

## **Do national levels of individualism and internal locus of control relate to well-being: an ecological level international study**

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**Summary**

Data were collected from managers in 24 nations/territories on work locus of control (LOC), individualism–collectivism (I–C), and well-being (job satisfaction, absence of psychological strain, and absence of physical strain). There were significant mean differences across samples on all five of these measures, and consistent with our hypothesis, at the ecological or sample mean level well-being was associated with an internal locus of control. However, contrary to our hypothesis, well-being was not associated with I–C, despite a strong correlation between I–C and LOC. Findings at the ecological level were consistent with the literature concerning the salutary effects of control on well-being. Copyright © 2001 John Wiley & Sons, Ltd.

## Introduction

There has been increasing interest in cross-national research that attempts to understand differences and similarities among employees from different cultures and nations. One of the basic issues of concern to organizational researchers is the health and well-being of employees, and it has been viewed as both a response to the work environment and as an affect-related antecedent of other employee outcomes such as job performance or turnover. Employee control beliefs and perceptions have been linked to well-being and play an important role (Ganster and Fusilier, 1989; Spector, 1982). Although there is a tremendous amount of research at the individual level relating control and other variables to well-being, most has been done in the USA and a handful of western nations, and most has targeted the individual employee. Our study compared managers from 24 nations/territories at the ecological or sample mean level (Leung and Bond, 1989), as opposed to the individual participant level, in order to draw more definitive conclusions about nation differences.

### *International differences in well-being*

Well-being at work can be indexed by a number of variables. We chose three for this study—job satisfaction, absence of psychological strain, and absence of physical strain. Job satisfaction is concerned with how people feel about work—whether or not they enjoy their jobs. It has served a central role in many areas, from job design to leadership, and is used as a general indicator of employment-related well-being that is appropriate across nations/cultures (Bhagat *et al.*, 1990). Job stress is concerned with the impact of job conditions on people's health and well-being, indicators of which are called job strains. We include a measure of psychological strain, which indicates the extent to which individuals are experiencing psychological distress, such as anxiety or tension. Physical strain is indicated by somatic symptoms associated with stress. Absence of strain is an indicator of well-being.

We chose these particular measures because they have been well studied, and combined they cover a broad portion of well-being that is specifically relevant to work. Job satisfaction reflects a person's general attitude about his or her job. It reflects an overall evaluation that is an important indicator of work well-being. Mental strain reflects psychological well-being in terms of emotional response to work. High strain means the individual is experiencing negative emotional responses such as anxiety and tension. Physical strain is the short-term physiologically based reaction to the job. It consists of somatic symptoms linked to both job stressors and psychological strain, such as anxiety.

Most studies of well-being have looked at individuals, but a handful of studies have investigated cross-nation differences in employee well-being. Such studies have shown that on average, people

across different nations differ. This is not to say that every individual within a nation is the same, or that there isn't overlap in distributions across nations. Well-being itself is in fact an individual variable, i.e., people and not nations experience well-being. However, as pointed out by Morgeson and Hofmann (1999) individual level constructs take on collective level meaning when individuals within that collective interact in a way that has implications for the construct. To put this in our context, it can be meaningful to discuss well-being at the national level if it can be argued (and better still demonstrated) that social interaction among people within a society affects well-being. In other words, if we detect well-being differences, can we attribute those differences to experiences and interactions that vary across nations due to cultural and other factors? Thus in some nations, accepted workplace practice might enhance well-being whereas in others it may inhibit it.

We are not, however, arguing that well-being is an emergent group-level phenomenon (Kozlowski and Klein, 2000) analogous to organizational climate or team effectiveness. Well-being is an individual phenomenon and we are not suggesting that there is a national well-being that is reflected in our aggregated individual data. However, we are suggesting that there are meaningful nation-level differences in well-being, and that they are the byproduct of interaction among people within their national and cultural contexts. It has been noted that most studies of culture have relied on aggregating individual-level responses such as values, because the individual level is the byproduct of both unique individual experience and shared cultural influences (Chao, 2000), and this is the approach we have taken.

The existing work on national differences in work well-being have shown some differences, but the picture is far from complete, and few studies have addressed possible reasons. For example, Japanese consistently report less job satisfaction than Americans, as well as other nations (Bae and Chung, 1997; DeFrank *et al.*, 1988; Lincoln *et al.*, 1981; McCormick and Cooper, 1988; Smith and Misumi, 1989). DeFrank *et al.* (1988) found that physical strains were also higher in Japanese than in Americans, and Iwata *et al.* (1989) reported a higher level of depressive symptoms in Japanese than Americans. Although these findings have been consistently shown, there is little research reflecting on the reasons. Some have suggested that Japanese tend toward a modesty bias that leads them to avoid reporting high levels of well-being (Smith *et al.*, 1995), but it is not clear to what extent these reports reflect mere bias or accurate experience.

Looking at a broader range of nations, McCormick and Cooper (1988) found that Anglo and western European nations, such as New Zealand, Germany, Sweden, and the USA had better psychological health and higher job satisfaction than nations in Asia (Japan and Singapore), South America (Brazil) or the middle east (Egypt). Sadri *et al.* (1996) attributed these differences to level of economic development. Thus, we can say that nations may vary in the extent to which people report well-being at work, but few generalizations or conclusions have been drawn.

### *Individualism–collectivism (I–C) and well-being*

I–C is a dimension of values that has been studied extensively in relation to culture. As defined by Triandis (1995), individualism is a tendency for people to be motivated primarily by their own goals and preferences, or what has been termed the independent self (Markus and Kitayama, 1998) and an expression of autonomy need (Kagitçibasi, 1994). Collectivism, on the other hand, is a tendency to view one's self as part of a network of social groups, or a reflection of the interdependent self (Markus and Kitayama, 1998), and an expression of relatedness need (Kagitçibasi, 1994). Individualist nations are found in the Anglo-European world, including the United States, Canada, Western Europe, Australia and New Zealand. Collectivist nations are found in Asia (China, India, and Japan), Latin America (Hofstede, 1984), and other places.

There is reason to expect that I–C at the nation level will relate to well-being, although there are contradictory mechanisms likely at work. On the one hand, it has been noted that people from collectivist societies enjoy a higher level of social support from extended family, friends, and work group than do people from individualist societies, and this has been linked to enhanced psychological (Sinha and Verma, 1994) and physical (Ilola, 1990) well-being. Furthermore, individualists are likely to struggle with personal problems on their own, whereas collectivists will seek help from others in their group (Sinha and Tripathi, 1994). On the other hand, individualists tend to focus on their own needs and therefore will spend more time than collectivists seeing to it that their well-being is enhanced (Reykowski, 1994).

