsyCap                  |   |           |              |                |            |   |   |
| No                      | 863 | 511.25 | 441,208.50 | 29,989.500 | 36,544.500 | −6.782 | 0.000 |
| Yes                     | 114 | 320.57 | 36,544.50 |                |            |   |   |
| Total                   | 977 |         |             |                |            |   |   |
| Self-efficacy           |   |           |              |                |            |   |   |
| No                      | 871 | 516.25 | 449,655.50 | 32,878.500 | 39,899.500 | −6.371 | 0.000 |
| Yes                     | 118 | 338.13 | 39,899.50 |                |            |   |   |
| Total                   | 989 |         |             |                |            |   |   |
| Hope                    |   |           |              |                |            |   |   |
| No                      | 877 | 520.68 | 456,633.50 | 31,855.500 | 38,876.500 | −6.796 | 0.000 |
| Yes                     | 118 | 329.46 | 38,876.50 |                |            |   |   |
| Total                   | 995 |         |             |                |            |   |   |
| Resilience              |   |           |              |                |            |   |   |
| No                      | 878 | 516.71 | 453,672.50 | 34,934.500 | 41,837.500 | −5.640 | 0.000 |
| Yes                     | 117 | 357.59 | 41,837.50 |                |            |   |   |
| Total                   | 995 |         |             |                |            |   |   |
| Optimism                |   |           |              |                |            |   |   |
| No                      | 878 | 513.40 | 450,767.00 | 38,718.000 | 45,739.000 | −4.474 | 0.000 |
| Yes                     | 118 | 387.62 | 45,739.00 |                |            |   |   |
| Total                   | 996 |         |             |                |            |   |   |
Our research has not confirmed the assumption that any illness experience diminishes the psychological wellbeing or psychological capital of adults. Based on the results of the representative sample, we have also assumed that the number of illnesses in the adult population might contribute to diminished psychological capital and psychological wellbeing.

Our model on associations between the number of reported diseases, psychological capital, and wellbeing in the representative sample of adults indicates that a higher number of diseases (per person) predicts a weakening effect on psychological capital, while psychological capital predicts psychological wellbeing.

The results obtained can be related to the previous theoretical knowledge and most research findings, which point to the existence of a relation between subjective health and psychological wellbeing (Hilton and Johnston, 2017; Marsh et al., 2019; Tappolet and Rossi, 2015).

Moreover, our results modestly, but accurately identifies differences in psychological flourishing, life satisfaction, positive and negative emotions, psychological capital, self-efficacy, hope, resilience, and optimism in different subjective health groups of adults. The findings can be related to the previous theoretical findings and most research findings suggesting a relationship between specific dimensions of health, psychological capital, and psychological wellbeing (Baldwin et al., 2017; Breland et al., 2020; Cheung et al., 2011; Cimpean and David, 2019; Gaitan-Sierra and Hyland, 2011; Hall et al., 2010; Judge et al., 2010; Lai and Ma, 2016; Lennefer et al., 2019; Levin, 2013; O’Brien, 2008; Roysamb et al., 2003; Ryff et al., 2015; Ueno et al., 2020).

For the last decade, many authors have been contributing to solid theoretical foundations on health psychology. Our research has also contributed to research on flourishing, life satisfaction, positive and negative emotions, psychological capital, self-efficacy, hope, resilience, and optimism in different subjective health conditions. However, our research’s contribution to health-related variables is exceptionally modest in comparison to the studies listed above, to name a few.

