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SUBJECTIVE WELL-BEING AND LIFE SATISFACTION IN THE KINGDOM OF TONGA

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ABSTRACT. This paper describes an initial attempt to assess the subjective well-being of a sample of 227 Tongans via self-report. Using items adapted from the Subjective Well Being Inventory (SUBI; Nagpal and Sell, 1985; Sell and Nagpal, 1992), participants rated their level of overall life satisfaction along with their perceptions of well-being in a number of other more specific life domains. Results indicated that mean ratings of global life satisfaction were generally positive. A factor analysis of the remaining domain-specific well-being items indicated that items loaded on to one of two factors dealing with overall positive or negative evaluations of these life areas. Importantly, these scale items stressed the importance of social and kin relations in contributing to overall well-being. In terms of demographic variables, mature respondents reported greater levels of overall life satisfaction and well-being as compared to youthful respondents. Implications and directions for future research are discussed.

INTRODUCTION

The study of subjective well-being (SWB) has been one of the most widely researched subjects in the social and behavioral sciences (see Diener, 1984, 1999; Kahneman et al., 2000 for reviews). Given its relationship to improved quality of life and positive health outcomes, interest in the topic of SWB continues to grow. The construct of SWB encompasses evaluations of one's life in terms of judgments of overall life satisfaction as well as one's experience of pleasant and unpleasant emotions. Early research in this area focused almost exclusively on individual correlates or determinants of SWB (e.g. Wilson, 1967), while more recent research has examined specific measurement issues (e.g., Diener, 1994) and the psychological processes underlying judgments of well-being (e.g., Diener, 1984, 1999; Michalos, 1985). Although such efforts have contributed immensely to the understanding of SWB, only recently have researchers turned their attention to cultural influences

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on reports of well-being (e.g., Diener et al., 1995; Diener and Suh, 2000; Oishi et al., 1999; Oishi et al., 1999; Suh et al., 1998).

Studies of cultural influences on SWB reports have been motivated by the assumption that the determinants of life satisfaction and well-being in one culture may not necessarily be the same in another culture. Presumably this is because definitions of quality of life are, in part, determined by one's goals attainment in light of prevailing cultural values (Diener, 1999). Recent research examining cultural influences on well-being and life satisfaction judgments have demonstrated that there are significant cross-cultural differences in reports of well-being (see Diener and Suh, 2000 for a review). Such studies have typically examined cultural differences in SWB reports in the context of cross-national comparisons (e.g., Diener et al., 1995; Veenhoven, 1993) or in comparisons in terms of prevailing cultural values (e.g., Oishi et al., 1999). In general these studies have shown that factors associated with individualistic values (e.g., personal financial satisfaction, personal esteem needs satisfaction) are more important predictors of SWB in cultures judged to be more individualistic, while normative beliefs are more important predictors of SWB in collectivist cultures.

Interestingly though, in all of the extant studies examining the influence of culture on SWB reports, very few have attempted to assess the unique cultural values or beliefs that might influence well-being. That is, nations have been categorized along some dimension, such as individualism-collectivism, and such categorizations are used to define the prevailing cultural norms or beliefs. Despite the abundance of published SWB studies, few studies have taken an ethnographic approach to defining the construct (but see Nagpal and Sell, 1985; Sell and Nagpal, 1992). As well, in the studies using large cross-national samples (e.g., World Values Survey), Pacific Island nations have largely been ignored. Of the studies published to date, few if any, have made mention of these nations or their indigenous cultural groups. Although this may be due to the relatively small population and more remote geographical location of these countries, a comprehensive study of quality of life in these nations deserves increased attention. Thus, one of the goals of the current study was to obtain judgments of SWB from this largely under-represented population.

Description of SWB Measurement Instrument

As a part of the era in which the World Health Organization's (WHO) definition of health as 'a state of well being, and not just the absence of disease or infirmity' was being implemented and evaluated under the global 'Health for all by the Year 2000' mandate, Nagpal and Sell (1985) designed an instrument to act as a means for identifying ". . . components that contribute towards subjective well-being of an individual or group" (p. 4). Of equal relevance to the goals of the current study is the fact that the inventory was intended as a measurement tool that would not necessarily privilege Euroamerican notions of wellness and quality of life (e.g., focus on individualistic values) but would, rather, be applicable in cross-cultural situations.