There is little direct evidence that addresses the link between I–C and well-being. In the job stress area, Peterson *et al.* (1995) found that role stressors related to I–C in an ecological study of 21 diverse nations. Individualism was associated with higher levels of role ambiguity and role conflict. This suggests that people in collectivist societies are more likely to feel that they know their role at work and perceive relatively low conflict among roles, compared to individualist societies. Although they didn't report data on strains, these role variables have been shown to relate to well-being at the individual level (Jackson and Schuler, 1985), and perhaps this will hold at the ecological level as well. All this leads to the first hypothesis that well-being should be negatively related to I–C at the ecological level:

*Hypothesis 1:* At the ecological level, collectivism is associated with higher levels of well-being.

### *Work locus of control and individualism–collectivism*

Locus of control (LOC) reflects an individual's tendency to believe that he or she controls events in life (internality) or that such control resides elsewhere, such as with powerful others (externality). Work LOC concerns beliefs about control specifically in the job domain, as opposed to life in general. There is reason to expect that I–C will relate to LOC. People in individualist nations are taught to value and pursue independence and individual achievement (Gudykunst, 1998), which should lead to beliefs in personal control. People in collectivist nations are taught to value interpersonal harmony and solidarity that results in an emphasis on interdependence and group achievement (Markus and Kitayama, 1991), or control by others rather than the self.

It has been found that compared to people in individualist nations, people in collectivist nations both value autonomy less (Lundberg and Peterson, 1994), and perceive less autonomy (Smith *et al.*, 1995). Furthermore, studies have shown that collectivist Asians (e.g., Chinese and Japanese) are more external in their general locus of control (LOC) than individualistic Americans and other western nations (Hamid, 1994; Hui, 1982). Nations in eastern Europe that were formally under control of the Soviet Union are also collectivistic. Arguments have been advanced that the state-dominated economic system in eastern Europe should have led to the development of an external locus of control at work (Frese *et al.*, 1996; Tobacyk and Tobacyk, 1992).

One must be cautious, however, in overgeneralizing these findings. Smith *et al.* (1995) used a general scale of LOC in their 35 nation study, but used multidimensional scaling to produce three dimensions. At the ecological level, only one dimension relating to the effectiveness of the individual in daily life was related to I–C with individualism associated with internality. In reviewing the cross-cultural literature on LOC, Hui (1982) cautioned that we must use specific rather than general measures of LOC. In this study we chose a measure of LOC specific to the workplace. This is a domain in which we would expect I–C to show strong effects with beliefs about control, and workplace LOC should reflect workplace practices that vary across nations. The workplace is a setting in which achievement is emphasized, although how it is emphasized can vary across nations. Individualist workplaces are expected to focus on individual action and autonomy as people are expected to achieve work-related

objectives for the organization. Collectivist workplaces, by contrast, focus on group action and achievement rather than the individual. People in individualist societies are likely to see themselves as having control over their careers and work, whereas people in collectivist societies see career and work as under control of groups. This leads to our second hypothesis that work LOC will relate to I-C.

*Hypothesis 2:* The mean level of work LOC will be related to the individualism of a nation/territory such that individualism is associated with internality.

### *Locus of control and well-being*

Theories of both job design (Hackman and Oldham, 1976) and job stress (Karasek, 1979) have linked perceived control to well-being. Such linkages have been supported empirically, as shown in Spector's (1986) control meta-analysis. However, control beliefs or LOC rather than perceptions have also been considered by many researchers to be an important component of emotional adjustment and ability to handle stress (e.g., Kobasa *et al.*, 1982), and general LOC has been found to be related to well-being at work (e.g., Ganster and Fusilier, 1989; Spector, 1982). Furthermore, work LOC has been linked to well-being (job satisfaction and negative emotional states at work) both inside (Spector, 1988; Spector and O'Connell, 1994) and outside of the US (Sadri *et al.*, 1996; Siu and Cooper, 1998), in much the same way general locus of control has been linked to general well-being. Using data from this project at the individual employee level, Spector *et al.* (in press a) found that the relation of work LOC with measures of well-being held across all nations/territories for job satisfaction and across most for physical and psychological well-being.

At the ecological level, we would also expect work LOC to relate to well-being. Nations in which personal autonomy and control are the norm will have individuals who will focus on and manage their own well-being. They will be more free to change the work environment if it is too stressful, or even change jobs. Nations in which people must forfeit control to powerful external forces will tend to have people with lower well-being because they are unable to escape stressful situations either by modifying the job environment or by changing jobs. This suggests our third hypothesis linking work LOC to well-being:

*Hypothesis 3:* Nations that show higher mean LOC internality will have higher mean well-being scores.

## Contextual Sidebar

### **National Factors**

Data for this study were collected from samples in 24 nations and territories from organizations that were in almost all cases locally owned, either privately or by government. In 18 cases sampling procedures were used that would be expected to yield reasonably representative samples from the respective nation/territory, whereas in six cases data were limited to a small number of individual organizations. These nations/territories represented a broad range of cultural differences, but were mainly from three regions: Asia, east Europe, west Europe, as well as several English-speaking anglo-western countries such as Australia, Canada, New Zealand and the USA. There was also a representative from South America (Brazil), and the middle east (Israel). Most of the data were collected between 1997 and 1999.

These national factors would be expected to impact work locus of control through both psychological and non-psychological factors. On the psychological side, differences in values impact how people view the world, and that would be expected to impact work locus of control. In fact our results showed such a relation with individualism–collectivism, but likely there are many unmeasured variables that might also relate to locus of control. Perhaps more important is that work locus of control develops through the experience of being able or not able to control rewards in the workplace. Factors that affect job mobility, therefore, would be expected to impact work locus of control. For example, in Japan job mobility is limited by cultural norms demanding loyalty to employers. In completing the work locus of control scale, Japanese managers would likely fail to endorse items concerning control over getting a job. In other countries mobility is limited by availability of alternative employment. This is especially true in developing countries (e.g., India) and in countries with high unemployment (e.g., Spain during our study), and this should serve to decrease internality. Such factors may well have accounted for the rather large effect size for locus of control in our study.

