

# **The Impact of the Perceived Physical and Social Environments on Personal Happiness of Residents in Kanchanaburi Province, Thailand**

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## **Abstract**

Existing literature recognizes that physical and social environments are important determinant of happiness. Studies have shown that the perceived environment more influence on happiness than the observed environment. The relationship of perceived physical and social environments with personal happiness should be examined in Thailand in communities in which there are current development projects. This study aims at examining levels of happiness and their relationship with perceived levels of pollution and perceptions about the social environment in Kanchanaburi province, Thailand. The results of the study confirm the hypothesis that a lower perceived level of pollution and a higher perceived level of the social environment increase levels of happiness. The results highlight the need to pay attention to perceived levels of the environment among people in Kanchanaburi communities. Community policies and programs should take these perceptions into account.

**Key words:** Perceived Physical Environment, Perceived Social Environment, Happiness

## **Introduction**

The fact that environmental surroundings influence personal happiness has long been recognized by several social science researchers. Most studies focus on factors of the physical environment as determinants of happiness, especially pollution and atmospheric surroundings (Welsch, 2006; Rehdanz and Maddison, 2008). Environmental contexts involve not only the physical environment, but also the economic, cultural, and social environments as well (Winkel et al., 2009). Few researchers have examined the broader sense of environmental determinants which take the social environment into account (Putnam, 1995; Bruni and Stanca, 2008). The social environment refers to how people and communities behave, their relationships, and the conditions in which they live. The contextual nature of personal/environmental relations is expected to affect people's sense of well-being.

Existing literature recognizes that physical and social environments are important determinants of happiness. In terms of the physical environment, problems in this area have been found to be a major source of depression (Evan et al., 1988). Problems in the physical environment can cause hazardous effects on physical health as well as mental health. In addition, the social environment has been strongly correlated with positive emotions. Baumeister and Leary (1995) review evidence showing that people seem to have a fundamental need for close social relationships. However, environmental determinants have usually been measured by quantitative parameters, such as level of sulfur dioxide emission (Smyth et al., 2004), temperature (Rehdanz and Maddison, 2005), and network size (Burt, 1987).

Often these standards are based on expert judgments and do not take into account personal preferences. Some studies have found that the perceived environment is significantly related to levels of happiness, but the objective or measured environment is not significantly related (Rehdanz and Maddison, 2008; van Praag and Baarsma, 2005). The

relationship between opinions about the environment and happiness is a relatively new area of research (Rangel, 2003; Welsch, 2002). This study is also relevant to the growing attention being paid to the relationship between cultural opinions about the environment and personal happiness (Diamond, 2005).

Thailand is an interesting setting in which to examine these issues. The past rate of socioeconomic development in Thailand was rapid and this has paved the way for many problems in the physical and social environments. Almost all parts of Thai society are controlled by the government (Kanchanapan, 2001). Communities have become the primary areas of development instead of natural resources, cultural diversity, and social relationships among community members. As a result, there are harmful industrial activities and agro-chemical substances used in many areas, creating pollution that harms the community's environment. Also, social relationships and traditional values of Thai communities are reduced in importance. The ways that Thai people perceive these changes and how they affect Thai well-being are topics that need to be explored.

To examine the impact of the perceived physical and social environments on personal happiness in the Thai context, this study uses Kanchanaburi province, Thailand, due to its diverse characteristics. Kanchanaburi is a province located about 120 km west of Bangkok and shares a long border with Myanmar. This province is diversified in its social, economic, and ecological features. The large number of internal and international migrants in this province contributes to its diverse cultures. It has a mixed economy that includes both industrial and agricultural sectors. Also, this province has a variety of landscapes and natural resources.

The two main research questions of this study are (1) to what extent are people in Kanchanaburi satisfied with their lives, and (2) how do perceived levels of the physical and social environment influence the levels of happiness of people in Kanchanaburi?

### **Concept of Happiness and Its Determinants**

“Happiness” denotes a measure of an individual’s evaluation of his or her overall quality of life (Veenhoven, 1997). The term is usually used interchangeably with “life satisfaction.” Both happiness and life satisfaction belong to the concept of subjective well-being. Subjective well-being is typically conceived of as comprising a cognitive component of life satisfaction and two other components, namely the presence of positive effects and the absence of negative effects (Diener and Suh, 1997). Recent studies have shown that subjective well-being operates in both a top-down and a bottom-up fashion. Well-being results partly from a general tendency to hold positive life views, and partly from the cumulative effects of specific events (Brief et al, 1993; Mallard et al., 1997). Moreover, Suh et al (1996) determined that people tend to stabilize at a certain level of subjective well-being, regardless of the daily events they face. Even after dramatic life events within the past few months, people tend to return to their typical level of subjective well-being.