In developing this questionnaire, Nagpal and Sell (1985); Sell and Nagpal (1992) followed a methodological practice known as 'stepwise ethnographic exploration' to define areas that were relevant to judgments of well-being. Essentially, concepts related to well-being were identified through a process of brainstorming and unstructured interviews following which a condensed list of component areas was developed. From this list, a pool of items was created to address each of the areas of concern. Also, since past research has demonstrated that some participants have difficulty in responding to items on more traditional 1 to 7 rating scales due to a lack of extensive formal education (e.g., Biswas-Diener and Diener, 2001), these items were designed so that respondents with even very little formal educational instruction would be able to provide a response.

After completing the brainstorming process, an initial pool of 130 items were identified and administered to several different Indian samples. Principal component analyses were then conducted to reduce the number of overall items and attempt to identify the underlying factorial structure. After several iterations of this process (i.e., data collection and item reduction) a condensed 82-item questionnaire was developed that contained items intended to measure 11 domains of well-being (Nagpal and Sell, 1985). Further data collection and refinements resulted in a published 40-item version that retained the original 11-factor structure (Sell and Nagpal, 1992). The component factors that emerged during this process

included more global concepts identified in previous SWB measures (e.g., positive and negative affectivity) along with several additional concepts related to social support, ability to cope, and perceptions of health. Although previously constructed SWB inventories have identified a smaller number of components or factors, a second purpose of this study was to determine if the structure of well-being judgments identified in this particular questionnaire could be generalized to a culturally different sample, in this case, a Tongan one. Since ethnographic researchers often argue that statistical inventories encode particular cultural expectations and hence distort or misrepresent core cultural values, emotions, or sensibilities, there is some sense of distrust of such instruments in the community of researchers whose domain of expertise is culture. Yet at the same time, a well-being inventory that is demonstrably cross-culturally applicable would hold great potential for both ethnographers and local health or social services personnel.

Kingdom of Tonga

Tonga is a constitutional monarchy of approximately 102 000 people (U.S Census Bureau, 2000 estimate) located on 173 coral atolls in the central Pacific Ocean. Over 90% of this population is indigenous Polynesian. Secondary education is in English, however few Tongans use English, except when speaking to foreigners. The economy is based primarily on agriculture, fishing and handicrafts, with an expanding but fairly circumscribed tourism industry. Approximately 40% of the populace lives on small coral atolls, in villages of 500 or fewer persons. Most of the smaller atoll dwellers engage in the market economy in fairly limited ways. The rural lifestyle is characterized by almost 100% subsistence food and textile production (even in the capitol of Nuku'alofa, the most urbanized part of the nation, only 28% reported growing no subsistence crops at all). Social cohesion is maintained through church and Tongan traditional ideologies. Paramount among these is the significance of smooth social relations, fulfillment of kinship obligations, gifting, and status rivalry. As with all indigenous peoples, Tongans have experienced colonial, missionary, educational and economic influences. However, the nation is unique in the Pacific for its history of unbroken indigenous governance, and assiduous protection of traditional practices. Contemporary Tongan culture,

while a syncretic merger of Christian and ancient practices, is stereotypically Polynesian.

The Ha'apai region, where this study was completed, is economically the most marginal in the nation, and is often described by other Tongans as the area that is least developed, least affected by foreign influences, and the best example of 'true' cultural practices. Small, widely dispersed coral atolls characterize this region and inter-island travel is entirely by small fishing boats. Within the island group, most travel is between the various smaller islands and the larger one of Lifuka, which serves as a transportation conduit to the national capital and a tertiary care center. While the national airline services Lifuka, and is used for emergency medical evacuations, most Tongans traveling to the capital go by ocean ferry. Fishing, subsistence agriculture, and textiles are the main products of the Ha'apai region. On the outer islands, electricity is a very recent introduction in most homes (i.e., one year or less) and medical services are mostly provided by island-based public health nurses, as well as by some village-based community health representatives. A primary care hospital, located on the main island of Lifuka, is staffed with two (sometimes only one) physicians and offers several special clinics (i.e., diabetes, hypertension, infant, and dental) as well as limited operating and obstetrical facilities. Combined, these factors made this a valuable place to test the cross-cultural applicability of a SUBI inventory (Nagpal and Sell, 1985; Sell and Nagpal, 1992), as part of an ethnographic project examining cultural constructions of health (Young Leslie, 1999).