### **Participants**

The participants in this study were all managers, ranging from first level to the tops of their organizations. The mean ages in most samples was between 35 and 45, and the majority of participants in most samples were married. The gender breakdown reflects that most managers in the world are male, although most samples contained at least 25 per cent females. In 18 of 24 samples participants worked for a wide range of industries and organization types, with few coming from the same organizations. Although one would not expect gender to affect results with locus of control, it is likely that level within the organization would be important. Managers have greater influence and power in organizations, and for them work would be a more ‘internal’ place. Considering the items of the Work Locus of Control scale used here, managers would be more likely than non-managers to endorse items concerning rewards based on performance and their ability to control rewards. This tendency would likely be stronger in countries where the power and status differences between managers and non-managers (i.e., power distance) tends to be large. Conclusions based on this study should be generalized beyond managers with some caution.

## **Method**

### *Overview of the study*

The data reported here are from the Collaborative International Study of Managerial Stress (CISMS) founded in 1996 to conduct global research on job stress by pooling efforts of an international group of researchers. The goal of the study was to collect data on an equivalent job (managers) from a representative sample from each nation/territory. Although we were able to achieve constancy of job, the representativeness of samples varied somewhat, as will be described below. The project has produced a large dataset containing several dozen variables on 24 samples. Subsets of these data have been published separately to address independent questions (e.g., Spector *et al.*, in press; 2001).

### *Participants*

Participants were 5185 managers from 24 nations/territories (see Table 1 for sample sizes and sample characteristics for each). The samples varied considerably on demographics, but in most cases, as might

Table 1. Characteristics and sample sizes for each sample

Nation/territory	<i>n</i>	% Male	Mean age	Mean tenure	% College graduates	% Married
Australia	289	60	44.0	11.5	51	88
Belgium	185	70	34.8	7.6	44	78
Brazil	117	64	36.5	11.9	57	64
Bulgaria	165	63	41.0	13.7	75	79
Canada	89	71	42.6	10.3	46	81
PR China	201	70	40.6	17.1	4	96
Estonia	163	58	38.6	6.4	10	72
France	61	66	43.5	14.6	61	87
Germany	85	99	51.5	25.6	—	96
Hong Kong	272	58	34.9	7.2	29	52
India	159	98	54.2	30.9	25	98
Israel	99	67	47.0	10.4	81	88
Japan	515	99	44.5	22.5	49	100
New Zealand	492	74	46.0	9.6	50	84
Poland	269	60	44.8	15.1	60	86
Romania	135	50	39.5	14.8	77	84
Slovenia	488	91	40.5	12.8	4	94
South Africa	129	73	36.5	8.4	0	71
Spain	180	83	38.0	10.5	40	81
Sweden	210	80	47.0	15.1	65	90
Taiwan	343	56	38.0	10.3	84	74
UK	201	56	43.9	15.8	37	83
Ukraine	219	48	39.4	9.7	88	69
USA	119	55	43.7	9.4	57	72

be expected, the majority of managers were male, educated, and married. Since there were demographic differences, we checked to see if they affected results, as will be described in the results section.

### Measures

The questionnaire was administered that included the Occupational Stress Indicator-2 (OSI2; Cooper and Williams, 1996), the Work Locus of Control Scale, WLCS (Spector, 1988), the Hofstede (1994) Values Survey Module 1994 (VSM94), and demographics. For this study we used only the three well-being measures from the OSI.

The WLCS is a 16 item, summated rating scale of work LOC. Half the items are written in the external (e.g., 'getting the job you want is mostly a matter of luck') and half in the internal ('promotions are given to employees who perform well on the job') direction. Six response choices range from *strongly disagree* to *strongly agree*. High scores represent externality and low scores internality. Spector (1988) reports internal consistency (coefficient alpha) of 0.75 to 0.85 across six US samples, with all but one in the 0.80s.

The OSI2 is a 90 item short form of the OSI (Cooper *et al.*, 1988). Well-being was assessed with the OSI scale for job satisfaction, psychological strain, and physical strain. Job satisfaction was assessed with 12 items that asked respondents to indicate their satisfaction with each item, with six response choices ranging from *very much dissatisfaction* to *very much satisfaction*. Psychological strain was assessed with 12 items that asked about psychological distress at work. All items had six response choices, but the choices varied across items. For example, item 4 'Are there times at work when

you feel so exasperated that you sit back and think to yourself that 'life is all really just too much effort?' had choices ranging from *never* to *often*. Physical strain was assessed with six items asking about physical or somatic symptoms, such as shortness of breath or muscle trembling. There were six response choices ranging from *never* to *very frequently*. For all three scales, high scores represented high levels of well-being, that is, high satisfaction, low psychological strain, or low physical strain. Robertson *et al.* (1990) reported coefficient alpha reliabilities for the original length OSI of 0.85, 0.88, and 0.78, respectively.

The I-C subscale of the VSM94 was used. It contains four items for which respondents indicate importance, using five response choices ranging from *of very little or no importance* to *of utmost importance*. A sample item is 'have sufficient time for your personal or family life.' High scores represent an individualistic orientation. The scoring was done using the procedure recommended by the scale's author (Hofstede, 1994). The items are combined using differential weights, and a constant is added to the total score. This produces scores at the ecological level from about 0 to the low 100s.

### *Internal consistency and measurement equivalence*

In eight samples (Australia, Canada, India, New Zealand, South Africa, Sweden, UK and USA) the questionnaire was administered in English, and in 16 samples, the questionnaires were translated into the native language of the nation/territory. Across our 24 samples, five of eight Ronen and Shenkar (1985) nation clusters were represented (Anglo, Far Eastern, Germanic, Latin European, and Nordic), as well as all four of the independents (Brazil, India, Israel, and Japan). Thus a wide range of both cultures and languages were represented.

Table 2 contains the internal consistencies (coefficient alphas) for each scale in each sample. Spector *et al.* (2001) discusses the VSM94. As can be seen in the table, the remaining four scales (Columns 2–5) maintained adequate reliabilities in most cases. There were a handful of cases in which a translation resulted in an alpha that was below the 0.70 standard (Nunnally, 1978). This occurred four times for the WLCS, and once for psychological well-being. We compared the US alpha (as a standard) with all others, using an *F*-test (1-smaller alpha/1-larger alpha with *n*-1 degrees of freedom associated with each alpha) provided by van de Vijver and Leung (1997, p. 60). The reason for choosing the US as a standard was that these scales were developed in Anglo-western nations (UK and USA) where they exhibit good internal consistencies. This comparison will indicate the extent to which transportation to other nations and languages might adversely affect internal consistency. There were 48 of 92 cases in which the US alpha was significantly higher than one of the other samples, 38 of which were with translations. These results should not be surprising, as often internal consistency declines with translation (e.g., DeFrank *et al.*, 1988; Iwata and Roberts, 1996; Iwata *et al.*, 1995).

