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PERSONALITY AND HAPPINESS: IS MENTAL HEALTH A MEDIATOR?

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Summary—A general measure of happiness of the Chinese people was developed based on results from a qualitative research done with Chinese people in Taiwan, as well as translating items from a well-established Western instrument. Using systematic random sampling, 191 community residents in Kaohsiung, Taiwan, completed measures of extraversion, neuroticism, social desirability, mental symptoms and happiness. LISREL analysis showed there was a positive direct relation between extraversion and happiness; both a negative direct relation between neuroticism and happiness, and an indirect one through symptoms; both a positive direct relations between social desirability and happiness, and an indirect one through symptoms; whereas there was a negative direct relation between symptoms and happiness. © 1997 Elsevier Science Ltd. All rights reserved

INTRODUCTION

Philosophers, East and West, ancient and contemporary, believe that the pursuit of happiness is the ultimate goal in human existence (see Bauer, 1976), many psychologists, too, have recently devoted their efforts to the emerging research area of subjective well-being (SWB) or happiness, resulting in a surge of publications in recent years (See Argyle, 1987; Diener, 1984; Argyle & Schwarz, 1991; Veenhoven, 1984 for comprehensive reviews). For the sake of simplicity, in the present paper, we treat SWB and happiness as two interchangeable terms.

It is now believed, with a fair degree of consensus among researchers, 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 (Andrews & Withey, 1976; Campbell, 1976), from scale development (Andrews & Withey, 1976; Diener, Emmons, Larsen & Griffin, 1985), to devising and testing theories/models of happiness (Argyle & Lu, 1990a, 1990b; Headey & Wearing, 1989). In other words, psychosocial correlates and psychological mechanisms of happiness have now become the primary focus of SWB research (Emmons & Diener, 1985; Lu, 1995). Related to this shift in research interest, multivariate approach is becoming a dominant feature in the SWB research. However, good causal models are still to be tested using sound methodology.

Psychological correlates of SWB

Three types of models have been proposed to conceptualize determinants or correlates of SWB: personality models, models based on assessing effects of life events, and adaptational models. Personality models (Costa & McCrae, 1980, 1984) conceptualize happiness as a stable trait, which depends primarily on personality, hence, looking to various personality traits to account for its stability. Clearly, personality matters, but cannot be the whole story, or people's levels of SWB would remain virtually unchanged over their lifetime. Life events models (Abbey & Andrews, 1985; Reich & Zautra, 1983) do recognize that levels of happiness can fluctuate quite substantially for some people over time, hence these look to both major positive and negative life events to account for changes in SWB. However, those life events are usually treated as exogenous, and their impact

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static. In fact, some evidence has shown that the same kind of events may keep happening to the same people, indicating that there are some subtle links between personality and life situations people encounter (Headey & Wearing, 1989). The adaptational models (Brickman, Coates & Janoff-Bulman, 1978), nonetheless, asserted that people adapt so rapidly even to catastrophic life events that no effect on SWB can be detected. However, we are more interested in answering the question "why are some people consistently happier than others?", which is the focus of the personality model. This is essentially a research topic within the realm of individual differences, and can be adequately tackled using the most economical cross-sectional design. Furthermore, based on the idea that life events can be 'endogenous', hence partly explained by personality traits, we attempted to extend the original personality model to incorporate some elements of the life events model.

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 (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 (Argyle & Lu, 1990a; Furnham & Brewin, 1990; Headey & Wearing, 1989; Hotard McFatter, McWhirtter & Stegall, 1989; Lu, 1995; Lu & Argyle, 1991; Pavot, Diener & Fujita, 1990). Various explanations of the relationship have been put forward, including social desirability response set (Hoorens, 1994; Pavot, Diener & Fujita, 1990), 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). Argyle, Martin and Lu (1995) concluded after reviewing the relevant evidence that, extraverts are happier than others because they have better social skills, are more assertive, more cooperative, use a more positive non-verbal style as well as a 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. However, a nagging fact is that 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. Furthermore, some researchers have unravelled interesting interactive relations between extraversion, neuroticism, and social relationships in predicting SWB (Hotard *et al.*, 1989). A strong relation between extraversion and SWB occurred only among individuals who were highly neurotic or who had poor social relationships. Therefore, there must exist important predictors of SWB other than extraversion, and possibly complex interactions between these variables, too.

