PERSONAL AND ENVIRONMENTAL CORRELATES OF HAPPINESS

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Summary This study aimed to evaluate an integrative model of happiness which incorporated personal factors (demographics, extraversion, neuroticism and locus of control) as well as environmental factors (life events and social support). A newly developed general measure of happiness of the Chinese people (CHI) was used to assess happiness.

Using systematic random sampling, 494 community residents in Kaohsiung, Taiwan, completed structured questionnaires measuring the above research variables. LISREL analysis showed that social support was an important mediator, which had the strongest association with happiness. Two demographic characteristics, age and gender, had indirect effects on happiness through social support, and so did extraversion. However, neuroticism and locus of control both had direct effects on happiness.

These results are discussed in the contexts of the Chinese conceptualization and pursuit of happiness.

INTRODUCTION

In the emerging research area of subjective well-being (SWB, which is often used interchangeably with happiness), it is now believed that happiness is probably composed of three related components, positive affect, absence of negative affect, and satisfaction with life as a whole (Argyle, Martin & Crossland, 1989). In addition, happiness is better conceptualized as a trait rather than a transient emotional state (Veenhoven, 1994). The SWB research has now progressed from early social surveys looking for 'objective' external indicators (Campbell, 1976; Andrews & Withey, 1976), from scale development (Andrews & Withey, 1976; Diener, Emmons, Larsen & Griffin, 1985), to explaining psychological mechanisms of happiness (Headey & Wearing, 1989; Argyle & Lu, 1990a, 1990b; Lu & Shih, 1997a). Related to this shift in research interest, multivariate approach is becoming a dominant feature in SWB research. However, good causal models are still to be tested using sound methodology.

Psychological correlates of SWB

Two generally oppositional perspectives underline various models and theories proposed to explain the subjective experience of happiness: the person and the environment. Personality models (Costa & McCrae, 1980, 1984) are typical examples of the first perspective. They conceptualize happiness as a stable trait, which depends primarily on personality, hence looking to various personality traits to account for its experiences. These models subscribe to the top-down approach and emphasize the innate capacity for happiness. Clearly, personality matters, but it cannot be the whole story or people's levels of SWB would remain virtually unchanged over their lifetime.

Life events models (Reich & Zautra, 1983; Abbey & Andrews, 1985) are representative of the environment perspective. They recognize that levels of happiness can fluctuate quite substantially for some people over time, hence looking to both major positive and negative life events to account for changes in SWB. These are typically bottom-up models. However, life events are usually treated as exogenous, and their impact static. In fact, some evidence has shown that the same kind of events may keep happening to the same people, indicating that there is some subtle link between personality and the life situations people encountered (Headey & Wearing, 1989).

As in so many cases of psychological inquiry, a particular behaviour or state of mind is most
likely produced by a complex interaction between the person and the environment. This is essentially an interactionist perspective, which may also lead us to answers to our question “why are some people consistently happier than others?”. Therefore, the purpose of this study was to integrate the personality models and the life events model. More specifically, we attempted to study both personality traits and life events as stabilizing and destabilizing agents of the SWB.

Extraversion (E) and neuroticism (N) are two widely researched personality traits, which have been proven to be very stable over time and observable across different cultures (Kline, 1993). Costa and McCrae (Costa & McCrae, 1980, 1984) have shown that these two personality traits can account for a significant variance in SWB, and indeed that they can even predict SWB 20 years later.

Other researchers have also found that extraversion was a strong and consistent correlate of SWB (Headey & Wearing, 1989; Hotard, McFather, McWhirter & Stegall, 1989; Argyle & Lu, 1990a; Furnham & Brewin, 1990; Pavot, Diener & Fujita, 1990; Lu & Argyle, 1991; Lu, 1995). Various explanations of the relationship have been put forward, and they basically subscribe to two approaches. The first approach views the E–happiness relation as an indirect one, mediated by other psychosocial factors. Possible mediators included social desirability response set (Pavot et al., 1990; Hoorens, 1994), enjoyable social activities (Argyle & Lu, 1990a), social skills (Argyle & Lu, 1990b; Lu & Argyle, 1991), non-verbal communication patterns (Argyle, 1988), and sensitivity to behavioural reinforcements (Gray, 1972). This approach is popular because it offers relatively straightforward explanations that conform to our daily observations, as evidenced by the conclusion of Argyle, Martin and Lu (1995) that extraverts are happier than others because they have better social skills, are more assertive and more cooperative, and use a more positive non-verbal style as well as verbal style, which lead them to expect that social encounters will go well, and enable them to take part in and enjoy a range of social situations. It seems that the sociability component of extraversion primarily accounts for this relation.