Data on self-reported well-being are used in the growing literature in the social sciences. They are elicited in large-scale surveys which provide the respondents’ most important socio-demographic characteristics. The question pertaining to subjective well-being may refer to “happiness” or to “life satisfaction,” and the categories may be purely verbal or may combine verbal with numerical features. For instance, the General Social Surveys uses a three-point verbal happiness scale. It asks the question, “Taken all together, how would you say things are these days-would you say that you are very happy, pretty happy, or not too happy?” In the World Values Surveys, people are offered a scale from 1 (dissatisfied) to 10 (satisfied) to respond to the question “All things considered, how satisfied are you with your life as a whole these days?”

Research on happiness has identified a number of personal, demographic and socio-economic covariates of happiness that explain happiness patterns. Important personal and demographic characteristics

which affect happiness are health, age, sex, marital status, size and structure of the household, educational level, and degree of urbanization. There is a long standing discussion about the measurability of happiness. Recently, after decades of validation research, it can be concluded that happiness can be measured by self-report. The answers given by individuals have been found to be valid. Survey data from different populations have been replicated and re-analyzed with respect to their theoretical significance.

It is clear that the young and old seem to be happier than the middle aged, allowing for health and other factors (Frey and Stutzer, 2002). The empirical evidence on the link between education and happiness is not fully conclusive. Frey and Stutzer (2002) claimed that level of education bears little relationship to happiness by allowing a better adaptation to changing environments. Some studies (e.g. Clark and Oswald, 1996) find the opposite results; after allowing for income, more educated individuals register a lower level of satisfaction. It has been found that the highly educated are more distressed than the less well educated when they are hit by unemployment (Clark and Oswald, 1994). However, Veenhoven (1991) found that people with higher income levels had higher levels of happiness or subjective well-being.

### **Environment and Happiness: Theory and Empirical Literature**

Ecological perspective has been used across the social sciences, particularly environmental psychology (Stokols and Altman, 1987). This perspective determines that human well-being is always the product of an interaction between a person and their environment, where the environment is both social and physical. Rather than interpreting human environments as merely neutral frameworks against which human behavior occurs, an ecological perspective takes pains to consider the interrelationships between a human and their surroundings. There are multiple contexts that affect individual experience and behavior. This study focuses on the factors of the physical and social environments which might affect personal happiness.

### **Physical environment and happiness**

The relationship between physical environment and human psychology has been studied for quite some time (Kellert and Wilson, 1993). Much work has been done in the area of physical environment and well-being by psychologists and biologists. Wilson (1993) uses the term “biophilia” to refer to the psychological well-being humans receive from interacting with the environment. Ulrich (1984) found that surgery patients who stayed in rooms with a view of trees had shorter hospital stays and needed less medication than those who stayed in rooms with windows that faced brick walls. Since health is perpetually found to be a major determinant of life satisfaction levels, it can be assumed that with improvement of health, a significant increase in life satisfaction can be realized. A study by the California Energy Commission (2003) found that a better view improved office worker job performance and was correlated with fewer negative health symptoms.

Environmental features may have positive effects (natural landscapes, interaction with plants and wildlife), as well as negative effects (pollution, visual degradation). Numerous studies have also found a negative relationship between subjective well-being and environmental pollution. People living in high levels of atmospheric pollution report lower levels of well-being (Smyth, Mishra, and Qian, 2008). Welsch (2002) found a negative relationship between well-being and the level of nitrogen dioxide, a pollutant directly detrimental to human health.

Not only has measured pollution been significantly, negatively associated with personal happiness, but perceived pollution has also been associated with it (MacKerron and Mourato, 2009). The success of self-report measures in predicting outcomes is a common finding in research on environmental influence that speaks of the power of individuals’ perceptions of environment in mediating effects of the environment itself (Evans et al., 2003). Stiffman and colleagues (1999) found that perceptions of the environment are consistently better predictors of outcomes than objective measures of the physical

environment. Nevertheless, there is a relationship between cultural attitudes about the environment and the sustainability of human society. Frey and Stutzer (2002) argued that happier people may be more likely to exhibit positive attitudes toward the environment.