As mentioned above, neuroticism has also been identified as a correlate of SWB, and it is a negative relationship (Argyle & Lu, 1990a; Headey & Wearing, 1989; Hotard *et al.*, 1989). Since neuroticism has been incorporated in the SWB research only recently, very few studies exist, and even fewer explanations are 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 (Lu, 1994, 1995; Smith, Pope, Rhodewalt & Poulton, 1989), whereas extraverts tend to have better mental health (Lu, 1994; Lu & Argyle, 1991). In the past, some researchers have operationalized happiness in terms of mental health, however, we believe that absence of psychological symptoms does not guarantee happiness at all. Nonetheless, there is an inextricable relationship between the two (Lu, 1995; Thompson & Heller, 1990). Is it possible, then, that mental health or psychological symptoms actually mediates the observed relationship between personality traits and SWB?

Are people really happy or simply say they are to conform to social norms? This is a classic question of validity of self-report methods. Although the strong association between extraversion and happiness cannot be attributed to social desirability response set (Hoorens, 1994), evidence has shown that test situations varying in social desirability features do influence reported happiness (Argyle, 1987). Furthermore, there were systematic cultural or national differences in reported happiness (Diener, Suh, Smith & Shao, 1994; Quweneel & Veenhoven, 1991). A plausible explanation is that each group or society has some implicit but strong conventions or social norms as to what level of happiness is desirable to present; its members often internalize these norms, and report adequate levels of happiness to conform to the norm, hence the above mentioned systematic national differences. However, people can still vary in their awareness, sensitivity and conformity to these

social conventions of, emotion expression for instance (Sommers, 1984). Social desirability is a personality trait that can just capture this individual difference. Therefore, to improve validity of the present study, social desirability operationalized as a personality trait, was included as a control variable.

Development of a Chinese happiness measurement

We have noticed that almost all existing work on SWB has been carried out by Western researchers in the West. Any students of social psychology would not deny the possibility that cultural influence may be so profound as to render a complete implantation of Western conceptualization and measurement fatally flawed. Preliminary research using qualitative methods have indeed revealed that the Chinese conceptualization of happiness is different for its Western counterpart (Lu & Shih, in press). More specifically, some of the common sources of happiness are distinctively Chinese, which are not adequately covered in Western instruments. This study, therefore, attempted to first develop a suitable comprehensive measurement of general SWB in a Chinese culture, then test the hypothesized mediating effects of mental health on personality/happiness relationship, while controlling for social desirability in a Taiwanese community. In a nutshell, we attempted to clarify the relationship between several personality traits and SWB.

METHOD

Subjects

Through the use of multi-stage systematic probability random sampling procedure, 200 adults aged between 18–65 living in one randomly chosen district in the metropolitan city of Kaoshiung, Taiwan, were sampled for this study. Results reported below were based on the final valid sample of 191 *S*s. All *S*s were interviewed at home with structured questionnaires during July–August 1994.

Measurements

Data came from several questionnaires/scales described below:

Demographic information. *S*s main personal background information were recorded, such as age, gender, marital status, and educational attainment.

Personality traits. Extraversion, neuroticism and social desirability were measured by the E, N and L scales in the EPQ respectively (Eysenck & Eysenck, 1975). The EPQ-P scale was not administered since psychotism was not hypothesized to be a correlate of SWB in the present study.

Mental health. Psychological symptoms were assessed by the Chinese version of the SCL-90-R, named the Brief Symptoms Rating Scale (Derogatis, Rickels & Rock, 1976). In this study, only three of the subscales were used: depression, anxiety and common somatic symptoms. A total score was then computed summing all three subscales.

SWB. Happiness was measured by the Chinese Happiness Inventory (CHI). This 48-item measurement was based on the Oxford Happiness Inventory (OHI; Argyle & Lu, 1990a), which is a 29-item happiness measure including positive affect, negative affect, and overall satisfaction towards life. After Chinese translation and testing of reliability and validity in a large-scale community study (Lu, 1994), one item with ambiguous meaning was deleted. Based on results of a qualitative study adopting methods of concept analysis and qualitative interview (Lu & Shih, in press), we realized that the Chinese concept of happiness has some quite different features. We therefore added 20 more items to cover aspects of Chinese happiness not yet covered by the OHI. More specifically, these new items corresponded to the following sources of Chinese happiness: "Harmony of interpersonal relationships with family members and friends" (three items), "Gratification of need for others' respect" (two items), "Satisfaction of material needs" (three items), "Achievement at work" (three items), "Taking pleasure at others' expenses" (three items), and "Being at ease with life" (six items). The response format for the CHI is a reverse of that used for the famous Beck Depression Inventory (BDI), to best capture the positive skewed nature of the happiness construct. A full list of the new Chinese items can be obtained from the authors.