The second approach insists that the E–happiness relation is a direct one. It is possible that extraversion may act as an antecedent, predisposing individuals to higher levels of happiness experiences. A recent study (Lu & Shih, 1997a) has found that extraversion retained its direct (and the strongest) effect on happiness, whereas the effects of neuroticism and social desirability were largely mediated by mental health.

However, despite these different strands of explanations, one thing is common, that is, although the link between extraversion and happiness is consistently found, it is at best moderate in strength, accounting for no more than 30% of the total variance in SWB. Therefore, there must exist important predictors of SWB other than extraversion, and possibly complex connections between these variables also.

As mentioned above, neuroticism has also been identified as a correlate of SWB, and it has a negative relationship (Headey & Wearing, 1989; Hotard, McFather, McWhirter & Stegall, 1989; Argyle & Lu, 1990a). Since neuroticism has been incorporated in the SWB research only recently, very few studies exist, and even fewer explanations have been proposed. It has been suggested that neuroticism may depress SWB through inflating the levels of negative affect (Emmons & Diener, 1985). It has been found that neurotics tend to have poorer mental health (Smith, Pope, Rhodewalt & Poulton, 1989; Lu, 1994, 1995), which in turn suppressed happiness (Lu & Shih, 1997a). It must be asserted that poor mental health is not the opposite of happiness. Indeed, in the above study, the negative relation between neuroticism and happiness was decomposed into a direct impact and an indirect impact through mental health. Since the happiness measurement used was very low in emotional connotation (only 10% of the items have explicit reference to a particular emotion), it seemed that neuroticism not only inflated negative affect (Emmons & Diener, 1985), but also pervasively influenced all aspects of the SWB. If this finding can be replicated in other independent samples, we might have to readdress the ‘positive bias’ in the SWB research by including ‘negative’ psychological constructs such as neuroticism, pessimism and external locus of control.

Indeed, locus of control is an focal individual difference factor in the study of mental health. Following Rotter’s conceptualization of the internal–external personality dimension (Rotter, 1966), research has generally suggested a linear relationship between locus of control and self-reported psychopathology (Joe, 1971; Levenson, 1973; Wallston & Wallston, 1982; Lu, 1990). Although psychopathology and happiness are not the opposite poles of the same psychological dimension, nonetheless there is an inextricable relationship between the two (Thompson & Heller, 1990; Lu,
Is it possible, then, that the beneficial effects of internal control (or the debilitating effects of external control) regarding mental health can be extended to happiness?

Both positive and negative life events are the focus of life events models (Reich & Zautra, 1983; Abbey & Andrews, 1985). A logical extension is to include social support as another focal variable. The evidence of its beneficial effects, both direct and stress-buffering, is almost unequivocal (Sarason, Sarason & Pierce, 1990). Research has also suggested that changes in life may activate social networks, mobilize one's social resources, and result in an increment of social support to facilitate personal adjustment (Lu, 1990; Lu & Hsieh, 1997). Although very few studies have explicitly examined potential effects of social support on happiness, there have been studies showing the beneficial effects of marriage and friendship on happiness (Argyle, 1987).

To sum up, a primary purpose of this study was to attempt a synthesis of some important elements of personality models and life events models. More specifically, in addition to general demographic variables, two distinct clusters of happiness correlates were incorporated in the same frame of analysis: personality traits, and life events and their resultant social support transactions. Figure 1 gives a graphic representation of the study framework.

**METHOD**

**Subjects**

Through the use of multi-stage systematic probability random sampling procedure, 600 adults aged between 18 and 65 years old, living in all parts of the metropolitan city of Kaoshiung, Taiwan, were sampled for this study. Results reported below were based on the final valid sample of 494 Ss. All Ss were interviewed at home with structured questionnaires during December 1995 and January 1996.

