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Araştırma Makalesi – Research Article

Big Data Utilization to Explore Association between Vacation Search on Google and Happiness Index

Büyük Veri Kullanımı: Google'da Tatil Arama ile Mutluluk Endeksi Arasındaki İlişki Üzerine Bir Çalışma

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Abstract: *This research study utilizes multi-source data to examine the relationship between vacation search on Google and the happiness index. Big data regarding vacation searches were extracted from Google Trends and happiness index values were obtained from publicly available sources. States in the USA are the unit of analysis. Regression models were applied as the statistical method. Personal income was employed as a control variable to exclude income level impact on the relationship between the predictor and the outcome variables. The study findings revealed that vacation search on Google is used as a momentary mood alignment tool to escape from daily stress or daily unhappiness, particularly work-related. On a similar note, this study contributes to the research literature by addressing not only vacation itself but also vacation search, which can be interpreted as planning and/or dreaming about a vacation through searching on the Internet (in this study, via Google), can be used as a method by individuals to seek "feeling good". It is suggested that the role of vacation with its stages pre-, during, and after should be highlighted in happiness indexes and quality of life batteries. In this study, the role of the pre-stage of vacation (dreaming and/or planning via search on Google) was examined. Future studies can investigate other stages of vacation in relation to sub-metrics of happiness and quality of life concepts. Future research can also apply survey-based cross-sectional methods to identify true underpinnings and magnitude levels of the relationship among variables of this study.*

Keywords: *Vacation search, Google trends, multi-source data, big data, happiness ındex, quality of life*

Öz: *Bu araştırma çalışmasında Google'da tatil araması ile mutluluk endeksi arasındaki ilişkiyi incelemek için çok kaynaklı verileri kullanılmıştır. Tatil aramalarına ilişkin büyük veriler Google Trends'ten ve mutluluk indeksi değerleri de ikincil data olarak elde edilmiştir. ABD'deki eyaletler analiz kapsamında yer almıştır. İstatistiksel yöntem olarak regresyon modelleri uygulanmıştır. Kişisel gelir, bağımsız ve bağımlı değişkenler arasındaki ilişkide gelir düzeyi etkisini kısıtlamak için kontrol değişkeni olarak kullanılmıştır. Çalışma bulguları Google'da tatil aramanın, özellikle işle ilgili günlük stres veya günlük mutsuzluktan uzaklaşmak için bir başa çıkma aracı olarak kullanıldığını ortaya koymuştur. Bu şekilde, insanların gün içinde modunu yükseltiyi anlaşılmıştır. Bireylerin bunu "iyi hissetme" arayışında bir yöntem olarak*

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kullandıkları görülmüştür. Tatil olgusu 3 asamadan oluşmaktadır: Tatilin öncesi, sırası ve sonrası. Bu yüzden mutluluk ve yaşam kalitesi endekslerinde, bu 3 asamaya dair ayrı ölçümlere yer verilmiştir. Gelecekteki çalışmalar tatilin diğer aşamalarını, mutluluk ve yaşam kalitesi kavramlarının alt metrikleri ile ilgili olarak araştırabilir. Ayrıca bu çalışmanın değişkenleri arasındaki ilişkinin gerçek temellerini ve büyüklük düzeylerini belirlemek için ankete dayalı kesitsel yöntemler de uygulayabilir.

***Anahtar Kelimeler**: Tatil arama, Google trends, çok kaynaklı veriler, büyük veri, mutluluk endeksi, yaşam kalitesi*

Introduction

The significance of vacations to Happiness and Quality of Life (QOL) has drawn the attention of tourism researchers for the last couple of decades (Dolnicar, Yanamandram, & Cliff, 2012). Traveling or vacationing is viewed as a part of the quality of life in developed countries in modern times (Gilbert & Abdullah, 2004). Even though there is a trend of including a vacation in QOL measurement scales, still the majority of QOL scales do not include vacation items explicitly (Dolnicar, Yanamandram, & Cliff, 2012). This lack of inclusion of the vacation domain in QOL scales deserves attention to conduct research in order to examine the relationship between vacation intentions and the quality of life of people further.

In this research study, the States of the United States of America (USA) is taken as the empirical domain. Compared to other countries such as the United Kingdom, France, and Spain, employees in the U.S. receive less paid leave and public holidays. According to the Organization for Economic Co-operation and Development (OECD) reports (see Table 1), workers in the U.S. get two fewer weeks of vacation time than in other developed countries. The report indicates that full-time employees in the United Kingdom receive a total of 37 days of annual leave and public holidays whereas full-time employees in the U.S. have a total of 10 days. This difference makes the U.S. a useful observation research laboratory to inquire about the impacts of vacation time on people in terms of well-being, quality of life, and happiness indexes.

Table 1. Vacation: Paid leave and Public Holidays by Country

Country	Paid leave	Public holidays	Total
United Kingdom	28	9	37
France	25	11	36
Spain	22	14	36
Germany	20	13	33
Chile	15	15	30
South Korea	15	15	30
Australia	20	8	28
Japan	10	15	25
Israel	11	10	21
Canada	10	9	19
Mexico	6	7	13
United States	0	10	10

Source: OECD (reference year: 2016)

The purpose of the current study is to explore the connections between the happiness index and vacation search on google. Therefore, the study investigates the relationship between travel intentions and the happiness index. The study utilizes google trends to identify the travel intentions of people state by state in the U.S. using the keyword “vacation”. The researchers obtain happiness indexes state by state in the U.S. from other publicly available studies.