We also conducted multisample variance/covariance matrix equality tests for WLCS and the three well-being scales using LISREL 8 (Jöreskog and Sörbom, 1992). This test has been recommended for evaluation of scale transportability across translation (Johnson, 1998; Riordan and Vandenberg, 1994; Schaubroeck and Green, 1989; van de Vijver and Leung, 1997), and is the most stringent of the tests of factor equivalence. Because this test is inappropriate for small samples, we limited it to only those nine samples with a sample size of 200 or greater. These scales were developed in the UK and USA, so we choose as a standard New Zealand which was the largest sample that was culturally similar. It was compared to Australia, China, Hong Kong, Japan, Poland, Slovenia, Taiwan, and Ukraine. These eight countries represent a wide range of cultures and languages and should provide a good snapshot of how transportable the scales are. The equality test showed very good fit, with six fit indices meeting the accepted standard of 0.90 in 87 per cent of cases for the three well-being measures. Fit was almost as good for the WLCS, with three-quarters of cases at 0.85 or higher and a third at 0.90 or higher.

Table 2. Internal consistency reliabilities (coefficient alphas) for work LOC, well-being, and individualism scales

Nation/Territory	WLCS	Job satisfaction	Psychological well-being	Physical well-being	Individualism
Australia	0.84	0.90	0.87	0.76*	0.26
Belgium	0.79*	0.85*	0.81*	0.76*	0.71
Brazil	0.78*	0.91	0.78*	0.83	0.76
Bulgaria	0.73*	0.89	0.78*	0.78*	0.61
Canada	0.87	0.90	0.87	0.74*	0.48
PR China	0.67*	0.91	0.75*	0.75*	0.48
Estonia	0.67*	0.84*	0.76*	0.70*	0.59
France	0.80	0.92	0.76*	0.75*	0.18
Germany	0.82	0.91	0.83	0.75*	0.61
Hong Kong	0.79*	0.92	0.84	0.76*	0.75
India	0.79*	0.93	0.81*	0.75*	0.55
Israel	0.82	0.90	0.80*	0.72*	0.61
Japan	0.65*	0.94	0.84	0.73*	0.45
New Zealand	0.84	0.92	0.86	0.79*	0.48
Poland	0.84	0.89	0.84	0.76*	0.29
Romania	0.77*	0.88	0.78*	0.78*	0.49
Slovenia	0.78*	0.90	0.81*	0.79*	0.71
South Africa	0.88	0.91	0.85	0.82	0.30
Spain	0.77*	0.91	0.82	0.76*	0.49
Sweden	0.80*	0.84*	0.84	0.77*	0.52
Taiwan	0.73*	0.92	0.81*	0.82	0.41
UK	0.87	0.89	0.75*	0.84	0.53
Ukraine	0.67*	0.86*	0.82	0.81	0.70
USA	0.86	0.90	0.86	0.84	0.26

\*Alpha is significantly lower than the US sample at  $p < 0.05$ .

The only comparison that was clearly poor was for Taiwan, which also had a poor coefficient alpha. Additional details on these analyses can be found in Spector *et al.* (in press).

### Procedure

The original plan was to collect representative samples from each nation/territory, limiting the participants to managers to control for job differences. The former criterion was achieved in all samples as data were collected on managers. The latter was achieved in most, but not all, samples. In five cases (PR China, Germany, India, Romania, UK) data were collected in one or two organizations, and in one (Sweden) data were collected from eight. In the remaining 18 samples, various procedures were used to achieve a broad cross-section of managers. In some cases, members of management organizations were sampled, such as the chamber of commerce or an institute of management (e.g., Canada, Hong Kong, New Zealand). In other cases questionnaires were mailed to random samples of managers in randomly chosen businesses (e.g., Hong Kong and the US). Multiple methods were used by some researchers to expand representativeness (e.g., Hong Kong, Spain, and the US).

The organizers of CISMS put together the English version of the questionnaire containing the three instruments and additional questions (e.g., age and gender). This was used in eight samples—the seven English speaking ones and Sweden. The remaining 16 versions were translated into the native language of the sample, and were then independently back-translated to assure language equivalence. Portions were retranslated as necessary and then retested until equivalent meanings were achieved.

## Results

### *Differences among nations/territories in well-being, I-C, and work LOC*

Before proceeding to tests of hypotheses, we first tested for significant differences among the nations/territories on the variables in the study. Before we can claim our variables can be meaningfully considered at the national level, we must show there are nation differences, and that there is some degree of consensus (Kozlowski and Klein, 2000), as reflected in a measure of effect size (Klein *et al.*, 2000). We conducted one-way analyses of variance (ANOVAs) with nation/territory as the independent variable and each of the three well-being measures, WLCS and I-C as dependent variables.  $R^2$  showed the proportion of variance attributable between groups. Well-being results were: job satisfaction ( $F(23, 5136) = 17.10$ ,  $p < 0.0001$ ,  $R^2 = 0.07$ ); psychological well-being ( $F(23, 5144) = 18.65$ ,  $p < 0.0001$ ,  $R^2 = 0.08$ ); and physical well-being ( $F(23, 5151) = 25.79$ ,  $p < 0.0001$ ,  $R^2 = 0.10$ ). Results for WLCS were ( $F(23, 5139) = 74.46$ ,  $p < 0.0001$ ,  $R^2 = 0.25$ ), and for I-C were ( $F(22, 4841) = 32.58$ ,  $p < 0.0001$ ,  $R^2 = 0.13$ ). Degrees of freedom are slightly different across analyses because of missing data, and I-C scores were not available for Australia. Table 3 shows the means per sample for all five scales in rank order to make it easier to interpret. Subsequent tests (Duncans) were computed to

Table 3. Means and subsequent test results (Duncans) by nation/territory across work locus of control, well-being, and individualism