Goals of The Present Study

As discussed previously, few studies have attempted to develop and assess the unique characteristics of SWB within a particular culture, outside of those with more individualistic oriented values. In addition, as noted, the study of SWB in Pacific Island nations has largely been ignored. Thus, the goals of the present study were threefold; first, we sought to develop and administer a culturally sensitive measure of SWB appropriate to a Tongan sample. Second, we wished to examine the psychometric properties of the WHO SUBI inventory within a non-Asian, non-Euroamerican society. Third, we attempted to identify potential predictors or correlates of global life satisfaction and well-being judgments within this particular sample

of Tongan respondents. To accomplish these goals, a Tongan version of a measure intended to assess self-reported SWB was adapted from a previously validated measure of the construct (Nagpal and Sell, 1985; Sell and Nagpal, 1992) and administered to adults from 4 separate villages in the Ha'apai island group of Tonga. The current sample constituted nearly the entire adult population, then in residence for the first week of February 1993, of one island from the Ha'apai group. Adult respondents, in this sample, were classified as belonging to this category according to local cultural definitions (rather than a specific age of maturity), and included any persons who were no longer attending school, were married, or had parental responsibilities.

METHOD

Phase 1: Development of Tongan Version of Questionnaire

A pool of items from the original 130-item SUBI questionnaire (Nagpal and Sell, 1985) was translated into Tongan through a multi-stage, multi-cultural, committee process. This instrument was selected because the items tended to reflect a wide array of values present in contemporary Tongan culture, as well as its ascribed cross-cultural applicability and ease of administration. The multi-stage translation process allowed for inclusion of medical, religious and education professionals, native English and Tongan speakers, as well as Tongans with no more than secondary education and others with graduate level degrees. The intention was that the various perspectives would create a translation that was both true to the original measure, while reflecting Tongan language and phraseology, that was appropriate to the village-based sample, most of whom were literate, but had not completed post-secondary education, or had been out of school for several years. This multiple-contributor translation process included back-translation into English to ensure that the item wording captured the meaning embodied by the original English version as closely as possible.

While efforts were made to include as many of the initial 130 SUBI items as was possible, due to the potentially small sample size, the present analysis is restricted to a subset of 74 well-being items that explored specific domains of quality of life in Tongan culture

(adapted from the final 82 item SUBI; Nagpal and Sell, 1985), along with 9 additional questions that dealt with global assessments of life satisfaction (see Appendix A). The 82-item pool of questions was reduced to 74 by excluding items that made specific reference to satisfaction in relationships with children or spouses. These items were excluded because they were inapplicable to respondents who either had no children or were unmarried/widowed and also because they were deemed redundant with questions that assessed satisfaction with family relations. The 9 life satisfaction items were contained in the original pool of 130 SUBI items and were selected because of their similarities in wording with other global life satisfaction scales (e.g., Satisfaction With Life Scale; Diener et al., 1985; Pavot and Diener, 1993). Like the original SUBI, all responses were made on scales with 3 verbal response categories that indicated the extent to which the item was endorsed by the respondent (e.g., "Very Much" "To Some Extent" "Not So Much"). In addition to the well-being measures, respondents were asked to indicate their village of residence, their church affiliation, whether they had any children, highest grade of schooling completed, whether or not they had traveled overseas, and their social maturity status (in terms of gender/marital status), which acted as an analog for age.