One of the strong rationales for this study to use Google Trends search regarding vacation and travel as travel or vacation intentions is the results of the study conducted by Phocuswright Inc. (2017). Their research addresses that nine of ten people engage with digital in some form when planning, booking, or experiencing a

trip. This is a reflection of people's search on Google is an important indicator of their intentions to travel (see Table 2).

Table 2. Digital use of U.S. travelers

Use	Percentage	Explanation
Planned	71%	Select a destination online to travel
Shopped	79%	Compared and chose travel products
Booked	83%	Purchased travel products

Source: Phocuswright 2017

The current study aims to present empirical evidence for the association of vacation intentions with a happiness index. There is no study that looks for travel intentions where we can observe the attitudes of people towards vacations on their Google search. This study plans to ascertain whether the activity of search on Google with the keyword "vacation" can show an association with the subjective well-being of people.

The current study includes "either way " as some studies question the impact of vacations and holidays on well-being. Even though Park, Park, and Kang (2018) reported some cross-sectional research suggesting that traveling has certain benefits to individuals' well-being and quality of life, these researchers kept their skeptical position on the benefits of vacation on overall well-being. Park et al. (2018) questioned the longevity of benefits gained from vacations regarding well-being. They thought the benefits of vacations on quality of life are short-lived, in other words, temporary. Park et al. (2018) suggested that longitudinal studies may provide a clearer picture of the relationship between vacation and long-term well-being and happiness. Additionally, Nawjin et al. (2010) found that travelers feel better before the trip but not significantly happier after the trip. In a different study, Nawjin (2011) found that people who took at least one trip in a year were slightly happier than the ones who did not have any vacations. Among all those discussions, the purpose of the study is to contribute to the literature aiming to reveal the relationship between the intention to go on vacation or searching on the Internet for vacation and happiness index metrics.

2. Literature Review

There are a number of domains that may constitute QOL and the literature offers some consistencies on these continuations (Gilbert & Abdullah, 2004). However, current measures of QOL do not intend to include vacations in QOL test batteries (Dolnicar, Yanamandram, & Cliff, 2012). Vacation is a usual component of a modern lifestyle for people who live in developed societies with which they pursue life satisfaction (Rubenstein, 1980). Vacations are only measured in 7% of QOL test batteries explicitly and vacations are included as a subset of leisure in 42% of test batteries (Dolnicar, Yanamandram, & Cliff, 2012). It is not clear if the researchers are not aware of the contribution of vacations on human well-being. On the other hand, some researchers highlight that leisure and vacation represent different types of activities (Dolnicar et al., 2012; Gilbert & Abdullah, 2004; Neal et al., 2007; and Sirgy et al., 2010). While leisure refers to more home-based activities, vacation is used for away-from-home activities. This misuse of terms comes from the fact that the researchers who designed measures of QOL are from other disciplines, not from tourism domain studies. That is why they may waive the differences between vacation and leisure. Regardless of that, the table below displays the frequency of occurrence of Quality of Life domains. Dolnicar et al. (2012) created the table below in order to indicate ignorance of vacation in QOL domains.

Table 3. Domains in Quality of Life (QoL) and Frequencies

Domain	Frequency
Work and material well-being	100%
Health	100%
Family and love	79%
Leisure and recreational experiences	64%
Social life	57%
Education/learning	50%
Neighbourhood/community	36%
Spiritual life	29%
Goals/hopes for the future	21%
Self-esteem/acceptance	14%
Safety	14%
Transport	14%
Standard of living	14%
Vacations (as an independent domain)	7%
Vacations (included in a leisure domain)	42%

Source: Dolnicar, Yanamandram, and Cliff (2012)

Dolnicar et al. (2012) developed a questionnaire for their research where the final product consists of the eight major QOL domains including (i) Family, (ii) Work, (iii) People, (iv) Leisure, (v) Money, (vi) Health, (vii) Vacations, and (viii) Spirituality. The researchers asked respondents to rank them according to how much each domain affects their QOL (1 = most, 8 = least). Their study was a replication and extension research that was built on the existing body of research that has suggested the link between satisfaction with leisure life and satisfaction with life globally (Neal et al., 1999). Their findings were consistent with Gilbert and Abdullah (2004), Neal et al. (2004), and Sirgy et al. (2010) regarding the influence of tourism services/vacations on the quality of life of people.

Moreover, Hobson and Dietrich (1994) found that tourism contributes to the physical and mental health of people they actualize in their leisure time. In addition to that, Sirgyy et al. (2010) studied the positive and negative effects of trip experiences on 13 life domains. Gilbert and Abdullah (2004) also conducted research on vacations and holidays specifically, they suggested that the well-being of vacation takers increases both before and after the vacation. In a different study, De Boom et al. (2012) explored the impact of short vacations on employee health and well-being. The result of the study with partial correlations and regression analyses indicate that health and well-being were improved with short vacations. Employees reported that psychological detachment from work allows them to be more relaxed, and have quality conversations with their partners. This positive impact on health and well-being continued after employees returned home. Researchers explained that taking vacations was helpful temporarily for a short term but did not provide a long-lasting "cure" for the employee's health and well-being.