As many researchers focus on health-related interventions (Baldwin et al., 2017; Fredrickson, 2000; Gick, 2011; Hilton and Johnston, 2017; Lai and Ma, 2016; Lennefer

Table 9. Mann–Whitney (U) test comparisons based on representative sample’s self-reported presence or absence of vision disorders.

| Vision disorders       | N  | Mean rank | Sum of ranks | Mann–Whitney U | Wilcoxon W | Z     | p      |
|-----------------------|----|-----------|--------------|----------------|------------|-------|--------|
| Flourishing           | No | 622       | 525.76       | 327,025.00     | 97,490.000 | 166,496.000 | −4.096 | .000   |
|                       | Yes| 371       | 448.78       | 166,496.00     |            |       |        |
|                       | Total| 993 |              |              |            |       |        |
| Life satisfaction     | No | 625       | 521.56       | 325,976.50     | 100,273.500| 168,538.500 | −3.443 | .001   |
|                       | Yes| 369       | 456.74       | 168,538.50     |            |       |        |
|                       | Total| 994 |              |              |            |       |        |
| Negative emotions     | No | 624       | 477.59       | 298,018.00     | 103,018.000| 298,018.000 | −2.785 | .005   |
|                       | Yes| 369       | 529.82       | 195,503.00     |            |       |        |
|                       | Total| 993 |              |              |            |       |        |
| Positive emotions     | No | 623       | 522.86       | 325,741.50     | 96,652.500 | 163,813.500 | −4.023 | .000   |
|                       | Yes| 366       | 447.58       | 163,813.50     |            |       |        |
|                       | Total| 989 |              |              |            |       |        |
| PsyCap                | No | 619       | 521.87       | 323,040.50     | 97,260.500 | 165,525.500 | −3.914 | .000   |
|                       | Yes| 369       | 448.58       | 165,525.50     |            |       |        |
|                       | Total| 988 |              |              |            |       |        |
| Self-efficacy         | No | 625       | 535.11       | 334,446.00     | 91,179.000 | 159,075.000 | −5.466 | .000   |
|                       | Yes| 368       | 432.27       | 159,075.00     |            |       |        |
|                       | Total| 993 |              |              |            |       |        |
| Hope                  | No | 625       | 529.26       | 330,786.50     | 94,838.500 | 162,734.500 | −4.630 | .000   |
|                       | Yes| 368       | 442.21       | 162,734.50     |            |       |        |
|                       | Total| 993 |              |              |            |       |        |
| Optimism              | No | 626       | 509.07       | 318,680.50     | 107,938.500| 175,834.500 | −1.663 | .096   |
|                       | Yes| 368       | 477.81       | 175,834.50     |            |       |        |
|                       | Total| 994 |              |              |            |       |        |
et al., 2019; Luthans et al., 2006; Ryff et al., 2015; Sibulwa et al., 2019), we hope that our study at least humbly contributed to the understanding of the association between the number of diseases, psychological capital, and psychological wellbeing, and this might have an added value for health intervention planning. We hope that this research provided some empirical evidence to implement health-related PsyCap or similar interventions on a large scale as strong self-efficacy, hope and resilience proved to be beneficial for the health of people of different ages (Fredrickson, 2000; Luthans et al., 2006; Marsh et al., 2019; Ueno et al., 2020; Van Dick et al., 2017; Varas et al., 2019).

Conclusions

This paper presents some selected data from a broader survey on the wellbeing of Lithuanian adults. We considered that it is essential to investigate the relationship between psychological wellbeing, psychological capital, and diseases because of the issues regarding health prevention and health education.

The purpose of our research was to compare psychological wellbeing (life satisfaction, flourishing, negative emotions, and positive emotions) and psychological capital (self-efficacy, hope, resilience, optimism) in groups of subjectively healthy and unhealthy individuals.

In this paper, we have analyzed the results of a representative sample of adults (n=1001). We assumed that self-reported illness is associated with diminished psychological wellbeing in individuals who have suffered the illness in the past even though they are living an active life at present.

The survey has revealed that, in general, self-reported illness and the number of diseases is associated with diminished psychological capital and psychological wellbeing in the Lithuanian adults’ population. The findings were confirmed by the results of Mann–Whitney (U) analysis, confirmatory factor analysis, and structural equation modeling.

Results showed that adult respondents who reported the absence of physical or mental disability, cardiovascular diseases, nervous system diseases, diabetes, autoimmune diseases, vision disorders, and substance abuse demonstrated significantly higher scores for flourishing, life satisfaction, psychological capital, self-efficacy, hope, and resilience.