Work LOC	Job satisfaction	Psychological well-being	Physical well-being	Individualism
New Zealand 36.6 <sup>n</sup>	Canada 50.7 <sup>a</sup>	India 53.7 <sup>a</sup>	Israel 29.8 <sup>a</sup>	France 107.2 <sup>a</sup>
U.S.A. 37.5 <sup>mn</sup>	Sweden 50.4 <sup>ab</sup>	Germany 53.6 <sup>a</sup>	India 29.2 <sup>ab</sup>	New Zealand 107.0 <sup>ab</sup>
South Africa 38.8 <sup>lm</sup>	Israel 50.4 <sup>ab</sup>	Israel 53.6 <sup>a</sup>	Germany 29.0 <sup>ab</sup>	Sweden 104.2 <sup>ab</sup>
Australia 39.4 <sup>k-m</sup>	Estonia 50.3 <sup>ab</sup>	U.S.A. 52.3 <sup>ab</sup>	Sweden 28.6 <sup>a-c</sup>	South Africa 100.7 <sup>a-c</sup>
Germany 40.4 <sup>kl</sup>	India 50.3 <sup>a-c</sup>	Belgium 51.1 <sup>bc</sup>	Belgium 28.1 <sup>b-d</sup>	UK 99.8 <sup>a-d</sup>
Canada 40.7 <sup>kl</sup>	U.S.A. 49.9 <sup>a-c</sup>	New Zealand 50.6 <sup>b-d</sup>	U.S.A. 27.6 <sup>c-e</sup>	Spain 98.6 <sup>a-d</sup>
Sweden 41.5 <sup>jk</sup>	Belgium 49.9 <sup>a-c</sup>	Sweden 50.4 <sup>b-d</sup>	Canada 27.2 <sup>de</sup>	U.S.A. 94.9 <sup>b-e</sup>
Belgium 43.4 <sup>ij</sup>	Germany 49.6 <sup>a-d</sup>	PR China 49.4 <sup>c-e</sup>	New Zealand 27.0 <sup>de</sup>	Germany 91.0 <sup>ce</sup>
Israel 43.7 <sup>i</sup>	New Zealand 49.5 <sup>a-d</sup>	Australia 49.3 <sup>c-e</sup>	Spain 26.9 <sup>d-f</sup>	Canada 88.4 <sup>d-f</sup>
France 45.1 <sup>hi</sup>	Ukraine 49.2 <sup>a-d</sup>	Canada 49.0 <sup>c-f</sup>	Slovenia 26.8 <sup>d-f</sup>	Israel 85.0 <sup>e-g</sup>
Romania 45.3 <sup>hi</sup>	Slovenia 48.1 <sup>b-e</sup>	Japan 48.8 <sup>d-g</sup>	Romania 26.5 <sup>e-g</sup>	Belgium 84.2 <sup>e-g</sup>
Spain 46.6 <sup>gh</sup>	Poland 48.1 <sup>b-e</sup>	Slovenia 48.6 <sup>d-h</sup>	Estonia 26.4 <sup>e-g</sup>	Slovenia 79.0 <sup>f-h</sup>
UK 46.8 <sup>f-h</sup>	Spain 47.9 <sup>c-e</sup>	Poland 48.0 <sup>e-i</sup>	Australia 25.6 <sup>f-h</sup>	Brazil 74.1 <sup>g-i</sup>
Estonia 47.1 <sup>f-h</sup>	Taiwan 47.4 <sup>d-f</sup>	South Africa 47.8 <sup>e-i</sup>	Poland 25.4 <sup>gh</sup>	Japan 73.5 <sup>g-i</sup>
Brazil 47.7 <sup>e-g</sup>	Brazil 47.3 <sup>d-f</sup>	Taiwan 47.7 <sup>e-i</sup>	Ukraine 25.4 <sup>g-h</sup>	Hong Kong 71.1 <sup>h-j</sup>
India 47.8 <sup>e-g</sup>	Australia 46.7 <sup>e-g</sup>	Romania 46.9 <sup>f-i</sup>	Japan 25.2 <sup>gh</sup>	India 69.2 <sup>h-j</sup>
Poland 48.0 <sup>e-g</sup>	France 46.6 <sup>e-g</sup>	Spain 46.6 <sup>g-i</sup>	Taiwan 25.1 <sup>gh</sup>	Bulgaria 63.1 <sup>i-k</sup>
Slovenia 49.1 <sup>d-f</sup>	Bulgaria 45.8 <sup>e-g</sup>	Brazil 46.5 <sup>g-j</sup>	Brazil 24.9 <sup>h</sup>	Estonia 62.2 <sup>i-k</sup>
Taiwan 49.5 <sup>de</sup>	Romania 45.2 <sup>f-h</sup>	Hong Kong 46.5 <sup>g-j</sup>	PR China 24.5 <sup>h</sup>	Taiwan 61.0 <sup>jk</sup>
Japan 49.8 <sup>de</sup>	South Africa 45.2 <sup>f-h</sup>	Estonia 46.4 <sup>h-j</sup>	South Africa 24.4 <sup>h</sup>	Poland 54.7 <sup>k</sup>
Hong Kong 51.0 <sup>cd</sup>	PR China 44.8 <sup>gh</sup>	France 46.3 <sup>h-j</sup>	France 24.3 <sup>h</sup>	Ukraine 53.7 <sup>k</sup>
Ukraine 52.6 <sup>bc</sup>	Hong Kong 43.3 <sup>hi</sup>	Ukraine 45.8 <sup>ij</sup>	Bulgaria 24.2 <sup>h</sup>	PR China 51.4 <sup>k</sup>
Bulgaria 53.3 <sup>b</sup>	Japan 43.0 <sup>hi</sup>	UK 45.2 <sup>j</sup>	Hong Kong 22.9 <sup>i</sup>	Romania 51.1 <sup>k</sup>
PR China 56.5 <sup>a</sup>	UK 42.0 <sup>i</sup>	Bulgaria 40.2 <sup>k</sup>	UK 20.8 <sup>i</sup>	

Note: Within columns, different superscript letters indicate significant mean differences among samples for each variable, whereas samples sharing the same letter are not significantly different. For example, with work locus of control, PR China is significantly lower than all other samples; Bulgaria and Ukraine are not significantly different from one another. High scores represent higher job satisfaction, well-being, externality, and individualism.