Beyond all the above discussed, there are a couple of major terms regarding the research content that would be beneficial to offer explanations including happiness and life satisfaction. Happiness has been defined as transitory moods of "gaiety and elation" and what people exactly feel toward their current state of affairs emotion-wise (Campbell, 1976). Bradburn (1969) approached it from an emotional perspective and suggested happiness occurs in the case of positive feelings' outweighing negative feelings. In other words, happiness is an affective mood or state (Bowling 1995, p.112). Life satisfaction, on the other hand, is conceived as the "degree to which an individual judges the overall quality of his/her life-as-a-whole favorably" (Veenhoven 1991, p.10). In other words, how much people are satisfied with their life. This is also a conscious overall judgment of one's life. Fundamentally, there are two aspects in the appraisal of life-as-a-whole: an affective aspect (hedonic level) and a cognitive aspect (contentment). The affective aspect, in other names, hedonic level, is defined as how well

one feels in general. On the other hand, the cognitive aspect, also named as contentment, is associated with achievements people actualize and how those achievements are perceived by them (Diener, 2009).

There are studies conducted in other disciplines rather than tourism in order to explore the impacts of vacations in QOL as well. Card, Cole, and Humphrey (2006) found that the lives of people with a disability are improved with vacations. Sands (1982) suggested that women over 65 improved their intellectual capacity thanks to vacations. Overall, studies indicate that vacations generate positive attitudes toward life in general.

The present study aims to explore intentions towards vacations and holidays on google search and investigate the associations with the happiness index. A vacation search on google could give an explanation about the association between travel intentions and happiness index either way, positive or negative.

Research Question: Is there any association between vacation intentions utilizing google search and the happiness index?

The significance of the study comes from (1) using a control variable "personal income", and (2) utilizing a google search in order to identify vacation intentions. The study, with those characteristics, is anticipated to bring new insights into the discussion on the relationship between vacation and happiness index.

Figure I demonstrates the hypothesized relationships between independent variables and dependent variables in the study while personal income was employed as a control variable.

H1: There is a statistically significant relationship between a vacation search on Google and overall happiness while personal income was employed as a control variable.

H2: There is a statistically significant relationship between vacation search on Google and emotional and psychological well-being while personal income was employed as a control variable.

H3: There is a statistically significant relationship between vacation search on Google and the work environment variable while personal income was employed as a control variable.

H4: There is a statistically significant relationship between vacation search on Google and community and environment variables while personal income was employed as a control variable.

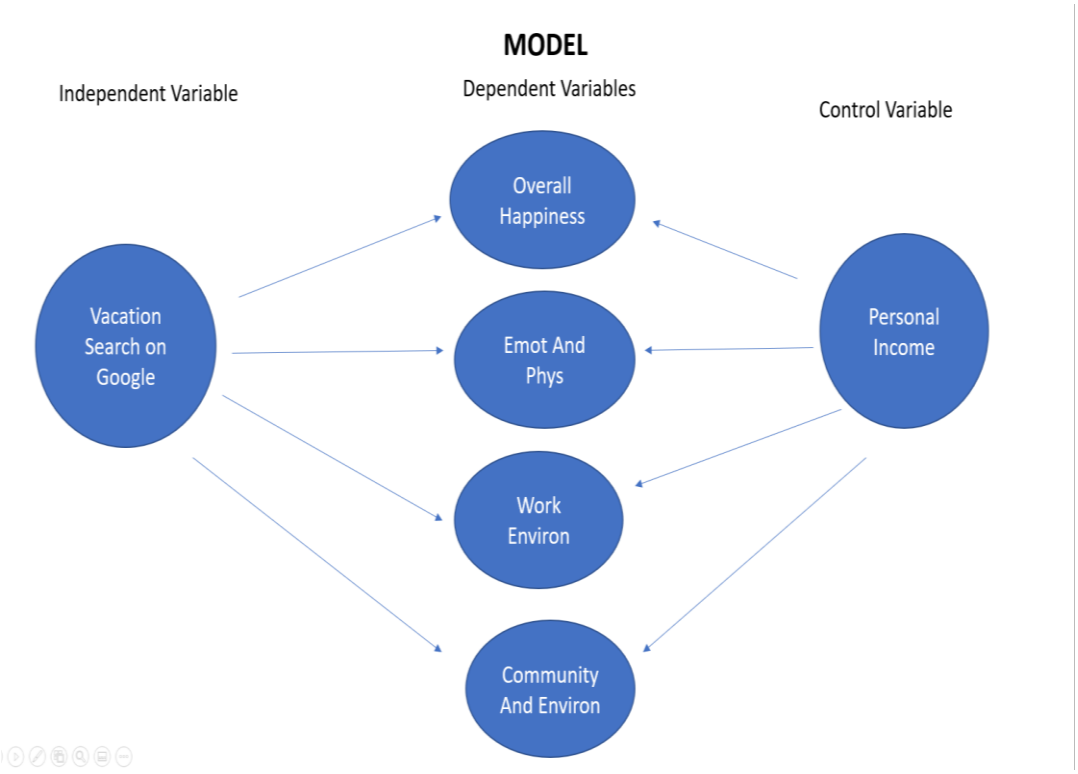

Figure I. Hypothesized relationships among variables

3. Methodology

The study utilized multisource data. One source of data was collected from the study conducted by WalletHub (McCann, 2019). The data shows happiness levels of people by the state in the U. S. in three categories with different metrics: (1) Emotional & Physical Well-Being, (2) Work Environment, and (3) Community & Environment. The three categories have 31 metrics and each metric has its corresponding weight. Each metric is graded on a 100-point scale where a score of 100 represents maximum happiness. The rank order of states on the happiness index is determined based on the sum of each state's weighted average across all metrics. Table 4 displaces overall scores on each state on a map visual and the list shows overall scores with 3 domain scores individually (McCann, 2019).