Surprisingly, this research indicated no significant differences in flourishing, life satisfaction, positive or negative emotions, psychological capital, self-efficacy, hope, resilience, and

Table 10. Mann–Whitney (U) test comparisons based on representative sample’s self-reported presence or absence of diabetes.

|                  | Diabetes | N   | Mean rank | Sum of ranks | Mann–Whitney U | Wilcoxon W | Z   | p    |
|------------------|----------|-----|-----------|--------------|----------------|-------------|-----|------|
| Flourishing      | No       | 864 | 509.63    | 440,322.50   | 46,541.500     | 55,187.500  | −3.282 | 0.001 |
|                  | Yes      | 131 | 421.28    | 55,187.50    |                |             |      |      |
|                  | Total    | 995 |           |              | 55,187.500     |            |      |      |
| Life satisfaction| No       | 865 | 506.59    | 438,196.50   | 49,663.500     | 58,309.500  | −2.282 | 0.022 |
|                  | Yes      | 131 | 445.11    | 58,309.50    |                |             |      |      |
|                  | Total    | 996 |           |              | 58,309.500     |            |      |      |
| Negative         | No       | 864 | 495.76    | 428,336.50   | 54,656.500     | 428,336.500 | −0.634 | 0.526 |
| emotions         | Yes      | 131 | 512.77    | 67,173.50    |                |             |      |      |
|                  | Total    | 995 |           |              | 67,173.50      |            |      |      |
| Positive         | No       | 860 | 501.33    | 431,141.00   | 50,889.000     | 59,404.000  | −1.658 | 0.097 |
| emotions         | Yes      | 130 | 456.95    | 59,404.00    |                |             |      |      |
|                  | Total    | 990 |           |              | 59,404.00      |            |      |      |
| PsyCap           | No       | 851 | 496.91    | 422,870.00   | 46,882.000     | 54,883.000  | −2.277 | 0.023 |
|                  | Yes      | 126 | 435.58    | 54,883.00    |                |             |      |      |
|                  | Total    | 977 |           |              | 54,883.00      |            |      |      |
| Self-efficacy    | No       | 861 | 503.80    | 433,773.00   | 47,526.000     | 55,782.000  | −2.519 | 0.012 |
|                  | Yes      | 128 | 435.80    | 55,782.00    |                |             |      |      |
|                  | Total    | 989 |           |              | 55,782.00      |            |      |      |
| Hope             | No       | 864 | 508.26    | 439,137.00   | 47,727.000     | 56,373.000  | −2.897 | 0.004 |
|                  | Yes      | 131 | 430.33    | 56,373.00    |                |             |      |      |
|                  | Total    | 995 |           |              | 56,373.00      |            |      |      |
| Resilience       | No       | 865 | 506.03    | 437,717.00   | 49,278.000     | 57,793.000  | −2.279 | 0.023 |
|                  | Yes      | 130 | 444.56    | 57,793.00    |                |             |      |      |
|                  | Total    | 995 |           |              | 57,793.00      |            |      |      |
| Optimism         | No       | 865 | 502.11    | 434,328.50   | 53,531.500     | 62,177.500  | −1.022 | 0.307 |
|                  | Yes      | 131 | 474.64    | 62,177.50    |                |             |      |      |
|                  | Total    | 996 |           |              | 62,177.50      |            |      |      |
optimism in adult respondents who reported cancer or absence of cancer. Likewise, there were no significant differences between the groups of respondents who reported viral infection like Hepatitis B or C or the absence of viral infection, and these findings need further investigation.

Our model on associations between the number of reported diseases, psychological capital, and wellbeing in the representative sample of adults indicates that a higher number of diseases (per person) predicts a weakening effect on psychological capital, while psychological capital predicts psychological wellbeing. Our research modestly contributed to the previous research in the field. This research implies that there is an association between the number of diseases, psychological capital, and psychological wellbeing, even though our findings need further investigation. We hope that this research provided some empirical evidence to implement health-related PsyCap or similar interventions on a large scale.