Table 4. Ecological correlations among study variables and individualism at the nation/territory level

Variable	Mean	Standard deviation	1	2	3	4
1. Work LOC	45.8	5.2				
2. Job satisfaction	47.6	2.6	− 0.42*			
3. Psychological well-being	48.3	3.3	− 0.50*	0.55*		
4. Physical well-being	26.1	2.1	− 0.43*	0.84*	0.77*	
5. Individualism	79.3	18.9	− 0.73*	0.15	0.23	0.14

\* $p < 0.05$ .

compare individual sample means. Superscript letters indicate which means were significantly different from one another within each of the five variables. Nations/territories with the same letter are not significantly different from one another within each variable (column in the table). The well-being measures were scored so high values indicate positive well-being; high scores represent external locus of control and individualism.

These analyses were repeated using the five characteristics in Table 1 as covariates to check that these differences could not be accounted for by sample demographic characteristics. In all five corresponding analyses of covariance nation/territory remained statistically significant at the 0.0001 level, and there was no effect on the subsequent tests (Duncans) for significance of individual nation/territory means from one another. Since there were only tiny effects of demographic variables on means, they could not have had much impact on the ecological correlations.

It should also be noted that 16 of our nations/territories were also reported by Hofstede (1984) in his pioneering work on cultural values (see Spector *et al.*, 2001; in press). A rank-order correlation comparing our ranks with his was 0.71, showing strong agreement between both orders. The most notable differences was that the US moved from being most individualistic in Hofstede's study to being ranked 7th in ours (France was our first), and Spain moved from 11th to 6th. Keep in mind that his data were based on an earlier version of the VSM and were collected several decades earlier. It is possible that there have been I–C shifts in some nations.

### *Ecological correlations among nation/territory means as tests of hypotheses 1–3*

Correlations were computed at the nation/territory level among the five scales (work locus of control, job satisfaction, psychological well-being, physical well-being, and I–C), using sample means as observations (see Table 4). I–C correlated strongly with work LOC ( $r = -0.73$ ) with internality associated with high individualism, thus supporting hypothesis 2. Work LOC was significantly correlated with all three well-being measures, supporting hypothesis 3. Nations/territories with more internal managers had managers with higher satisfaction and higher well-being. However, contrary to hypothesis 1, I–C was unrelated with the measures of well-being, despite its strong relation with work LOC.

## Discussion

Our ANOVAs showed that the nations/territories differed significantly on all five variables. Some nations/territories were fairly consistent across all three measures of well-being whereas others were

not. For example, Germany, India, Israel, Sweden, and the US all tended to be relatively high across all measures. Hong Kong and the UK both tended to be relatively low. Estonia was relatively high on job satisfaction, relatively low on psychological well-being, and in the middle on physical well-being. It should be kept in mind that these means are relative to one another, and that in all cases means were from approximately the middle of the possible range (43 for job satisfaction and psychological well-being and 21 for physical well-being) upward on each scale.

The biggest effect size for the ANOVAs comparing samples, however, was for work LOC, where nation/territory as the independent variable accounted for one-quarter of the variance. The next largest effect size was for I-C that accounted for 13 per cent of the variance. Interestingly, work LOC, which is considered an individual personality variable, showed larger inter-sample differences than I-C, which is considered a culture variable. It may be that work LOC is a meaningful culture variable and reflects an important difference in beliefs across nations/cultures. Likely this reflects how the workplace operates, with more autonomy and individual control being given to employees in some nations/territories than others. The strong link with I-C suggests that it is the individualist nations where employees enjoy higher levels of control. These results should not be surprising since control is an important component of I-C (Ho and Chiu, 1994), and has been closely linked to it conceptually (e.g., Gudykunst, 1998).

Consistent with our second hypothesis, I-C was strongly related to work LOC at the ecological level. Those nations/territories that were individualistic tended to have people who had internal work control beliefs. This makes sense since personal autonomy and control at work are characteristics associated with individualism and not collectivism. Nations that tend to be collectivistic have people who are more concerned with group harmony, and typically individuals subordinate their own control to the work group or to the supervisor. Therefore, people believe they have less direct control over career and work, in large part because they really have less direct control or at least are less likely to exert control.

There was also strong support for our third hypothesis in that all three well-being measures were associated with work LOC at the ecological level. Internal samples were high on well-being relative to external samples. Again, this makes sense as individuals who are better able to control their work environment should be in a better position to control their well-being. They would be expected to take more assertive action to change the workplace to their own liking, or to change jobs that might be adversely affecting well-being.

However, there was no support for our first hypothesis in that I-C did not relate to well-being at the ecological level. Even though I-C was strongly related to work LOC, it was not related to well-being. Our correlation of 0.15 between individualism and job satisfaction was almost the same as the 0.14 of Hui *et al.* (1995) who had far fewer samples. Finding a similar correlation in two independent studies is quite unlikely by chance, so it seems reasonable to conclude that there is a very small tendency for individualism to be associated with job satisfaction. As we explained in the introduction, there were factors tending to enhance well-being for both collectivists and individualists. Collectivists have the advantage of enhanced social support (Ilola, 1990; Sinha and Verma, 1994), whereas individualists have the advantage of paying more attention to their own needs and well-being (Reykowski, 1994). Apparently, these advantages tend to cancel one another out, although there is perhaps a small tendency for individualists to have higher well-being, at least in terms of job satisfaction.

There are some limitations that should be kept in mind in interpreting these results. Response biases and tendencies can vary among nations/cultures (Triandis, 1994; Van de Vijver and Leung, 1997), and this can account for observed differences in job satisfaction and well-being. For example, Spector (1997) reported results across job satisfaction facets for two Asian samples (Hong Kong and Singapore) in comparison to the US. Although overall job satisfaction was the same, there was far greater variability in facet means within the US sample. Consistent with the 'modesty bias'

(Smith *et al.*, 1995), the Asians tended to avoid indicating that their feelings were extremely positive (Iwata *et al.*, 1998) or negative.

The context in which our data were collected should be considered in interpreting results. Perhaps most importantly, this study was limited to managers, and it is possible that non-managerial employees would yield different findings. One should also be cautious in generalizing finds to countries not included in our study, especially those that are very different culturally from those we included. Finally, although the original plan was to gather representative samples in all cases, in six samples (noted in our procedure section) data collection occurred in a limited number of organizations, and it is possible results for those countries would be different had different organizations (or types of organizations) been sampled.

There are also some weaknesses in the VSM94 measure of I–C. As we discuss elsewhere using data from CISMS, the internal consistency of this measure was quite poor at the individual participant level (Spector *et al.*, 2001). Although we used the scale here at the ecological level, there are concerns that the individual items do not relate well to one another, and perhaps results would have been different had we used a measure with better measurement properties.