### **Social environment and happiness**

For David Hume, the pursuit of happiness, a fundamental human goal, can be attained only in connection with other people (Bellebaum and Barheier, 1997). Numerous studies have corroborated the finding that good and close relationships with other people are a major source of satisfaction with life and happiness (Michalos et al., 2001; Land et al., 2001). Helliwell (2001) argued that social capital (defined as ‘networks, norms and understandings that facilitate cooperative activities’) can have a positive effect on subjective well-being because social capital creates positive environment for its members. Fiori et al. (2006) believed that individuals have different social networks and that each has a different effect on health. The different roles that each person plays introduce them to different networks that help them to feel socially connected and improve their sense of well-being. Bjornskov (2003) argued that his results demonstrate that social capital is a powerful factor when explaining why some countries are happier than others.

Stephoe and Feldman (2001) investigated neighborhood-level effects of deprivation and deficit of social capital on self-rated health and psychological distress. Neighborhood problems, including litter in the streets, air pollution, noise, vandalism and disturbance by neighbors or youngsters correlated with poor self-rated health, psychological distress and impaired physical function independent of age, gender, neighborhood SES, individual deprivation, and social capital.

The present study hypothesized that perceived levels of pollution negatively affect personal happiness, while perceived levels of the social environment positively affect personal happiness when allowing for socio-demographic characteristics of people in Kanchanaburi province.

## **Material and Method**

### **Setting**

The setting of the study is Kanchanaburi province, located in the western part of Thailand. It is the third largest of 77 Thai provinces, and covers an area of 19,480 square kilometers. The administrative center of the province is 130 kilometers west of Bangkok. According to the 2005 population statistical data, 834,447 live in Kanchanaburi province and about 99 percent of residents are Buddhists (NSO, 2010). This study uses Kanchanaburi province as the setting due to its diverse social, economic, and ecological features. The province contains a variety of ethnic groups. It shares a long border with Myanmar and is home to many migrants from Myanmar. This province has a variety of economic activities, including ones in the agricultural sector (such as rice crops, plantation crops), the industrial sector, and the commercial sector. Kanchanaburi province also has diverse ecological and geographical features, ranging from plains to mountainous areas and from plantations to tropical forest. It can be said that few provinces in Thailand have as diverse social, economic, and ecological features as Kanchanaburi province. We can assume that this diversity has shaped people's lives in many different ways.

### **Data**

Data for this analysis was collected using a community participatory approach for poverty eradication in Thailand. This project was designed to develop indicators of the population of Kanchanaburi's well-being in 2005. Stratified two-stage sampling designed by the National Statistical Office was applied. The sample group in this survey includes 1,440 households. 2,984 persons aged 15 and over in the households were interviewed.

### **Measures**

#### ***Dependent Variable***

The variable indicating the level of happiness in this study refers to people's subjective assessment of this feeling at the time of the survey. The assessment was given as a response to the question, "At

present, how are you feeling?” This question did not include the term “satisfied” or “happy” in order to avoid bias and to prevent constrained responses. Respondents replied using an eleven-point scale (0-10) to rate their feeling, with 0 representing “unhappiest”, 5 representing “not unhappy or happy”, and 10 representing “happiest.”

### ***Independent Variables***

Since the present study aims to explore the impact of the physical and social environments on personal happiness, two independent variables were measured; physical environment and social environment.

#### *Perceived Physical Environment: Perceived Level of Pollution*

This study uses “perceived level of pollution” as a proxy variable for the perceived physical environment variable. Perceived level of pollution is derived from the question, “How strongly do you feel you are affected by pollution in your residential area?”, for example, noise, smoke, odor, dust, water, garbage, mosquito, and fly pollution. Respondents replied using a four-point scale (0-3) to measure the perceived level of adverse effects for each type of pollution, with 0 representing “not at all”, 1 representing “slightly”, 2 representing “bearable”, and 3 representing “strongly.” This study uses eight continuous variables to analyze the impact of each perceived level of pollution on personal happiness.

#### *Perceived Social Environment: Perceived Level of Social Environment*

The perceived level of social environment is employed as one of the independent variables to determine the level of personal happiness. This study measured perceived level of social environment based on an individual’s feelings with regard to their social environment, neighbors, and their property. The respondent was asked a number of questions related to his or her perception of his or her social environment: (1) how well they knew their neighbors, (2) how much they trusted other people in their community, (3) how their neighbors would react if they needed help, and (4) how safe they felt in terms of life and property.