**Measurements**

Data came from several questionnaires/scales, as described below.

**Demographic information.** Subjects' main personal background information was recorded, such as age, gender, marital status and educational attainment.

**Personality traits.** Extraversion and neuroticism were measured by the E and N scales, respectively, in the EPQ (Eysenck & Eysenck, 1975). In this study, the Cronbach alphas were 0.83 and 0.80; the 2.5-yr test–retest with a group of community adults (N = 106) was 0.55 and 0.49. Locus of control was measured by the revised Sphere of Control Inventory (Paulhus, 1983), covering personal efficacy and interpersonal control. The Chinese version had a Cronbach alpha of 0.90 and good validity (Lu, 1994). The 2.5-yr test–retest was 0.32, which was statistically significant, albeit low in magnitude. In all the three cases, higher scores indicated more manifested corresponding personality traits. In the case of locus of control, it was scored in the 'internal' direction.

**Life events.** The Negative Life Events Checklist was based on the Social Readjustment Rating Scale (Holmes & Rahe, 1967), adding some culturally specific events (such as military conscription),
comprising a total of 41 events. The Positive Life Events Checklist was developed through two phases. First, members of the research group conducted 16 unstructured interviews. Interviewees were drawn equally from three age groups (18-30, 31-50 and 51-65 yr) and balanced in terms of gender. During the interviews, recall and free expression of significant positive life experiences were solicited and encouraged. A large pool of discrete positive life events were extracted from these qualitative data. Second, those positive life events were further clarified and modified in terms of language and expression. A pilot test (N = 10) was followed to ensure the content validity, and the final checklist contained 23 positive life events. Thus, a composite Life Events Checklist was composed of 64 events, covering seven life domains: family, work and career, social and leisure, economy and finance, environment, legal, and health. Subjects were required to rate the perceived severity of each event which happened in the past year on a 4-point scale, and two total scores were computed to represent levels of positive and negative impacts brought about by life events. The final version of the Life Events Checklist can be requested from the authors.

Social support. Actual received support was measured by Socially Supportive Behaviours (Barrera, 1981), which included tangible, emotional/companionship, and informational support. In this study, the Cronbach alpha was 0.92; the 2.5-yr test–retest was 0.36. Higher scores indicated higher levels of received support.

SWB. Happiness was measured by the Chinese Happiness Inventory (CHI). This is a newly developed 47-item measurement tapping general subjective experience of happiness for the Chinese people (Lu & Shih, 1997a). Three basic elements of the happiness concept, namely, positive affect, negative affect, and overall satisfaction towards life, were covered, as well as distinctive sources of happiness for the Chinese people based on extensive qualitative groundwork.

The Cronbach alpha was 0.95; the 1-month test–retest with a sample of 46 undergraduate students was 0.66, and the 2.5-yr test–retest with community adults was 0.40. Concurrent validity was evidenced by its correlations of 0.62 with the Life Satisfaction Scale (Diener, Emmons, Larsen & Griffin, 1985), 0.67 with a composite measure of domain satisfaction, 0.48 with a measure of positive affect, and 0.52 with the ‘lack of happiness’ scale (reversely scored) in the Emotional Instability Adjustment Questionnaire (Eysenck & Eysenck, 1975).

RESULTS

Descriptive analyses were first conducted to illustrate the sample’s demographic characteristics. There were 237 males (48%) and 257 females (52%) in the sample. The mean age of participants was 38.32 yr (SD = 12.80), with 30.8% between 18 and 30 yr, 26.1% between 31 and 40 yr, 24.3% between 41 and 50 yr and 18.8% between 51 and 65 yr. More than half (68.5%) were married. Most Ss (77.3%) had received up to 12 yr of formal education, with a mean of 12.13 yr of education (SD = 3.66). Overall, this sample was youngish, married and well-educated, with slightly more females than males.

A series of t-tests and one-way ANOVAs were conducted to examine any possible group differentials in happiness. Results showed that there was no difference between married and single (t = 0.52, p = 0.60), people of four age groups (F = 0.77, ns), and people of six educational groups (F = 0.71, ns). However, there were significant gender differentials in happiness (t = 1.97, p < 0.05), indicating that females were happier than males (M = 70.65 vs M = 66.95). Furthermore, Levene’s test for equality of variance between the two genders was highly significant (p < 0.001), indicating that females had the greater variance.