In summary, our results suggest that there are inter-nation differences in well-being, and those differences are linked to differences in people's control beliefs. On the other hand, I–C was apparently not related to well-being (or was very slightly), so there is apparently nothing inherent in individualism that leads to well-being, despite the strong correlation between I–C and work LOC. However, cultures in which people tend to perceive they have control tend to be associated with better well-being. The ecological level findings mirror findings from the individual participant level (Spector *et al.*, in press a) that beliefs and perceptions of control at work can have salutary effects, and this may occur universally, although certainly the way in which control operates can be culturally determined.

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## References

- Bae K, Chung C. 1997. Cultural values and work attitudes of Korean industrial workers in comparison with those of the United States and Japan. *Work and Occupations* **24**: 80–96.

- Bhagat RS, Kedia BL, Crawford SE, Kaplan MR. 1990. Cross-cultural issues in organizational psychology: emergent trends and directions for research in the 1990s. In *International Review of Industrial and Organizational Psychology 1990*, Cooper CL, Robertson IT (eds). John Wiley: Chichester; 59–99.
- Chao GT. 2000. Multilevel issues and culture: an integrative view. In *Multilevel Theory, Research, and Methods in Organizations: Foundations, Extensions, and New Directions*, Klein KJ, Kozlowski SWJ (eds). Jossey-Bass: San Francisco; 308–346.
- Cooper CL, Williams S. 1996. *Occupational Stress Indicator Version 2.0*. NFER-Nelson: Windsor, UK.
- Cooper CL, Sloan SJ, Williams S. 1988. *Occupational Stress Indicator Management Guide*. NFER-Nelson: Windsor, UK.
- DeFrank RS, Ivancevich JM, Schweiger DM. 1988. Job stress and psychological well-being: similarities and differences among American, Japanese, and Indian managers. *Behavioral Medicine* **14**: 160–170.
- Frese M, Kring W, Soose A, Zempel J. 1996. Personal initiative at work: differences between East and West Germany. *Academy of Management Journal* **39**: 37–63.
- Ganster DC, Fusilier MR. 1989. Control in the workplace. In *International Review of Industrial and Organizational Psychology 1989*, Cooper CL, Robertson IT (eds). John Wiley: Chichester; 235–280.
- Gudykunst WB. 1998. Individualistic and collectivistic perspectives on communication: an introduction. *International Journal of Intercultural Relations* **22**: 107–134.
- Hackman JR, Oldham GR. 1976. Motivation through the design of work: test of a theory. *Organizational Behavior and Human Performance* **16**: 250–279.
- Hamid PN. 1994. Self-monitoring, locus of control, and social encounters of Chinese and New Zealand students. *Journal of Cross-Cultural Psychology* **25**: 353–368.
- Ho DY, Chiu C. 1994. Component ideas of individualism, collectivism, and social organization: an application in the study of Chinese culture. In *Individualism and Collectivism: Theory, Method, and Applications*, Kim U et al. (eds). Sage: Thousand Oaks, CA; 137–156.
- Hofstede G. 1984. The cultural relativity of the quality of life concept. *Academy of Management Review* **9**: 389–398.
- Hofstede G. 1994. *Values Survey Module 1994 Manual*. Institute for Research on Intercultural Cooperation: Maastricht, The Netherlands.
- Hui CH. 1982. Locus of control: a review of cross-cultural research. *International Journal of Intercultural Relations* **6**: 301–323.
- Hui CH, Yee C, Eastman KL. 1995. The relationship between individualism—collectivism and job satisfaction. *Applied Psychology: An International Review* **44**: 276–282.
- Iloa LM. 1990. Culture and health. In *Applied Cross-Cultural Psychology*, Brislin RW (ed.). Sage: Thousand Oaks, CA; 278–301.
- Iwata N, Roberts RE. 1996. Age differences among Japanese on the center for epidemiologic studies depression scale: an ethnocultural perspective on somatization. *Social Science Medicine* **43**: 967–974.
- Iwata N, Okuyama Y, Kawakami Y, Saito K. 1989. Prevalence of depressive symptoms in a Japanese occupational setting: a preliminary study. *American Journal of Public Health* **79**: 1486–1489.
- Iwata N, Roberts CR, Kawakami N. 1995. Japan–U.S. comparison of responses to depression scale items among adult workers. *Psychiatry Research* **58**: 237–245.
- Iwata N, Umesue M, Egashira K, Hiro H, Mizoue T, Mishima N, Nagata S. 1998. Can positive affect items be used to assess depressive disorder in the Japanese population? *Psychological Medicine* **28**: 153–158.
- Jackson SE, Schuler RS. 1985. A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes* **36**: 16–78.
- Johnson TP. 1998. Approaches to equivalence in cross-cultural and cross-national research. In *Cross-Cultural Survey Equivalence*, Harkness JA (ed.). ZUMA: Mannheim, Germany; 1–40.
- Jöreskog KG, Sörbom D. 1992. *LISREL VIII: A Guide to the Program and Applications*. Scientific Software: Mooresville, IN.
- Kagitçibasi Ç. 1994. A critical appraisal of individualism and collectivism. In *Individualism and Collectivism: Theory, Method, and Applications*, Kim U et al. (eds). Sage: Thousand Oaks, CA; 52–65.
- Karasek RA, Jr. 1979. Job demands, job decision latitude, and mental strain: implications for job redesign. *Administrative Science Quarterly* **24**: 285–307.
- Klein KJ, Bliese PD, Kozlowski SWJ, Dansereau F, Gavin MB, Griffin MA, Hofmann DA, James LR, Yammarino FJ, Bligh M. 2000. Multilevel analytical techniques: commonalities, differences, and continuing questions. In *Multilevel Theory, Research, and Methods in Organizations: Foundations, Extensions, and New Directions*, Klein KJ, Kozlowski SWJ (eds). Jossey-Bass: San Francisco; 512–553.
- Kobasa SC, Maddi SR, Kahn S. 1982. Hardiness and health: a prospective study. *Journal of Personality and Social Psychology* **42**: 168–177.