Phase 2: Questionnaire Administration

Information about the questionnaire was provided via a public announcement by one of the authors. Public gatherings, called *fono*, are the culturally appropriate method for Tongans to meet to discuss matters affecting the entire community. During one such *fono*, and with permission of the town officer, the author who had made the public announcement described the survey, purpose of the research, and confirmed that participation was voluntary and confidential. In an effort to maximize response rate, all adults then residing in each of 4 villages (Muitoa, Ha'ano, Pukotala, and Fakakakai) located on the island of Kauvai were asked to complete the SWB inventory. Prospective participants were told that the questionnaire was intended to examine how they felt about their life as a whole and to measure Tongan notions of well-being, as well as to see whether the questionnaire would prove useful for Tonga as a whole. It was presented as another aspect of the larger ethnographic research project (which included formal interviews and informal discussions

on issues of maternal child health, culture and other ethnographic matters) that the researcher had been conducting on the island for the previous 18 months. Instructions on the first page of the packet re-stated this purpose and described the procedure to be used for responding to the various questions.

Questionnaires were distributed by hand to each household, at which time the purpose and process was re-explained, if necessary. The researcher confirmed that each person was free to choose to complete the survey and were free to stop at any time, or to skip any questions that they did not wish to answer. Participants were asked complete the questionnaire during their free time and return it to the investigator within the week. For adults who had trouble reading, holding a pen or otherwise needed assistance, another member of the household was asked to help by reading the question aloud and filling in the selected response. This process was deemed as being more culturally sensitive and reduced the potential for investigator-influenced bias. No remuneration was offered for completing the questionnaire, but the investigator did promise to return any published results of the questionnaire to the islanders, and the nation as a whole. While participants were given assurances of the anonymity and confidentiality of their responses, many participants actually signed their questionnaires. This form of identification was not recorded in the working data set. At the point of questionnaire distribution, the researcher had been conducting ethnographic research and residing on the island for almost two years, and was integrated socially into several important social networks (see Young Leslie, 1999). This rapport between research participants and researcher is thought to explain the above average response rate of approximately 76%.

Description of Sample

Of the approximately 300 questionnaires distributed, a total of 227 useable questionnaires were returned, which formed the data set for the current study. Sample characteristics in terms of the measured demographic variables are presented in Table I. Generally speaking, in comparison with available population information (e.g., CIA World Factbook, 2003), our sample seems quite representative of the overall population of Tonga.

TABLE I

Demographic characteristics of respondent sample

Variable		Frequency	Percent
Sex			
Male		97	44.5
Female		121	55.5
	Total	218	100.0
Marital status			
Married		107	49.8
Single/Unamarried		94	43.7
Widowed		14	6.5
	Total	215	100.0
Social status			
Mature		106	46.7
Youthful		112	49.3
	Total	218	100.0
Education			
Grade 6 completed		44	23.8
Grade 9 completed		25	13.5
Grade 10 completed		21	11.4
Grade 11 completed		11	5.9
Grade 12 completed		63	34.1
College Preparation completed		21	11.4
	Total	185	100.0
Religious affiliation			
Free Church		21	9.5
Chiefly Church		46	20.8
Wesleyan		111	50.2
Mormon		30	13.6
Seventh Day Adventist		7	3.2
New Light Church		1	0.5
Other		5	2.3
	Total	221	100

RESULTS

Global Ratings of Life Satisfaction

Responses to the 9 global life satisfaction items were scored such that higher scores (3) indicated greater overall life satisfaction. An internal consistency analysis indicated that these 9 items formed a reliable scale (Cronbach's $\alpha = 0.84$). Averaging across these 9 items, it was found that the mean global life satisfaction rating in the current sample ($M = 2.36$) was significantly greater than the mid-point (2) of the scale, $t(210) = 12.04$, $p < 0.0001$ suggesting that the sample of Tongans in the present study were generally quite satisfied with their lives.