Table 4. Happiness Index

Overall Rank	State	Happiness Total Score	Emot & Phys Rank	Work Environ Rank	Community & Environ Rank
1	Hawaii	68.27	1	30	4
2	Utah	67.84	18	1	2
3	Minnesota	67.26	2	6	10
4	North Dakota	65.62	6	9	6
5	California	63.14	4	24	12
6	Idaho	63.09	24	2	1
7	Maryland	61.78	7	38	5
8	Iowa	61.07	8	18	11
9	South Dakota	60.8	14	13	8
10	Nebraska	59.11	10	17	28
11	Wisconsin	58.87	16	11	14
12	Connecticut	58.24	9	40	18
13	New Jersey	58.1	3	44	38
14	New York	57.35	5	42	39
15	Virginia	57.35	15	25	27
16	Massachusetts	56.85	13	14	42
17	Washington	56.44	29	5	9
18	Colorado	55.38	19	3	46
19	Georgia	55.15	25	16	7
20	North Carolina	53.69	21	21	37
21	Arizona	52.92	27	12	34
22	Texas	52.56	11	28	49
23	Illinois	52.47	12	45	44
24	New Hampshire	52.37	23	27	31
25	Kansas	52.3	22	33	36

26	Nevada	51.8	40	15	3
27	Delaware	51.67	17	37	45
28	Montana	51.08	37	7	17
29	Florida	51.01	20	20	47
30	Pennsylvania	50.54	28	41	15
31	Rhode Island	50.44	30	31	29
32	Indiana	50.2	32	22	25
33	Maine	49.81	36	10	30
34	Michigan	49.52	34	26	20
35	Wyoming	48.9	31	43	22
36	South Carolina	48.26	38	32	13
37	Ohio	48.19	35	36	16
38	Vermont	48.18	26	23	48
39	Oregon	48.05	43	4	24
40	Tennessee	46.13	41	8	40
41	New Mexico	43.35	39	47	35
42	Missouri	42.76	45	34	21
43	Mississippi	41.63	42	46	26
44	Kentucky	39.42	48	19	19
45	Alabama	39.35	46	39	43
46	Oklahoma	38.89	47	35	33
47	Alaska	38.21	33	49	50
48	Louisiana	37.15	44	50	41
49	Arkansas	36.61	50	29	23
50	West Virginia	33.42	49	48	32

Source: McCann (2019)

There are four research studies that are taken as references in terms of methodology, data, and happiness (well-being) index: (1) Happy People Live Longer: Subjective Well-Being Contributes to Health and Longevity (Chan and Diener, 2010); (2) Happiness from Ordinary and Extraordinary Experiences (Bhattacharjee and Mogilner, 2014); (3) Sports Participation and Happiness: Evidence from U.S. Micro Data (Huang and Humphreys, 2010): Unhappy Cities (Glaeser, et al., 2014).

It is given below what items are included while calculating these three domains (1) Community & Environment, (2) Emotional & Physical Well-Being, and (3) Work Environment. This part of the paper shares the magnitude of each of these domains.

Community and Environment have a total of 25 points with five subcategories. These five subcategories are (i) Volunteer rate with a half weight of nearly 1.67 points; (ii) Ideal weather with a triple weight of nearly 10 points; (iii) Average leisure time spent per day with a double weight of nearly 6.67 points; (iv) Separation and divorce rate with a full weight of nearly 3.33 points; (v) Safety with a full weight of nearly 3.33 points.

Emotional and physical well-being has a total of 50 points with fourteen subcategories. These fourteen subcategories are (i) Career well-being with a full weight of nearly 2.27 points; (ii) Physical health index with a full weight of nearly 2.27; (iii) Adverse childhood experiences with a full weight of nearly 2.27 points; (iv) Share of adult depression with a triple weight of nearly 6.82 points; (v) Share of maltreated adults with a full weight of 2.27 points; (vi) Social well-being with a full weight of nearly 2.27 points; (vii) Share of adults with alcohol use disorder with a double weight of nearly 4.55 points; (viii) Adequate-sleep rate with a full weight of nearly 2.27 points; (ix) Sports-participation rate with a full weight of nearly 2.27 points; (x) Share of adults of feeling active and productive with a full weight of nearly 2.27 points; (xi) Illness and disability index of a triple weight of nearly 6.82 points; (xii) Life expectancy with a double weight of nearly 4.55 points; (xiii) suicide rate with a triple weight of nearly 6.82 points; (xiv) Food insecurity rate with a full weight of nearly 2.27 points.