- Kozlowski SWJ, Klein KJ. 2000. A multilevel approach to theory and research in organizations: contextual, temporal, and emergent processes. In *Multilevel Theory, Research, and Methods in Organizations: Foundations, Extensions, and New Directions*, Klein KJ, Kozlowski SWJ (eds). Jossey-Bass: San Francisco; 3–90.
- Leung K, Bond MH. 1989. On the empirical identification of dimensions for cross-cultural comparisons. *Journal of Cross-Cultural Psychology* **20**: 133–151.
- Lincoln JR, Hanada M, Olson J. 1981. Cultural orientations and individual reactions to organizations: a study of employees of Japanese-owned firms. *Administrative Science Quarterly* **26**: 93–115.
- Lundberg CD, Peterson MF. 1994. The meaning of working in U.S. and Japanese local governments at three hierarchical levels. *Human Relations* **47**: 1459–1487.
- Markus HR, Kitayama S. 1991. Culture and the self: implications for cognition, emotion, and motivation. *Psychological Review* **98**: 224–253.
- Markus HR, Kitayama S. 1998. The cultural psychology of personality. *Journal of Cross-Cultural Psychology* **29**: 63–87.
- McCormick IA, Cooper CL. 1988. Executive stress: extending the international comparison. *Human Relations* **41**: 65–72.
- Morgeson FP, Hofmann DA. 1999. The structure and function of collective constructs: implications for multilevel research and theory development. *Academy of Management Review* **24**: 249–265.
- Nunnally JC. 1978. *Psychometric Theory*, 2nd edn. McGraw-Hill: New York.
- Peterson MF, Smith PB, Akande A, Ayestaran S, Bochner S, Callan V, Cho NG, Jesuino JC, D'Amorim M, Francois PH, Hofmann K, Koopman PL, Leung K, Lim TK, Mortazavi S, Munene J, Radford M, Ropo A, Savage G, Setiadi B, Sinha TN, Sorenson R, Viedge C. 1995. Role conflict, ambiguity, and overload: a 21-nation study. *Academy of Management Journal* **38**: 429–452.
- Reykowski J. 1994. Collectivism and individualism as dimensions of social change. In *Individualism and Collectivism: Theory, Method, and Applications*, Kim U *et al.* (eds). Sage: Thousand Oaks, CA; 276–292.
- Riordan CM, Vandenberg RJ. 1994. A central question in cross-cultural research: Do employees of different cultures interpret work-related measures in an equivalent manner? *Journal of Management* **20**: 643–671.
- Robertson IT, Cooper CL, Williams J. 1990. The validity of the Occupational Stress Indicator. *Work & Stress* **4**: 29–39.
- Ronen S, Shenkar O. 1985. Clustering countries on attitudinal dimensions: a review and synthesis. *Academy of Management Review* **10**: 435–454.
- Sadri G, Marcoulides GA, Cooper CL, Kirkcaldy B. 1996. Testing a model of occupational stress across different countries. *Journal of Business and Management* Winter: 10–29.
- Schaubroeck J, Green SG. 1989. Confirmatory factor analytic procedures for assessing change during organizational entry. *Journal of Applied Psychology* **74**: 892–900.
- Siu OL, Cooper CL. 1998. A study of occupational stress, job satisfaction and quitting intention in Hong Kong firms: the role of locus of control and organizational commitment. *Stress Medicine* **14**: 55–66.
- Sinha D, Tripathi RC. 1994. Individualism in a collectivist culture: a case of coexistence of opposites. In *Individualism and Collectivism: Theory, Method, and Applications*, Kim U *et al.* (eds). Sage: Thousand Oaks, CA; 123–136.
- Sinha JBP, Verma J. 1994. Social support as a moderator of the relationship between allocentrism and psychological well-being. In *Individualism and Collectivism: Theory, Method, and Applications*, Kim U *et al.* (eds). Sage: Thousand Oaks, CA; 267–275.
- Smith PB, Misumi J. 1989. Japanese management: a sun rising in the West? In *International Review of Industrial and Organizational Psychology 1989*, Cooper CL, Robertson IT (eds). John Wiley: Chichester; 329–369.
- Smith PB, Trompenaars F, Dugan S. 1995. The Rotter locus of control scale in 43 countries: a test of cultural relativity. *International Journal of Psychology* **30**: 377–400.
- Spector PE. 1982. Behavior in organizations as a function of employee's locus of control. *Psychological Bulletin* **91**: 482–497.
- Spector PE. 1986. Perceived control by employees: a meta-analysis of studies concerning autonomy and participation at work. *Human Relations* **39**: 1005–1016.
- Spector PE. 1988. Development of the Work Locus of Control Scale. *Journal of Occupational Psychology* **61**: 335–340.
- Spector PE. 1997. *Job Satisfaction: Application, Assessment, Causes, and Consequences*. Sage: Thousand Oaks, CA.
- Spector PE, O'Connell BJ. 1994. The contribution of personality traits, negative affectivity, locus of control and Type A to the subsequent reports of job stressors and job strains. *Journal of Occupational and Organizational Psychology* **67**: 1–11.

- Spector PE, Cooper CL, Sanchez JI, O'Driscoll M, Sparks K, Bernin P, Büssing A, Dewe P, Hart P, Lu L, Miller K, Renault de Moraes L, Ostrognay GM, Pagon M, Pitariu H, Poelmans S, Radhakrishnan P, Russinova V, Salamatov V, Salgado J, Shima S, Siu OL, Stora JB, Teichmann M, Theorell T, Vlerick P, Westman M, Widerszal-Bazyl M, Wong P, Yu S. in press (a). A 24 nation/territory study of work locus of control in relation to well-being at work: how generalizable are western findings? *Academy of Management Journal*.
- Spector PE, Cooper CL, Sparks K, Bernin P, Büssing A, Dewe P, Lu L, Miller K, Renault de Moraes L, O'Driscoll M, Pagon M, Pitariu H, Poelmans S, Radhakrishnan P, Russinova V, Salamatov V, Salgado J, Sanchez JI, Shima S, Siu OL, Stora JB, Teichmann M, Theorell T, Vlerick P, Westman M, Widerszal-Bazyl M, Wong P, Yu S. 2001. An international study of the psychometric properties of the Hofstede Values Survey Module 1994: a comparison of individual and nation/province level results. *Applied Psychology: An International Review* **50**: 269–281.
- Tobacyk JJ, Tobacyk ZS. 1992. Comparisons of belief-based personality constructs in Polish and American university students. *Journal of Cross-Cultural Psychology* **23**: 311–325.
- Triandis HC. 1994. *Culture and Social Behavior*. McGraw-Hill: New York.
- Triandis HC. 1995. *Individualism & Collectivism*. Westview: Boulder.
- Van de Vijver F, Leung K. 1997. *Methods and Data Analysis for Cross-Cultural Research*. Sage: Thousand Oaks, CA.