The answers to these questions are combined for a total score between 0 and 8, where a higher score refers to a better social environment.

### ***Control Variables***

The study uses age, gender, marital status, working status, educational level, illness within the past month, smoking, alcohol drinking, and current exercise behaviors as control variables. This study also employs the number of household possessions as one of the control variables, which are represented by four dummy variables: microwave oven, washing machine, air-conditioner, and cars/vans/pick-ups. This variable was rated on a four-point scale, reflecting the level of absolute household wealth expected to affect the level of happiness. Also, this study includes household size and strata as control variables.

Strata refer to place of residence, i.e. whether the respondents live in an urban, rice growing, plantation, or upland area in Kanchanaburi province. The urban stratum covers the population living in municipal areas. Rice growing strata are those located in lowland areas where the main occupation is rice cultivation. Plantation strata are also located in lowland areas and where the major occupation of the local people is cultivating cassava or sugar cane. Upland strata are located in the three highland districts.

### **Methods**

Since the dependent variable of the level of happiness is continuous, multiple regression analyses were employed. The independent variables include perceived physical environment and social environment. Perceived physical environment uses eight separated variables of perceived level of pollution, while perceived social environment employs the perceived level of social environment. All independent variables are continuous.

Control variables cover demographic and socioeconomic factors, including age, gender, marital status, working status, educational level, illness within the past month, smoking, alcohol drinking, current exercise behaviors, number of household possessions, household size,

and strata. All control variables are treated as dummy variables, except age, household size, and number of household possessions.

## Results

Table 1 shows the percentage distribution for levels of personal happiness in Kanchanaburi province. It was found that most members of the sample group described their happiness at a level of 5, which is “not unhappy and not happy.” Only 1.5 percent of respondents reported they were “unhappiest,” while 3.4 percent of samples reported they were “happiest.” About 43 percent of the sample group reported their happiness as greater than the “not unhappy or happy” level. The total mean happiness score for respondents was 5.8, which is close to “being not unhappy and not happy”.

**Table 1** Percentage distribution and mean happiness score in Kanchanaburi Province

Level of Happiness	N	Percent	Mean Happiness Score
Unhappiest (0)	46	1.5	<b>5.8</b>
1	20	0.7	
2	45	1.5	
3	75	2.5	
4	160	5.2	
Not unhappy and not happy (5)	1,388	45.5	
6	374	12.3	
7	398	13.0	
8	302	9.9	
9	139	4.6	
Happiest (10)	105	3.4	
Total	3,052	100.0	

Regarding the independent variables of regression analysis, Table 2 provides the mean happiness score and percentage distribution of the perceived level of pollution. It was found that, on average, members of the sample group who faced less severe pollution tended to report higher levels of happiness. Percentage distribution showed that most of the samples have no pollution in their household. There were few respondents who face strongly adverse effects of pollution, with the exception of dust and mosquito problems. Table 3 shows the mean happiness score and percentage distribution of the sample group by perceived level of social environment, which ranged from 0-8. It was found that those who have lower perceived levels of their social environment tend to report lower levels of happiness, but the mean happiness score was not much different among the different perceived levels of social environment.

**Table 2** Mean happiness score and percentage distribution by perceived level of pollution in Kanchanaburi province

Type of Pollution	Mean Happiness Score by Perceived Level of Pollution			
	Not At All	Slightly	Bearable	Strongly
Noise	5.8	5.5	6.3	6.0
Smoke	5.8	6.3	5.8	5.9
Odor	5.8	6.0	6.1	5.5
Dust	5.9	5.7	5.9	5.6
Water	5.8	5.6	5.9	5.3
Garbage	5.8	5.9	5.7	6.1
Mosquito	6.0	5.9	5.8	5.7
Fly	6.0	5.8	5.7	5.4

Type of Pollution	Percentage Distribution				Total
	Not At All	Slightly	Bearable	Strongly	
Noise	81.4	8.2	6.9	3.5	100.0
Smoke	89.1	6.5	2.8	1.6	100.0
Odor	83.3	8.7	4.4	3.6	100.0
Dust	58.9	15.3	13.3	12.5	100.0
Water	93.8	3.0	2.1	1.1	100.0
Garbage	94.5	3.7	1.2	0.5	100.0
Mosquito	16.6	17.3	28.1	37.9	100.0
Fly	43.9	26.5	17.6	12.0	100.0