The work environment has a total of 25 points with twelve subcategories. These fourteen subcategories are (i) Number of work hours with a triple weight of nearly 5.77 points; (ii) Commute time with a half weight of nearly .96 points; (iii) Share of households earning annual incomes above $75,000 with a full weight of nearly 1.92 points; (iv) Share of adults worried about adults with a half weight of nearly .96 points; (v) Current unemployment rate with a half weight of .96 points; (vi) Long-term unemployed rate with a half weight of .96 points; (vii) Underemployment rate with a full weight of nearly 1.92 points; (viii) Job security with a triple weight of nearly 5.77 points; (ix) Job satisfaction score with a full weight of nearly 1.92 points; (x) Income-growth rate with a half weight of nearly .96 points; (xi) Economic confidence index with a full weight of nearly 1.92 points; (xii) Median credit score with a half weight of nearly .96 points.

The second portion of the multi-source data comes from Google Trends. Google Trends is a website by Google that analyzes the popularity of top search queries in Google search across various regions and languages. The website uses graphs to compare the search volume of different queries over time (Matias, 2012). The keyword “vacation” was used to collect search recordings of each state on Google from the 1st of January to the 31st of December 2018. Meanwhile, 2018 “vacation” search records were utilized to be able to be compatible with the happiness index data obtained from an open source in terms of the time period--2018. In addition, the search category was chosen as “Travel”. Figure II exhibits it visually.

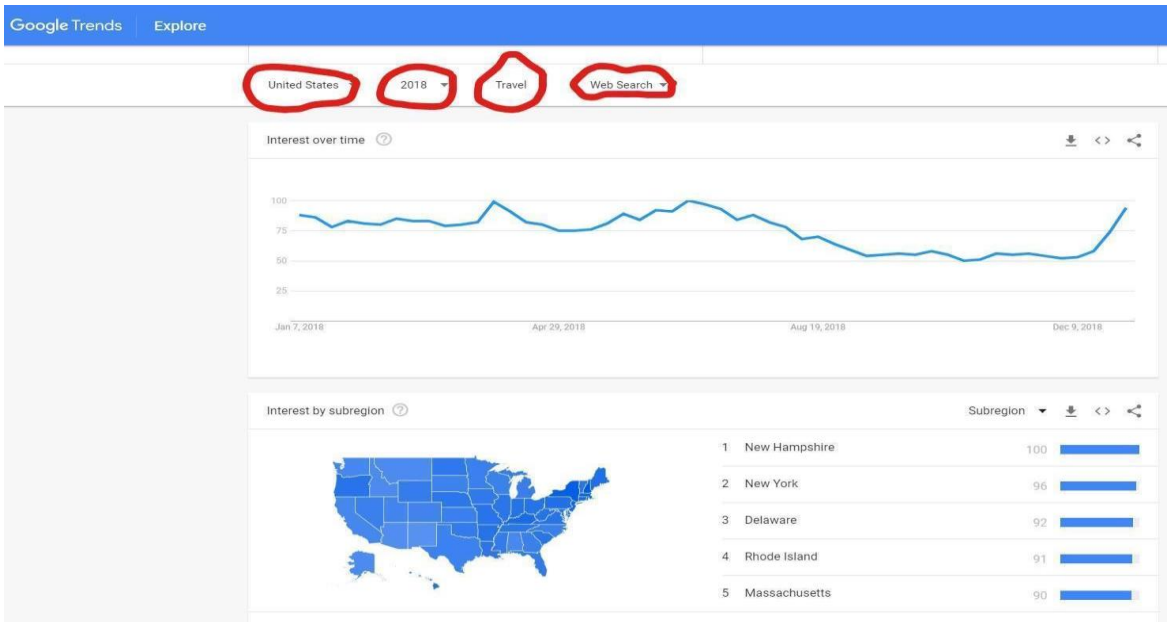

Figure II. A pillar of the multi-source data from Google Trends

Regression models were employed to explore the association between vacation search on Google by state and overall happiness index scores and subcategories state by state. The keyword “vacation” on google searches was taken as the indicator of intentions of travel. For data normalization, a “weather” search was performed. The equation that is used for it was = Vacation – (Weather - ‘Vacation + Weather’). The calculation results are demonstrated in Table 5 in alphabetical order of the state names

Table 6. Vacation search on Google (Normalized data)

State	Normalized	Vacation (2018)	Weather (2018)	Vacation + Weather
Alabama	80	70	13	23
Alaska	68	62	28	34
Arizona	63	56	28	35
Arkansas	88	75	12	25
California	60	55	38	43
Colorado	70	61	24	33
Connecticut	100	87	21	34
Delaware	98	87	34	45
Florida	84	73	24	35
Georgia	80	69	18	29
Hawaii	85	85	100	100
Idaho	67	58	20	29
Illinois	87	74	21	34
Indiana	93	81	16	28
Iowa	83	72	16	27
Kansas	80	68	12	24
Kentucky	101	87	17	31
Louisiana	91	78	11	24
Maine	88	77	31	42
Maryland	93	81	24	36
Massachusetts	103	89	27	41
Michigan	81	69	18	30
Minnesota	74	65	26	35
Mississippi	91	78	9	22
Missouri	92	79	15	28
Montana	64	56	25	33
Nebraska	81	70	13	24
Nevada	69	64	54	59
New Hampshire	110	95	36	51
New Jersey	99	86	24	37
New Mexico	60	51	19	28
New York	115	100	27	42
North Carolina	79	70	27	36