**Limitations and future directions**

The current study aimed to examine adults’ self-reported health and its associations with psychological flourishing, life satisfaction, positive and negative emotions, and psychological capital (self-efficacy, hope, resilience, and optimism).

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**Table 11.** Mann–Whitney (U) test comparisons based on representative sample’s self-reported presence or absence of substance abuse.

| Substance abuse | N   | Mean rank | Sum of ranks | Mann–Whitney U | Wilcoxon W | Z    | p   |
|-----------------|-----|-----------|--------------|---------------|------------|------|-----|
| Flavouring      | No  | 946       | 505.63       | 478,328.50    | 15,956.50  | 17,181.50 | -3.684 | 0.000 |
|                 | Yes | 49        | 350.64       | 17,181.50     | 17,181.50  | -3.684 | 0.000 |
| Total           |     | 995       |              |               |            |       |      |
| Life satisfaction | No | 947 | 506.44  | 479,594.00    | 15,687.00  | 16,912.00 | -3.831 | 0.000 |
|                  | Yes | 49 | 345.14   | 16,912.00     | 16,912.00  | -3.831 | 0.000 |
| Total           |     | 996       |              |               |            |       |      |
| Negative emotions | No | 947 | 494.48  | 468,270.00    | 19,392.00  | 468,270.00 | -1.725 | 0.085 |
|                 | Yes | 48 | 567.50   | 27,240.00     | 27,240.00  | -1.725 | 0.085 |
| Total           |     | 995       |              |               |            |       |      |
| Positive emotions | No | 943 | 503.29  | 474,605.50    | 14,811.50  | 15,939.50 | -3.861 | 0.000 |
|                  | Yes | 47 | 339.14   | 15,939.50     | 15,939.50  | -3.861 | 0.000 |
| Total           |     | 990       |              |               |            |       |      |
| PsyCap          | No  | 929       | 495.40       | 460,224.00    | 16,353.00  | 17,529.00 | -3.118 | 0.002 |
|                 | Yes | 48 | 365.19   | 17,529.00     | 17,529.00  | -3.118 | 0.002 |
| Total           |     | 977       |              |               |            |       |      |
| Self-efficacy   | No  | 941       | 500.99       | 471,427.50    | 16,951.50  | 18,127.50 | -2.924 | 0.003 |
|                 | Yes | 48 | 377.66   | 18,127.50     | 18,127.50  | -2.924 | 0.003 |
| Total           |     | 989       |              |               |            |       |      |
| Hope            | No  | 946       | 505.64       | 478,339.50    | 15,945.50  | 17,170.50 | -3.692 | 0.000 |
|                 | Yes | 49 | 350.42   | 17,170.50     | 17,170.50  | -3.692 | 0.000 |
| Total           |     | 995       |              |               |            |       |      |
| Resilience      | No  | 946       | 503.48       | 476,291.50    | 17,993.50  | 19,218.50 | -2.649 | 0.008 |
|                 | Yes | 49 | 392.21   | 19,218.50     | 19,218.50  | -2.649 | 0.008 |
| Total           |     | 995       |              |               |            |       |      |
| Optimism        | No  | 948       | 503.64       | 477,453.50    | 17,876.50  | 19,052.50 | -2.515 | 0.012 |
|                 | Yes | 48 | 396.93   | 19,052.50     | 19,052.50  | -2.515 | 0.012 |
| Total           |     | 996       |              |               |            |       |      |

**Figure 1.** Standardized results of the model on associations between the number of reported diseases, psychological capital, and wellbeing in the representative sample of adults (n = 1001). \( \chi^2 = 110.786; \text{DF} = 16; \text{RMSEA} = 0.077; \text{CFI} = 0.981; \text{NFI} = 0.978; \text{TLI} = 0.968; p = 0.000. \)
The limitation of the current study firstly consists of its locality because the study was conducted in Lithuania, and the results might reflect the cultural and socio-economic peculiarities of this area. Thus, it would be advantageous to organize larger appraisals and cultural comparisons to evaluate the significance of health/illness on national happiness, similarly to the studies on the significance of income.