**Table 3** Mean happiness score and percentage distribution by perceived level of social environment in Kanchanaburi province

Perceived Level of Social Environment	Mean Happiness		Percentage Distribution
	Score	S.D.	
0	5.6	1.2	0.5
1	5.7	1.7	1.2
2	5.6	2.0	7.6
3	5.6	1.8	15.0
4	5.8	1.7	21.5
5	5.9	1.8	36.0
6	5.7	1.6	9.6
7	5.7	1.8	6.1
8	5.8	2.3	2.5
<b>Total</b>	<b>5.8</b>	<b>2.5</b>	<b>100.0</b>

Concerning control variables for regression analysis, Table 4 shows mean happiness scores and percentage distribution across the set of control variables. Members of the sample group who were young (aged 15-24) seem to be happier than adults of working age (aged 25-59). The older population (aged 60 and over) was also happier than adults of working age, but less happy than the young. Men reported higher levels of happiness than women. Those who were single had higher levels of happiness than those who were married. Members of the sample group who did not work reported being happier than those who were worked. The mean happiness score increased noticeably in direct correlation with level of education. Considering health status and behavior, members of the sample group who reported no illness within the past month, who didn't smoke, and who currently exercised were happier than others. It was evident that members of the sample group who had more household possessions reported higher levels of happiness. Those who resided in small households had higher mean happiness scores than those living in large households. Those who resided in the urban stratum reported higher mean happiness scores than respondents residing in other strata.

**Table 4** Mean happiness score and percentage distribution by control variables in Kanchanaburi province

Control Variables	Mean		Percentage Distribution
	Happiness Score	S.D.	
Age			
15-24	6.2	1.6	12.9
25-59	5.7	1.8	68.7
60 and over	5.9	4.4	18.4
Gender			
Men	5.9	1.8	43.4
Women	5.8	2.9	56.6
Marital status			
Single	6.3	1.7	14.5
Married	5.7	1.7	73.2
Widow/Divorced/Separated	5.8	5.3	12.2
Working status			
Not working	6.0	2.0	22.9
Working	5.8	2.6	77.1
Education level			
No education	5.6	5.7	10.3
Lower primary school	5.6	1.8	40.3
Primary school	5.7	1.6	19.4
Lower secondary school	6.3	1.7	12.6
Higher secondary school and higher	6.4	1.6	17.4
Illness within 1 month			
No illness	5.9	2.6	81.9
Have illness	5.3	2.0	18.1

Smoking			
Not smoking	5.9	2.8	64.4
Smoking	5.7	1.8	35.6
Alcohol drinking			
Not drinking	5.8	2.8	63.6
Drinking	5.8	1.7	36.4
Currently exercising			
Not exercising	5.7	2.7	74.1
Exercising	6.2	1.7	25.9
Number of household possessions			
None	5.6	3.3	37.5
1 item	5.7	1.8	29.8
2 items	6.0	1.8	19.6
3 items	6.4	1.7	8.2
4 items	6.4	1.7	4.9
Household size			
Lower than 5	5.8	2.6	77.2
5 and over	5.8	1.9	22.8
Strata			
Urban	6.1	3.6	28.6
Rice	5.9	1.8	35.3
Plantation	5.4	1.8	27.7
Upland	5.8	1.8	8.5
<b>Total</b>	<b>5.8</b>	<b>2.5</b>	<b>100</b>

Table 5 displays three regression models, all of which take happiness as the dependent variable. The  $R^2$  value shown at the bottom of each model shows the total amount of variance in happiness explained by all the predictors in the model.

Model 1 begins the analysis with a focus on the relationship between happiness and control variables. The results show that gender, marital status, educational level, illness within the past month, smoking, number of household possessions, and strata are statistically significant. Males are happier than females. Those who are married are less happy than those who are single, but this difference is not statistically significant for those who are widow, divorced, and separated. Members of the sample group who have higher levels of educational (lower secondary school and over) are happier than those with lower levels of education. Physical health has a strong relationship with psychological health. Members of the sample group who reported having an illness within the past month are less happy than those who had no illness. Also, those who smoke tend to have lower levels of happiness than those who do not smoke. Concerning economic status, those who have a greater number of household possessions have higher levels of happiness than those with a lower number of household possessions. Compared to living in the urban stratum, those who live in the plantation stratum have lower levels of happiness.