Pearson correlation coefficients were computed among all variables studied. In the analysis, females were coded as ‘1’ and males as ‘2’, single people were coded as ‘1’ and married as ‘2’, and education levels were converted into years of formal education. For simplicity’s sake, we will focus on correlations involving the dependent variable, SWB. First, gender was the only demographic variable which showed a significant correlation with happiness, corresponding with the t-test result; marital status did not correlate with any other study variables, and was hence omitted from the matrix. Second, extraverts and internals were happier, whereas neurotics were less happy. Third, the impact of positive life events, as well as both frequency and impact of negative events, correlated with happiness. Fourth, social support positively correlated with happiness. Fifth, as in the contexts
of both positive and negative life events, frequency and impact scores were very highly correlated, hence, only the impact measure, which more directly tapped the individual’s subjective experiences, was used in further multivariate analyses.

Based on the research model in Fig. 1 and the correlation matrix in Table 1, an exploratory path analysis was conducted using structural modeling techniques. In this model, happiness was designated as the criterion/outcome variable, impacts of positive and negative life events and social support as mediating variables, whereas demographics, extraversion, neuroticism and locus of control were exogenous variables. More specifically, five groups of routes leading to happiness were proposed, identified by letters above the arrows in Fig. 1: (a) background demographics directly leads to happiness; (b) personality directly leads to happiness; (c) environmental factors, namely life events and social support, directly leads to happiness; (d) background demographics indirectly leads to happiness through environmental factors; (e) personality indirectly leads to happiness through environmental factors.

As this path model was only exploratory in nature, all variables were treated as observed variables. Preliminary analysis showed that none of them had an ideal normal distribution of variance, as required by the normality hypothesis underlying many multivariate statistical methods. However, slight to moderate departure from normality can be tolerated with the maximum likelihood procedure in LISREL, but the chi-square and standard errors in these cases are to be interpreted with caution (Raykov, Tomer & Nesselroade, 1991). This was the case in the present study, hence, the path analysis was conducted using the Maximum Likelihood technique provided in LISREL 7.

Using the preset level of statistical significance ($p = 0.05$) as criterion, those paths with non-significant coefficients ($t < 2$) were then set at ‘0’, and in effect excluded from estimation. A scaled-down model is presented in Fig. 2, and was retested using the same procedure. This time, all estimated path coefficients reached statistical significance, also shown in Fig. 2, with standard errors given in parentheses.

Model evaluation is usually not a simple procedure, and not a single descriptive index of fit seems to be superior to the others and impeccable in this regard (Bentler, 1990; Raykov, Tomer & Nesselroade, 1991). Fortunately, LISREL does offer several indices to help with interpretation of congruence between a proposed model and empirical data. More specifically, acceptable models are usually associated with: (a) a low chi-square value with a non-significant $p$ value for a given level of degree of freedom, and a pre-determined level of statistical significance; (b) high descriptive indices, namely, goodness-of-fit index (GFI) and adjusted goodness-of-fit index (AGFI); (c) a low root-mean-square residual (RMSR). Judging from these criteria, and bearing in mind that some variables did not have perfect normal distributions, the overall fitness of the model was acceptable ($\chi^2 = 13.07$, df = 5, $p = 0.22$). GFI was 0.971 and AGFI was 0.896, with RMSR of 0.062. In other words, the present model did have a non-significant value of chi-square, high descriptive fitness indices, and a relatively low residual term.

However, an inspection of Fig. 2 revealed that the impact of negative life events was related to only one exogenous variable, neuroticism. Furthermore, the path linking the two was rather weak.
To improve parsimony, we decided to further modify the research model, leaving out negative life events. This version is presented in Fig. 3, and was retested using the same procedure. Once again, all estimated path coefficients reached statistical significance, also shown in Fig. 3, with standard errors given in parentheses. The overall fitness of this new model was acceptable ($\chi^2 = 1.24$, df = 5, $p = 0.94$). GFI was 0.997 and AGFI was 0.981, with RMSR of 0.018. In other words, the present model had a non-significant value of chi-square, high descriptive fitness indices, and a rather low residual term. Comparing models in Figs 2 and 3, the latter was not only more parsimonious, but also fitted the empirical data better. Taking into account the small number of variables included and the complex nature of the happiness construct, such a structured model seemed acceptable.
Judging from the magnitude of path coefficients and decomposition of effects on happiness, social support had the strongest beneficial effect on happiness (0.41), followed by the damaging effect of neuroticism (-0.32), the beneficial effect of internal control (0.26), and the female advantage (0.14), entirely through social support. Education (0.06) and extraversion (0.05) had the least effects on happiness, both entirely through social support.