Furthermore, the information on illnesses was self-reported and not checked in a clinical report. Therefore, it would be essential to compare information on subjective and objective health status and evaluate psychological capital and wellbeing by objective health-illness groups.

Moreover, based on the data obtained, it is possible to conclude only the existence of significant relationships among the examined variables. This research implies that there is an association between the number of diseases, psychological capital, and psychological wellbeing, even though our findings need further investigation. One of the implications for future research is creating an experimental or longitudinal design to test whether psychological capital interventions can significantly contribute to the increased psychological wellbeing of people suffering from various illnesses.

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References

Avey JB, Luthans F, Smith RM, et al. (2010). Impact of positive psychological capital on employee wellbeing over time. Journal of Occupational Health Psychology 15(1): 17–28.
Baldwin DR, Towler K, Oliver MD, et al. (2017) An examination of college student wellness: A research and liberal arts perspective. Health Psychology Open 4: 2.
Besharat MA, Ramesh S and Moghimi E (2018) Spiritual health mediates the relationship between ego-strength and adjustment to heart disease. Health Psychology Open 5(1): 205510291878217.
Boehm JK and Kubzansky LD (2012) The heart’s content: The association between positive psychological wellbeing and cardiovascular health. Psychological Bulletin 138(4): 655–691.
Boehm JK, Peterson C, Kivimaki M, et al. (2011) A prospective study of positive psychological wellbeing and coronary heart disease. Health Psychology 30(3): 259.

Breland JY, Wong JJ and McAndrew LM (2020) Are common sense model constructs and self-efficacy simultaneously correlated with self-management behaviors and health outcomes: A systematic review. Health Psychology Open, 7(1): 205510291989884.
Cheung F, Tang CS and Tang S (2011) Psychological capital as a moderator between emotional labor, burnout, and job satisfaction among school teachers in China. International Journal of Stress Management 18(4): 348–371.
Cimpean A and David D (2019) The mechanisms of pain tolerance and pain-related anxiety in acute pain. Health Psychology Open, 6(2): 2055102919865161.
Costanzo ES, Ryff CD and Singer BH (2009) Psychosocial adjustment among cancer survivors: Findings from a national survey of health and well-being. Health Psychology 28(2): 147–156.
Di Giuseppe M, Di Silvestre A, Lo Sterzo R, et al. (2019) Qualitative and quantitative analysis of the defensive profile in breast cancer women: A pilot study. Health Psychology Open 6(1): 2055102919854667.
Diener E and Seligman MEP (2004) Beyond money: Toward an economy of well-being. Psychological Science in the Public Interest 5: 1–31.
Diener E, Emmons RA, Larsen RJ, et al. (1985) The satisfaction with life scale. Journal of Personality Assessment 49: 71–75.
Diener E, Wirtz D, Tov W, et al. (2009). New measures of well-being: Flourishing and positive and negative feelings. Social Indicators Research 39: 247–266.
Elklides A and Moraitou D (2013) A Positive Psychology Perspective on Quality of Life. Cham, Switzerland: Springer.
Fischer R and Boer D (2011) What is more important for national well-being: Money or autonomy? A meta-analysis of well-being, burnout, and anxiety across 63 societies. Journal of Personality and Social Psychology 101(1): 164–184.
Fredrickson BL (2000) Cultivating positive emotions to optimize health and well-being. Prevention & Treatment 3: 1–25.
Gaitan-Sierra C and Hyland ME (2011) Nonspecific mechanisms that enhance well-being in health-promoting behaviors. Health Psychology 30(6): 793–796.
GBD 2017 Disease and Injury Incidence and Prevalence Collaborators (2018) Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: A systematic analysis for the Global Burden of Disease Study 2017. London: The Lancet.
Gick ML (2011) Singing, health and wellbeing: A health psychologist’s review. Psychomusicology: Music, Mind and Brain 21(1–2): 176–207.
Giltay EJ, Geleijnse JM, Zitman FG, et al. (2004). Dispositional optimism and all-cause and cardiovascular mortality in a prospective cohort of elderly Dutch men and women. Archives of General Psychiatry 61(11): 1126–1135.
Hall NC, Chipperfield JG, Heckhausen J, et al. (2010). Control striving in older adults with serious health problems: A 9-year longitudinal study of survival, health, and wellbeing. Psychology and Aging 25(2), 432–445.
Harms PD, Vanhove A and Luthans F (2017) Positive projections and health: An initial validation of the implicit psychological capital health measure. Applied Psychology 66(1): 78–102.
Hilton CE and Johnston LH (2017) Health psychology: It’s not what you do, it’s the way that you do it. *Health Psychology Open* 4: 2.