Model 2 adds the physical environment factor of “severity of pollution.” The effects of this control variable on happiness show little change from the first model. For severity of pollution factors, the results clearly show that, holding other factors constant, dust and water pollution have a significantly negative effect on happiness. Those who live in households with more severe dust and water pollution are significantly less happy than those who live in households with less severe pollution.

The last model (Model 3) adds the social environment factor of “perceived social environment.” The effects of control variables and severity of pollution differ little from the second model. The results show that, holding the other factors constant, perceived social environment has a significantly positive effect on happiness. Those who reported a higher perceived social environment score have a higher level of happiness. Therefore, these results confirm the hypothesis that severity

of pollution decreases personal happiness, while a higher perceived social environment score increases personal happiness.

Note that the last model, which takes into account perceived social environment, explains the level of happiness much better than other models. The  $R^2$  increased significantly from Model 2 to Model 3 (about 4%) with only one variable, while the  $R^2$  from Model 1 to Model 2 with eight variables did not change.

**Table 5** Regression model of the relationship between perceived physical and social environment and personal happiness in Kanchanaburi province

Variables	Model 1	Model 2	Model 3
Constant	5.972***	6.053***	5.494***
Age	0.004	0.004	0.003
Male	0.221*	0.215*	0.184*
Marital status (Single: ref.)			
Married	-0.284*	-0.286*	-0.265**
Widow/divorced/separated	-0.162	-0.145	-0.334
Working	-0.078	-0.068	-0.189
Educational level (No education: ref.)			
Lower than primary school	-0.128	-0.130	0.173
Primary school	-0.008	-0.012	0.260*
Lower secondary school	0.372*	0.375*	0.658***
Higher secondary school and over	0.395*	0.384*	0.685***
Illness within 1 month	-0.511***	-0.489***	-0.393***
Smoking	-0.246*	-0.253*	-0.172**
Alcohol drinking	-0.056	-0.040	-0.018
Currently exercising	0.140	0.128	0.155**
Number of household possessions	0.121**	0.120**	0.155***

Household size	-0.016	-0.013	-0.021
Strata (Urban: ref.)			
Rice	-0.072	-0.055	0.046
Plantation	-0.372**	-0.313**	-0.196*
Upland	-0.030	0.007	0.171
Perceived level of pollution			
Noise (0-3)		0.084	0.007
Smoke (0-3)		0.118	0.018
Odor (0-3)		-0.019	0.033
Dust (0-3)		-0.052*	-0.088**
Water (0-3)		-0.189*	-0.141*
Garbage (0-3)		0.042	0.060
Mosquito (0-3)		-0.013	-0.049
Fly (0-3)		-0.072	-0.028
Perceived social environment score			
(0-8)			0.064**
R <sup>2</sup>	0.04	0.04	0.08
Adjusted R <sup>2</sup>	0.03	0.03	0.08

Note: \*p<0.05, \*\*p<0.01, \*\*\*p<0.001

## Discussion

Using the survey data on well-being indicators in Kanchanaburi province, this study aims to answer the two research questions. The first question concerns the level of happiness of people in Kanchanaburi province and the second question concerns how perceived levels of physical and social environment influence the level of happiness of people in Kanchanaburi province.

For the first research question, it was found that the average happiness level of respondents was 5.8, which is above the neutral feeling of “being not unhappy and not happy.” The average level of

happiness differs noticeably across nations. Veenhoven (2009) used an eleven-point scale for his study (0-10) to measure levels of happiness in 148 countries and found that the average level of happiness score ranged from 2.6 in Togo to 8.5 in Costa Rica. The average happiness score in Thailand is 6.6. The findings of an average happiness score of 5.8 in the present study may partly reflect the influence of Buddhist teachings to follow a moderate path or avoid extremes of happiness and sadness. Neutral responses among Thai people were also found in the Gross Domestic Happiness Index, collected monthly by an ABAC poll conducted by Assumption University (Kannika, 2009).

The predominance of Theravada Buddhism is an important aspect of Thai society since it influences Thai people's attitudes, thoughts, and ways of life. Buddhism teaches that avoiding the two extremes of self-indulgence and self-mortification leads to vision, knowledge, awakening, and nirvana, which is the ultimate goal of Buddhists (Bhikkhu, 1996). The ultimate Buddhist goal is true happiness, that is, a spiritual happiness characterized by a freedom from craving. Inspired by Buddhism, Thai people tend to subscribe to the Buddhist notion of seeking a path of moderation between two extremes, feeling satisfied with what they have, and not feeling that resources are inadequate to meet increasing desires. It can be said that Buddhist teachings encourage people to be happy with their current situation, and thus could account for the slightly higher than average happiness scores found in the present study.