**DISCUSSION**

This study set out to incorporate the personality and life events models of SWB, and to test a structural research model including both personal and environmental variables.

**Personal correlates of SWB**

In the literature, marital status (being married), (high) education, and (high) income are found to have positive effects on happiness, females have a slight advantage over males, and there is a complex effect of age on happiness, albeit the strengths of these relationships are weak, and may be further diminished when psychosocial factors are taken into account (Diener, 1984; Emmons & Diener, 1985). In this study, gender and education were significantly related to happiness, partially corresponding with the general trend. The gender differential in happiness was not found in a previous study (Lu & Shih, 1997a) using the same happiness measurement, albeit with a smaller sample of community adults (N = 191). Pending future replications, the female advantage is interesting for two reasons.

First, Levene's test revealed that females and males did not have equal distribution of variance in their happiness scores. Could it be that there were actually 'qualitatively' different experiences in happiness between the two genders? The present database was unable to shed any more light upon the issue, and answers must await a deeper enquiry grounded in qualitative data. In a previous qualitative interview study focusing on sources of happiness in the Chinese people, Lu and Shih (1997b) did notice some subtle gender differences. Evidence seemed to suggest that females derive greater happiness from harmonious interpersonal relationships, especially those involving family members, whereas males derive greater happiness from material pursuits and career success. Although the sample size was too modest to permit any systematic meaningful analysis, the emerging pattern seemed to adhere to Chinese cultural teachings on gender division in life, and is certainly a worthy topic to look at in any future endeavours.

Second, at least part of the explanation for the female advantage in happiness may rest in their social life. In this study, gender, social support and happiness were significantly inter-correlated. However, after controlling for social support, the partial correlation between gender and happiness ceased to be significant. Results of LISREL modeling corresponded with it: gender had only indirect effects on happiness, through social support. It seemed that the preponderance of females in happiness could be explained by their better social support, which inflates happiness (see Fig. 3).

Adding a cultural tone to the above point, social support is certainly beneficial to all, but may be more important to women in a Chinese society. The Chinese culture has been recognized as a 'culture of family' (Hsu, 1988; Lee, 1988), and according to societal prescriptions, 'home' is largely a female domain. Research has found that for the Chinese people, the most prominent source of social support was the family (Hsieh, 1994), and females were socialized to be the main support provider (Lu & Hsieh, 1997). However, as the centre of family social and emotional life, females also receive more support, and tend to perceive their 'gives' and 'gets' as balanced (Lu & Hsieh, 1997). Furthermore, caring/nurturing (giving support) and weakness/naivety (needing support) were two key features of the Chinese conceptualization of femininity, which both contribute to better psychological adjustment (Wu, 1995). In a nutshell, a Chinese woman is culturally trained to not only give support selflessly, but also take support without any guilt or self-doubt, as both behaviours are consistent with femininity.

In this study, extraversion was not directly related to happiness; its impact was mediated by social support. Research has found that extraverts had better social skills (Lu & Argyle, 1991), which was a necessary quality for obtaining effective social support (Goldsmith & Parks, 1990). It is not surprising, then, that the relationship between extraversion and happiness can be explained in terms
of social support. In fact, in another study with Chinese community adults (Lu, 1995), extraverts did receive more social support.

On the other hand, the effect of extraversion on SWB was not mediated by impacts of life changes. Recall that extraversion was found to be related to occurrence of life events in a panel study (Headey & Wearing, 1989). It seems that extraversion predisposed people to encounter certain types of life situations, but served to retain stability in SWB rather than depressing or inflating it to correspond with various life situations.