North Dakota	75	63	17	29
Ohio	99	86	25	38
Oklahoma	79	68	12	23
Oregon	67	56	29	40
Pennsylvania	94	81	22	35
Rhode Island	93	80	22	35
South Carolina	93	86	46	53
South Dakota	70	59	14	25
Tennessee	87	77	25	35
Texas	76	64	14	26
Utah	66	58	31	39
Vermont	74	65	33	42
Virginia	84	72	21	33
Washington	66	59	32	39
West Virginia	97	85	18	30
Wisconsin	81	70	17	28
Wyoming	87	76	28	39

"Personal income" was employed as a control variable. The data from 2018 was used to provide consistency with the other datasets used in the research. The source of data on annual personal income in 2018 is the Bureau of Economic Analysis U.S. Department of Commerce. SPSS was used for statistical analysis.

4. Results

State names are subjects. "Vacation Search on Google" was employed as an independent variable (IV), and "Personal Income" was employed as a control variable (CV). "Happiness Total Score" is used as a dependent variable. Three sub-levels of "Happiness Total Score" are (1) "Emotional & Physical Well-Being Rank", (2) "Work Environment Rank", and (3) "Community & Environment Rank". They are also treated as dependent variables. All variables are continuous variables in the model.

As those three sublevel variables are ranking variables, rank 1 means the state is best on that particular measurement. For example, Hawaii holds rank 1 on the "Emotional & Physical Well-Being Rank", which means Hawaii has the highest score (50) on the "Emotional & Physical Well-Being" scale. Therefore, to prepare the data for statistical analysis, Dependent Variable 2 (Emotional and Physical Rank), Dependent variable 3 (Work Environment Rank), and Dependent Variable 4 (Community and Environment Rank) needed to be reverse-coded. Because those three variables were reported by ranking, not by score. For the data, analysis scores are used not rankings. Before conducting statistical analysis, Table 7 shows the variables with scores.

Table 7. Variables: Independent, Control, and Dependent Variables

States	Vacation Search on Google	Personal Income	Happiness Total Score	Emot & Phys	Work Environment	Community & Environ
Alabama	80	$42,240	39.35	46	39	43
Alaska	68	$59,605	38.21	33	49	50
Arizona	63	$44,414	52.92	27	12	34
Arkansas	88	$43,292	36.61	50	29	23
California	60	$63,711	63.14	4	24	12
Colorado	70	$58,500	55.38	19	3	46
Connecticut	100	$76,481	58.24	9	40	18
Delaware	98	$52,599	51.67	17	37	45
Florida	84	$50,199	51.01	20	20	47
Georgia	80	$46,519	55.15	25	16	7
Hawaii	85	$55,414	68.27	1	30	4
Idaho	67	$43,994	63.09	24	2	1
Illinois	87	$56,919	52.47	12	45	44
Indiana	93	$47,124	50.2	32	22	25
Iowa	83	$50,243	61.07	8	18	11
Kansas	80	$51,474	52.3	22	33	36
Kentucky	101	$42,527	39.42	48	19	19
Louisiana	91	$46,245	37.15	44	50	41
Maine	88	$48,881	49.81	36	10	30
Maryland	93	$63,426	61.78	7	38	5
Massachusetts	103	$71,886	56.85	13	14	42
Michigan	81	$48,480	49.52	34	26	20
Minnesota	74	$57,566	67.26	2	6	10
Mississippi	91	$37,904	41.63	42	46	26
Missouri	92	$47,784	42.76	45	34	21
Montana	64	$47,611	51.08	37	7	17
Nebraska	81	$53,364	59.11	10	17	28
Nevada	69	$49,290	51.8	40	15	3
N. Hampshire	110	$61,429	52.37	23	27	31
New Jersey	99	$68,409	58.1	3	44	38
New Mexico	60	$41,663	43.35	39	47	35
New York	115	$68,710	57.35	5	42	39
North Carolina	79	$46,126	53.69	21	21	37
North Dakota	75	$55,598	65.62	6	9	6
Ohio	99	$48,793	48.19	35	36	16
Oklahoma	79	$46,267	38.89	47	35	33
Oregon	67	$50,951	48.05	43	4	24
Pennsylvania	94	$56,252	50.54	28	41	15
Rhode Island	93	$54,800	50.44	30	31	29
South Carolina	93	$43,702	48.26	38	32	13
South Dakota	70	$52,426	60.8	14	13	8
Tennessee	87	$46,889	46.13	41	8	40

Texas	76	$50,483	52.56	11	28	49
Utah	66	$46,431	67.84	18	1	2
Vermont	74	$54,342	48.18	26	23	48
Virginia	84	$57,910	57.35	15	25	27
Washington	66	$62,122	56.44	29	5	9
West Virginia	97	$40,907	33.42	49	48	32
Wisconsin	81	$51,647	58.87	16	11	14
Wyoming	87	$60,375	48.9	31	43	22

Note: DVs are scores obtained through reverse coding, not rankings.