Concerning the second research question, factors affecting the level of personal happiness, the perceived level of pollution, and perceived level of the social environment were used to assess the effects of the independent variables. It was found that both the perceived level of pollution and the perceived level of social environment statistically significantly affect the level of personal happiness, allowing for demographic and socioeconomic factors such as age, gender, marital status, working status, educational level, illness within the past month, smoking, drinking alcohol, and current exercise behaviors, number of

household possessions, household size, and strata.

The principle finding from the second research question is that perceived level of pollution has a significantly negative effect on personal happiness, while perceived level of social environment has a significantly positive effect on personal happiness in Kanchanaburi province.

To the extent that the perceived level of pollution affects happiness, it is found that only perceived levels of dust and water pollution significantly affected personal happiness. This finding is consistent with previous research that found perceived levels of air pollution is negatively related to life satisfaction scores (Rehdanz and Maddison, 2008). Dust is one kind of air pollution that can cause harm to humans and air pollution is viewed as a stressor. Negative effects may comprise depression, anxiety, tension, helplessness, and anger (Koelega, 1987). Chattopadhyay et al. (1995) determined that residents of industrial areas are highly affected in terms of physical and mental health. They complained of throat and eye irritation, respiratory problems, tension, and anxiety much more than inhabitants of residential areas.

This study confirms the hypothesis that perceptions about polluted water lower levels of personal happiness. Safe water is essential for human daily life. Millennium Development Goals (MDGs) include access to an improved water source as a goal so that people in urban and rural areas can access safe drinking water. Polluted water has a harmful effect on any living thing that drinks, uses or lives in it. Polluted water may disturb the daily life of people. Israel and Levinson (2003) found that an increase in per capita water pollution is associated with a decrease in subjective well-being. Nevertheless, there might possibly be a different cause which could explain the results. Are happier people more likely to exhibit positive attitudes toward the environment?

Although previous research found the effects of perceived noise (van Praag and Baasma, 2005; Stansfeld et al., 2000) negatively affect personal happiness, this study did not find any relationship between noise

or other perceived level of pollution, on levels of personal happiness. Although Kanchanaburi province has severe problems with mosquitos, leading to a high prevalence of malaria in the area, this does not affect happiness.

This study reveals that perceived levels of social environment are important in explaining personal happiness. When perceived levels of social environment were added to the last model, R-square values increased by about double. Allowing for perceived levels of pollution, those who reported higher perceived levels of social environment were significantly happier than those who had lower perceived levels of social environment. It seems that the hypothesis, stating that life satisfaction and happiness are the outcome of social relations and a good social environment, was clearly confirmed. Social relationships can be seen as a source of well-being (Deci and Ryan 2001), as well as the essential element necessary for humans to flourish (Ryff and Singer, 2000). The results of this study are consistent with previous research which found that social environment has a positive impact on personal health and happiness (Putnam, 2000; Pholphirul and Rakamnuaykit, 2007). Also, individuals who report themselves as living in a high-trust environment report significantly higher levels of life satisfaction and of happiness (Helliwell and Putnam, 2004).

Happiness was also examined in relation to demographic variables and health and economic factors. It was found that married people have lower levels of happiness than those who are single. Highly educated people have higher levels of happiness. As expected, physical health is strongly associated with mental health. Those who have a better health status and behavior report higher levels of happiness. Happiness appears to be increasing among those who live in richer households, when the level of happiness is positively related with number of household possessions. This study found that a certain level of economic well-being would seem to be a necessary condition for happiness. Compared with urban residents in Kanchanaburi province, those in plantation areas have lower levels of happiness.

This study highlights the need to pay special attention to perceived levels of the environment among people in the communities. Communities, cities, or even large social entities might be significant contexts, because at these levels important decisions about the quality of the environment are made. Community development policies and programs should take people's perceptions into consideration when striving to increase the quality of the environment to increase happiness.

Even though the present study cannot compare effects of measured and perceived environmental determinants on personal happiness, it provides the fundamental result that perception of the physical environment may be the most worthy predictor of happiness because respondents are able to include subjective perceptions about aspects of the environment that may not be captured by observer ratings made by persons unfamiliar with a particular location.

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