Item analysis on the CHI showed the ITC for all 48 items were very high, hence no item was dropped. The 28 original OHI items and the 20 new Chinese items blended very well together,

Table 1. Correlation matrix

	X1	X2	X3	Y1	Y2
Extraversion (X1)	1.00				
Neuroticism (X2)	−0.08	1.00			
Social desirability (X3)	−0.12	−0.20	1.00		
Mental health (Y1)	−0.13	0.36	−0.24	1.00	
Happiness (Y2)	0.35	−0.31	0.28	−0.36	1.00

Note: Mental health (Y1) was keyed in direction of ill health (symptoms).

resulting in a correlation coefficient of 0.94, and each correlated very highly with the 48-item scale at 0.85 and 0.98. An exploratory factor analysis using principal components technique on the CHI also showed that there was most likely only one general factor accounting for a substantial amount of variance. Therefore, the 48-item CHI was treated as a single measurement. The internal consistency Cronbach's alpha was 0.95, and the test–retest reliability with 1 month interval using a sample of 46 undergraduate students yielded a coefficient of 0.66.

Concurrent validity was tested by correlating the CHI with the Life Satisfaction Scale (Diener *et al.*, 1985) and a measure of Positive Affect rating emotions of happy, confident and content on 10-point scales. The correlation coefficients were 0.62 and 0.48 respectively, both reached statistical significance. To sum, the preliminary evidence showed that reliability and validity of the newly developed CHI is quite good.

RESULTS

Descriptive analyses were first conducted to illustrate the sample's demographic characteristics. There were 91 males (47.6%) and 100 females (52.4%) in the sample. The mean age of participants was 34.52 (SD = 11.33), 42.9% of whom were between 18–30 years old, 27.3% between 31–40, 21.4% between 41–50, and 8.4% between 50–65. More than half (62.0%) were married. Most *S*s (65.2%) had received up to 12 years of formal education, with a mean of 12.9 years of education (SD = 9.57). Overall, this sample was predominantly young, married and well-educated, with slightly more females.

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 males and females ($t = 0.16, P = 0.88$), 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). Therefore, all *S*s were pooled together for further analyses.

Pearson correlation coefficients were computed among all variables studied. Females were coded as '1' and males as '2'; single people were coded as '1' and married people as '2'. Education levels were converted into years of formal education. For simplicity's sake, we will focus on correlations involving the dependent variable, SWB, as well as the mediating variable, psychological symptoms. First, none of the demographic variables showed significant correlations with happiness or mental health. Second, extraverts were happier ($r = 0.35, P < 0.01$), whereas neurotics were less happy ($r = -0.31, P < 0.01$). Third, people who were higher in social desirability reported higher happiness ($r = 0.28, P < 0.01$). Fourth, psychological symptoms were negatively correlated with happiness ($r = -0.36, P < 0.01$). Fifth, although extraversion did not correlate with psychological symptoms, both neuroticism and social desirability did ($r = 0.36$, $P < 0.01$ and $r = -0.24$, $P < 0.01$ respectively).

Based on the correlation matrix shown in Table 1, an exploratory path analysis was conducted using structural modelling techniques. Demographic variables were excluded from further analysis, since they bore no relation to either happiness or mental health. The hypothesized relationship between extraversion and mental health as a potential route leading to happiness did not receive confirmation even at correlational level, therefore, the coefficient for this path was set at '0', and in effect excluded from estimation.