Neuroticism had different roles in relation to happiness. In a previous study (Lu & Shih, 1997a), it was found to affect SWB through inflating mental ill-health, whereas in this study, it asserted a strong direct impact on happiness. Whether direct or indirect, the repeatedly found neuroticism–happiness linkage has a two-fold implication for the SWB study. First, the influence of neuroticism may not be restricted to negative affect (Emmons & Diener, 1985) or life satisfaction (Headey & Wearing, 1989), but rather be pervasive and general on SWB. Second, the 'positive bias' phenomenon in the SWB research must be addressed seriously; including more 'negative' constructs such as neuroticism and pessimism can help to enrich and deepen the SWB research.

Internal–external locus of control has mainly been studied in the context of psychological distress. This study has extended its well-documented protective effect on mental health (see Steptoe & Appels, 1989) to happiness. However, is it possible that experiencing a lot of negative life events (very often they are uncontrollable) would contribute to feelings of external control and lowered happiness? The three variables were significantly correlated in this study. Nonetheless, after controlling for the impact of negative events, the partial correlation between internal control and happiness was unchanged ($r = 0.35$). Therefore, the above possibility must be rather slim, and locus of control probably has an independent effect on happiness, despite ups and downs in life. This is certainly another worthy issue for future replications.

**Environmental correlates of SWB**

Social support was the most important contributing factor to happiness. In addition to being a vital mediator for various personal factors, it asserted strong impact directly to enhance happiness. Undoubtedly, the long-celebrated protective effects of social support can now be extended to happiness, and we cannot afford to omit such a key agent.

Life events were seldom incorporated in the study of SWB (Headey & Wearing, 1989, being an exception); even if they were incorporated, researchers seemed to conceptualize them as recurrent conditions of life, such as sex, leisure and social events, rather than discrete acute life changes; furthermore, researchers seemed to draw a subtle distinction between positive life events and negative ones. The hidden assumption may be that positive life events would enhance positive life experiences, for instance, happiness, whereas negative life events would trigger negative life experiences, for instance, psychological ill-health. In other words, there seemed to exist a 'congruence hypothesis' underlying the SWB research, tilting it towards a 'positive bias'. As we have seen before, this line of thinking has unwittingly restricted the scope of SWB research; again, in the case of life events, this 'congruence hypothesis' was unsupported.

Although Model 2 (in Fig. 2) was only provisional, it showed that experiencing negative life events was detrimental to happiness, whereas positive life events bore no relation to happiness. The apparent importance of negative life events over positive ones was unexpected and went against the 'congruence hypothesis'. The key to this puzzle may rest in the Chinese cultural heritage.

In the *Book of Change*, which is undoubtedly one of the oldest and most influential philosophical works, everything from the cosmos to human life is viewed as a never-ending, cyclic process of change, between good and bad, happiness and misery, well-being and ill-being. Therefore, good things are inevitably followed by bad things; similarly, misfortune will be replaced by blessing. This cyclic life view has guided Chinese minds and lives through thousands of years, reflected in popular beliefs such as 'free of misfortune is a blessing'. Viewed in this cultural perspective, it is now easier to make sense of the above empirical finding: when a positive life event happens, people would caution themselves not to be over the moon about it, hence its uplifting capacity would be consciously suppressed; conversely, when a negative life event happens it would damage mental health, which in turn suppresses happiness (Lu & Shih, 1997a). This interpretation seemed to correspond with the
social reality of a Chinese society, but the issue of cultural distinctiveness vs universality will need more empirical studies before it is resolved.

Limitations of this study

This was a cross-sectional study, and essentially correlational in nature, hence, no firm causal inference should be drawn. Indeed, there might possibly be a different direction of causation which could explain the results. Could happiness cause personality? There is no theoretical basis for this, while there are several for the personality-to-happiness direction.

Could happiness cause social support? This seems almost an equally likely possibility. Unhappy people (e.g. depressed patients) were found to be poorly supported, although they had an equal number of network resources as normal people (Lettner, Baumann, Solva & Reisenzein, 1995); such lack of support left them even more vulnerable to ill-health and unhappiness, thus forming a vicious circle. However, we will need longitudinal data, for instance a panel study, to clarify the recursive relationship between mental health and happiness. This is an area ripe for future research.

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REFERENCES