Inglehart R (1997) *Modernization and Postmodernization: Cultural, Economic, and Political Change in 43 Societies*. Princeton, NJ: Princeton University Press.

Judge TA, Ilies R and Dimotakis N (2010) Are health and happiness the product of wisdom? The relationship of general mental ability to educational and occupational attainment, health, and well-being. *Journal of Applied Psychology* 95(3): 454–468.

Knouse LE and Mitchell JT (2015) Incautiously optimistic: Positively valenced cognitive avoidance in adult ADHD. *Cognitive and Behavioral Practice* 22(2): 192–202.

Koopmans TA, Geleijnse JM, Zitman FG, et al. (2010). Effects of modernization and postmodernization: An integrated approach to intervention. *Journal of Personality and Social Psychology* 85(6): 1136–1146.

Ryff CD, Radler BT and Friedman EM (2015) Persistent psychological wellbeing predicts improved self-rated health over 9–10 years: Longitudinal evidence from MIDUS. *Health Psychology Open* 2: 2.

Satici B (2019) Testing a model of subjective well-being: The roles of optimism, psychological vulnerability, and shyness. *Health Psychology Open* 6: 2.

Seligman M (2011) *Flourish: A Visionary New Understanding of Happiness and Well-being*. New York, NY: Free Press.

Sharot T (2011) *The Optimism Bias: A Tour of the Irrationally Positive Brain*. New York, NY: Pantheon Books.

Sibulwa S, Chansa-Kabali T and Hapunda G (2019) “Every part of me has changed”—shared lived experiences of adolescents living with cancer in Zambia. *Health Psychology Open* 6: 1.

Tappolet C and Rossi M (2015) Emotions and wellbeing. *Topoi* 34(2): 461–474.

Tindle HA, Chang Y-F, Kuller LH, et al. (2009) Optimism, cynical hostility, and incident coronary heart disease and mortality in the women’s health initiative. *Circulation* 120(8): 656–662.

Ueno Y, Hirano M and Oshio A (2020) The development of resilience in Japanese adults: A two-wave latent change model. *Health Psychology Open* 7(1): 3–8.

Van Dick R, Ketturat C, Häusser JA, et al. (2017) Two sides of the same coin and two routes for improvement: Integrating resilience and the social identity approach to wellbeing and ill-health. *Health Psychology Open* 4: 2.
Varas EH, Encinas FJL and Suárez MM (2019) Psychological capital, work satisfaction, and health self-perception as predictors of psychological wellbeing in military personnel. *Psicothema* 31(3): 277–283.

Veenhoven R (1993) *Happiness in Nations: Subjective Appreciation of Life in 56 Nations 1946–1992*. Rotterdam, The Netherlands: Erasmus University.

Wiest M, Schüz B, Webster N, et al. (2011) Subjective well-being and mortality revisited: differential effects of cognitive and emotional facets of well-being on mortality. *Health Psychology* 30(6): 728–735.

Youssef-Morgan CM and Luthans F (2015) Psychological capital and wellbeing. *Stress and Health: Journal of the International Society for the Investigation of Stress* 31(3): 180–188