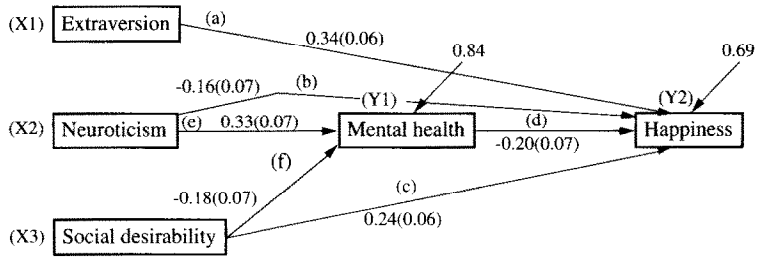

Fig. 1

The model tested is shown in Fig. 1. In this model, happiness was destined as the criterion/outcome variable (Y2), mental health (psychological symptoms) as a mediating variable (Y1), whereas extraversion (X1), neuroticism (X2) and social desirability (X3) as exogenous variables. More specifically, six routes leading to happiness were proposed, identified by letters above the arrows in Fig. 1: (a) extraversions directly leads to happiness; (b) neuroticism directly leads to happiness; (c) social desirability directly leads to happiness; (d) mental health directly leads to happiness; (e) neuroticism indirectly leads to happiness through mental health; and (f) social desirability indirectly leads to happiness through mental health. We must emphasize here that this path model was only exploratory in nature, since a sample size of 191 is not sufficient to achieve modelling stability for a very extensive structural model, however, it should be feasible for a simple one with only observed variables as described above.

Preliminary analysis showed that none of the five observed variables 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, are in these cases 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. All estimated path coefficients reached statistical significance (preset at $P = 0.05$), shown in Fig. 1, with standard errors given in brackets. Judging from the magnitude of path coefficients and decomposition of effects on happiness (presented in the first three columns of Table 2), extraversion had the strongest beneficial effects on happiness, followed by social desirability, mainly through its direct beneficial effect. The third and fourth contributors were neuroticism and mental health, both had detrimental effects on happiness. Again, the direct effect of neuroticism was more important than its indirect effect through mental health.

Model evaluation is usually not a simple procedure, and no single descriptive index of fit seems to be superior to the others and impeccable in this regard (Bentler, 1990; Raykov, *et al.*, 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); and (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 marginally acceptable (chi-square = 3.66, d.f. = 1, $P = 0.056$). GFI was 0.992, and Agfi was 0.886, with RMSR of 0.035. In other words, the present model did have a non-significant value of chi-square, high descriptive

Table 2. Decomposition of effects on happiness and indices of model fitting

Variables	Direct effect	Indirect effect	Total effect	R square	
Extraversion (X1)	0.34	—	0.34		Chi-square = 3.66
Neuroticism (X2)	−0.16	−0.07	−0.23		d.f. = 1, $P = 0.056$
Social desirability (X3)	0.24	0.04	0.28		GFI = 0.992, AGFI = 0.886
Mental health (Y1)	−0.20	—	−0.20	0.16	RMSR = 0.035
Happiness (Y2)				0.30	

fitness indices, and a low residual term. In a nutshell, the proposed model depicted in Fig. 1 was not significantly different from the underlying structure of the empirical data.

Considering the internal structure of the model, R squares for Y variables are presented it the fourth column of Table 2. A respective 16% and 30% of variance in mental health and happiness could be explained by the present model. Taking into account the small number of variables included and the complex nature of both mental health and happiness constructs, such a model structure seemed acceptable.

DISCUSSION

This study set out to: (a) to develop a general measurement of SWB for Chinese people, and to test preliminarily for its reliability and validity; and (b) to examine the possibility of mental health acting as a mediator between personality and SWB.

Development of a Chinese happiness measurement

This objective has largely been achieved. The newly developed 48-item CHI adopted a multi-item, multi-facet approach, together with a positively skewed response format, as suggested by Diener (1984) after his extensive review of existing Western measures of SWB. The CHI was also extensively enriched on the basis of OHI, to reflect its cultural root in the Chinese conceptualization of happiness. Since the translated 28 OHI items has been proven applicable to the Chinese people (Lu, 1995), it can be regarded as the 'universal' component of the CHI, whereas the remaining 20 items as the 'particular' component. The 48-item version certainly can better assess happiness of the Chinese people, nonetheless, if cost and length are important concerns, the short version containing only the 'particular' component may be administered. On the other hand, the 'universal' component can be drawn upon whilst attempting cross-cultural comparisons.