4.1. Descriptive Statistics

Table 8 displays a variety of descriptive statistics information including range, mean, minimum, maximum values, standard deviations, variance, skewness, and kurtosis for each variable. For example, overall happiness for all the states in the U.S. (N= 50) included a minimum of 33.42 scores and a maximum of 68.27 which results in a range of 34.85. The mean score for this variable is reported to be 52.05 where the standard deviation is 8.58 (M = 52.05, SD = 8.58). Descriptive statistics do not reflect any red flags as they indicate good standing and readiness for regression analysis (see Table 8 for detailed information).

Table 8. Descriptive Statistics

Variables	N	Range	Min	Max	Mean	Std. Deviation	Variance	Skewness	Kurtosis
Vacation search on Google	50	55	60	115	83.3	13.204	174.34	0.139	-0.527
Personal income	50	38577	37904	76481	52479	8437	71181588	0.81	0.422
Overall happiness index	50	34.85	33.42	68.27	52.052	8.58	73.69	-0.155	-0.421
Emotional & physical well-being	50	49	1	50	25.5	14.58	212.5	0	-0.12
Work environment	50	49	1	50	25.5	14.58	212.5	0	-0.12
Community and Environment	50	49	1	50	25.5	14.58	212.5	0	-0.12

Four regressions were conducted for each dependent variable. Personal Income was treated as a control variable and the Vacation search on google was employed as an independent variable.

In the first regression model, the overall happiness index as a dependent variable, and vacation search on Google as an independent variable were employed. At the same time, personal income was treated as a control variable. $F(2, 47) = 12.597$, $p<.001$ indicates a significant relationship. Moreover, the adjusted R square =.321 depicts that the model predicts 32 percent of the variance in overall happiness. Additionally, coefficients were assessed. A vacation search on Google has a negative standardized coefficient beta (-.345) while personal income has a positive standardized coefficient beta (.580). It indicates that there is a positive relationship between personal income (B=.001, t=4.748, p=.000) and overall happiness while there is a negative relationship between vacation search on Google (B=-.224, t=-2.827, p=.007) and overall happiness (H1). Hence, H1 was supported (Table 9).

In the second regression model, emotional and physical well-being as a dependent variable and vacation search on Google as an independent variable were employed. At the same time, personal income was treated as a control variable. $F(2, 47) = 21.177$, $p<.001$ indicates a significant relationship. Moreover, the adjusted R square =.452 depicts that the model predicts 45 percent of the variance in emotional and physical well-being. Additionally, coefficients were assessed. Vacation search on Google has a negative standardized coefficient beta (-.175) while personal income has a positive standardized coefficient beta (.714). It indicates a positive relationship between personal income (B=.001, t=6.507, p=.001) and emotional and physical well-being. There is a negative relationship between vacation search on Google (B=-.193, t=-1.596, p=.117) and emotional and physical well-being but it is not statistically significant (H2). Hence, H2 was not supported (Table 9).

In the third regression model, work environment as a dependent variable and vacation search on Google as an independent variable were employed. At the same time, personal income was treated as a control variable. F (2, 47) = 6.862, p<.002 indicates a significant relationship. Moreover, the adjusted R square =.20 depicts that the model predicts 20 percent of the variance in the work environment. Additionally, coefficients were assessed. Vacation search on Google has a negative standardized coefficient beta (-.487) while personal income has a low-scored positive standardized coefficient beta (.054). It indicates there is no statistically significant relationship between personal income (B=.001, t=.406, p=.686) and work environment. There is a negative relationship between vacation search on Google (B=-.538, t=-3.658, p=.001) and work environment and it is statistically significant (H3). Hence, H3 was supported (Table 9).

In the fourth regression model, community and environment as a dependent variable and vacation search on Google as an independent variable were employed. At the same time, personal income was treated as a control variable. F (2, 47) = .908, p<.410 indicates a nonsignificant relationship. Moreover, the adjusted R square =-.004 depicts that the model does not predict any variance in the community and environment. There is no need to assess coefficients. In conclusion, H4 was not supported (Table 9).

Table 9. Regression Analysis Results

First regression model	*t*	*p*	*Std. C. Beta*	*F*	*df*	*p*	*adj. R square*	H1 was supported	✓
Overall model 1				12.594	2,47	>.001	0.321		
Vacation search on Google	4.75	0.007	-0.35						
Personal income	-2.83	0	0.58						
The dependent variable for the first regression was the overall happiness index.									

Second regression model	*t*	*p*	*Std. C. Beta*	*F*	*df*	*p*	*adj. R square*	H2 was not supported	✗
Overall model 2				21.177	2,47	0.001	0.452		
Vacation search on Google	-1.596	0.117	-0.175						
Personal income	6.507	0.001	0.714						
The dependent variable for the second regression was emotional and physical well-being.									

Third regression model	*t*	*p*	*Std. C. Beta*	*F*	*df*	*p*	*adj. R square*	H3 was supported	✓
Overall model 3				6.862	2,47	0.002	0.2		
Vacation search on Google	-3.658	0.001	-0.487						
Personal income	0.406	0.686	0.054						
The dependent variable for the third regression was work environment.									

Fourth regression model	*t*	*p*	*Std. C. Beta*	*F*	*df*	*p*	*adj. R square*	H4 was not supported	✗
Overall model 4				0.908	2,47	0.41	-0.004		
Vacation search on Google	0.023	0.198	-0.194						
Personal income	-1.305	0.981	0.003						
The dependent variable for the fourth regression was community and environment.									