Overall, the reliability and validity of the CHI were quite good. It is a promising tool for future research with Chinese people involving happiness. Of course, applying the CHI to another independent, hopefully larger heterogeneous adult population to test its reliability and validity would further strengthen its potential as a general measure of SWB.

Psychological correlates of SWB

In this study, none of the demographic variables related significantly to happiness. Although 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 a complex effect of age on happiness, the strength of these relationships are weak, and may be further diminished when psychosocial factors are taken into account (Diener, 1984; Emmons & Diener, 1985). Viewed in this general trend, the insignificance of 'objective' external indicators found in the present study is not improbable. Nonetheless, it still goes against some specific findings in the literature. For instance, married people were found to be happier than others (Rodgers & Bachman, 1988; Wood, Rhodes, Whelan, 1989). The marital status differentials in happiness, however, might be far more complicated than they appeared at first glance.

It seemed that the impact of marriage on happiness may be a 'check-shaped' rather than a linear relationship (Argyle, 1987; Rodgers & Bachman, 1988). More specifically, the decision to get married seems to lift up a person's level of happiness, which drops after the actual transition, and steadily goes down for the first few years into marriage, only to recover slowly later. It is quite possible that in a heterogeneous adult sample like this one, without information about years people spend in a marriage, its different temporal effects on happiness will cancel each other out, resulting in a non-significant relationship.

Another possibility was cultural. An inherent feature of a Western marriage is changes in living arrangement. Getting married (at least for the first time) signals the start of one's own family, and moving out of the parents' residence if they had not already done so earlier. However, with a strong cultural value on family/clans, rigid social norm on filial piety, and a traditional arrangement of married sons with their wives living with elderly parents, a Chinese person who has changed his/her marital status, most likely has not changed living arrangement. This distinctively Chinese

phenomenon could have blocked one route of marital influence on happiness, which is changes in living arrangement (Rodgers & Bachman, 1988).

The proposed mediating effects of mental health were partially confirmed: mental health mediated effects of neuroticism and social desirability on SWB, but not those of extraversion.

Extraversion was directly related to happiness, in other words, its consistent impact on SWB was not mediated by mental health. If we can reasonably assume that mental health levels fluctuate with positive or negative events happening in one's life, then, we should be able to conclude that effects of extraversion on SWB are independent of changes in life situations. 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 serving to retain stability in SWB rather than depressing or inflating it to correspond with various life situations.

Neuroticism, on the other hand, had different roles in relation to happiness. In addition to replicating the negative relation between neuroticism and happiness, we have further decomposed it into a direct impact and an indirect impact through mental health. Since the CHI is very low in emotional connotation (only 10% of the items have explicit reference to a particular emotion), it seems 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 those 'negative' psychological constructs, such as neuroticism, pessimism, and external locus of control.

Finally, social desirability was found to positively alter the SWB reports. Since in a context of social survey, manipulating test situations to control for this positive bias can be very problematic, inclusion of a brief social desirability measure can be a valuable aid.

Limitations of this study

Before concluding this paper, several limitations of the study must be discussed. First, 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 that could explain the results. Could happiness cause personality? There is no theoretical basis for this, whilst there are several for the personality–happiness direction. Could happiness cause mental health? This seems almost an equally likely possibility. The most plausible theory is: mental health fluctuates in response to negative or positive events happening in one's life, suppressing or inflating happiness, which in turn further damages or enhances mental health, forming something like a feedback loop. 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.

Second, as mentioned earlier, the sample size in this study was too moderate for sophisticated statistics. The structural modelling techniques used remains very much exploratory in nature. Although in the absence of longitudinal or experimental data, there are clear theoretical reasons for preferring the causal model proposed and tested, independent replications with larger samples will be a desirable goal for future research.

Finally, this study did not explicitly measure life events, only implicated their effects within the construct of mental health. Indeed, measuring life events in a community sample using conventional events checklists may result in a rather skewed distribution plus an extremely heterogeneous data pool. One remedy is to conduct a prospective study with a group of people who are expecting the same life transition, such as getting married or going to study abroad, following them through the process of this transition, measuring their personality, perceived impact of the transition in question, mental health and happiness at several critical points in time. Such a project will incorporate both personality and life changes as stabilizing and destabilizing agents of the SWB; it will also clarify the recursive relationship between mental health and happiness. The present study certainly points us in this direction.

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