5. Discussion and Conclusion

The results showed that the over-search of vacations on Google is an indicator of overall unhappiness. People may use Google search to look at destination pictures and videos and dream about vacation plans throughout the day. This behavioral intention can be viewed as a tool to cope with daily stress for some people. Findings indicated that the tendency to overly search for vacation search on Google could be evaluated as a reflection of unhappiness, particularly at work. Google search about vacations is used to fix the mood and obtain good feelings momentarily. This outcome of the research indicates the importance of the relationship between the pre-vacation stage and happiness metrics in comparison to during the vacation and after the vacation stages.

As it was discussed earlier there are two camps of research regarding vacation and happiness or quality of life. One stream has found that vacations and holidays contribute to overall happiness in the long term even though some studies indicate it is a slight contribution (Gilbert and Abdullah, 2002; 2004). On the other hand, the other research stream argues vacations/holidays have nothing to do with long-term happiness as the positive impact of vacations/holidays does last long after the trip (De Boom et al., 2012), even though sometimes it causes some burden to vacationers and misses some home-based opportunities with their free time (Nawjin et al., 2010). Our resarch outcomes may not claim anything regarding the implications of actual vacation in terms of happiness and quality of life but we can contribute to this relevant literature by stating that Americans use dreaming about vacations via Googling to enhance daily mood, gain momentary positive feelings, and get rid of work-related stress. The strong relationship between unhappiness in the work environment and the high volume of Google searches on vacations can be explained by the fact that some people who have access to the Internet at work use this Google search tool about vacations to eliminate work environment-related stress. This behavioral motivation can be conceptualized by the escapism concept (Pine, 1999; Ponsignon et al., 2021)--Googling vacations to escape from daily work stress.

The other aspect of the research that needs to be discussed briefly is its design. Park, Park, and Kang (2018) criticized cross-sectional research that may not give the true picture because cross-sectional studies are weak due to selection problems. The current study utilizes the whole year (2018) search on Google, which has the potential to eradicate the pitfalls of cross-sectional studies. The other difference of the present study is to include a control variable (personal income), which is not employed by the studies on the same subject. The inclusion of the control variable in the model aids in capturing the true picture and underpinnings of the phenomenon.

5.1. Limitations and Future Directions

The data, within this research concept, also provides an opportunity to seek some other patterns that might be hidden and not be seen at the first glance, which can provide some insights into explaining the situation in a different way when there is no time pressure on the researcher/s. For example, Figure III shows (1) some states have high vacation search and a high score on the happiness index, (2) some states have low vacation search and a low score on the happiness index, (3) some have low search and high scores on happiness index, and (4) some states have high vacation search and a low score on the happiness index. Grouping certain states and doing additional statistical analysis on them in order to find some hidden insights would be a direction for future relevant research.

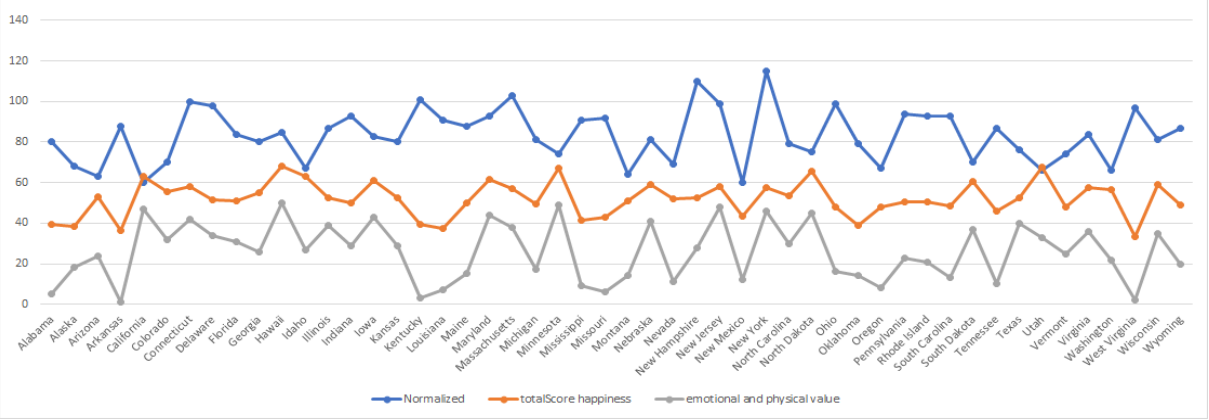

Figure III. Vacation search on Google and happiness scores by states

In this study, only one year of data is used, 2018, for the happiness index, annual personal income, and vacation search on Google. The data spectrum can be widened by using multiple years of data sets. On the other hand, for the happiness index data, other sources can be looked for. Some government-based sources may be found and utilized.

Personal income in this study is used as a control variable. Even though personal income state by state gives a criterion to compare; however, purchase power changes state by state. For instance, earning $50,000 in New York does not provide the same level of economic well-being as earning $50,000 in South Carolina. Therefore, normalizing the control variable and personal income would aid in picturing the situation better. The researcher believes that the findings would be, more strongly, favorable to this negative relationship between vacation intentions and happiness index.

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