Moreover, in comparison with other regions and nations, Tongan life satisfaction ratings are higher than countries with similar levels of economic or social development. To make this comparison, we obtained global life satisfaction ratings from the 1990 and 1995 waves of the World Values Surveys (Inglehart et al., 1999) and transformed these data into 11-point scales, anchored at 0 (dissatisfied) and 10 (satisfied), as suggested by Veenhoven (1993). We also transformed the life satisfaction ratings provided by our Tongan sample so that they would be on a comparable 0–10 scale. Table II displays the transformed Tongan life satisfaction ratings along with those from 17 other selected nations and an overall "world average" of life satisfaction for all countries/regions surveyed in the 1990 and 1995 waves of the World Values project. If a selected nation provided survey data for more than one wave of the World Values Survey, the most recently available life satisfaction data are displayed in Table II. Also included in the table are relevant indices of economic and social development for each of the selected nations. The 17 comparison nations were chosen because they illustrate the diversity of economic and social development throughout the world. For rough approximations of economic and social development, we used 2003 estimates of Gross Domestic Product (GDP) per capita and average life expectancy provided by the CIA World Factbook (2003). Both absolute values and overall world rankings are displayed. As is apparent in Table II, the Tongans who participated in the survey reported higher than average life satisfaction ratings even though their nation is well below the world averages on per capita GDP and average life expectancy. This suggests that the

TABLE II

Life satisfaction among selected nations

Country satisfaction[a]	Life capita[b]	GDP per rank[b]	World expectancy[b]	Life rank[b]	World
Canada	7.65	29,400	9	79.83	11
Ireland	7.64	30,500	8	77.35	45
Sweden	7.52	25,400	22	79.97	9
Mexico	7.43	9,000	80	72.30	93
USA	7.41	37,600	2	77.14	48
Australia	7.31	27,700	15	80.13	6
Belgium	7.33	29,000	10	78.29	33
Brazil	6.84	7,600	94	71.13	111
Dominican Republic	6.81	6,100	105	67.96	140
Tonga	**6.80**	**2,200**	**168**	**68.88**	**137**
Taiwan	6.54	18,000	48	76.87	50
Philippines	6.49	4,200	133	69.29	131
China	6.48	4,400	129	72.22	95
Ghana	6.46	2,100	169	56.53	180
India	6.15	2,540	156	63.62	162
Bangladesh	6.01	1,700	178	61.33	170
Armenia	3.69	3,800	139	66.68	145
Moldova	3.03	2,500	161	64.88	152
World Average	6.30[c]	7,900	91	63.95	159

[a]National data are based on life satisfaction ratings obtained in the most recently available wave of the World Values Survey. [b]Data obtained from 2003 CIA World Factbook. [c]World Average is approximated using the overall mean obtained in the World Values Surveys for the 1990 and 1995 Waves.

Tongans in our present sample were quite satisfied with their lives and that this satisfaction does not appear to be directly related to more objective indicators of social and economic development.

In terms of the demographic variables and their relationship to overall life satisfaction, males (M = 2.35) and females (M = 2.38) did not differ in their level of life satisfaction, $t(205) = -0.48$, *ns*. A one-way analysis of variance (ANOVA) conducted on the life satisfaction scale with marital status as the independent factor, indicated

single/unmarried (M = 2.35), married (M = 2.39), and widowed respondents (M = 2.21) also did not significantly differ in terms of their overall life satisfaction, $F(2, 197) = 0.93$, *ns*. In terms of social status, mature respondents (M = 2.44) reported significantly higher life satisfaction than the youthful respondents (M = 2.30), $t(205) = 2.32$, $p < 0.05$. As well, there was a marginal effect for educational level, $F(5,167) = 2.12$, $p = 0.07$. Respondents who completed either grade 12 (M = 2.29) or their college preparation year (M = 2.20) tended to report lower levels of global satisfaction relative to those who had completed grade 11 (M = 2.53), grade 10 (M = 2.51), grade 9 (M = 2.48), and grade 6 (M = 2.39). Thus, it appears that only social status and education level appear to be related to overall life satisfaction, with mature respondents expressing higher levels of satisfaction relative to youthful respondents, and people with less formal education expressing slightly greater life satisfaction than those respondents with greater years of educational instruction.

Exploratory Factor Analysis of SWB Items

To assess the factorial structure of SWB judgments and obtain a more manageable set of items, the 74 items assessing well-being in specific life domains were subjected to principal axis factor analysis with a promax rotation. Though Nagpal and Sell (1985) utilized a principal components analysis as an extraction procedure to validate the SUBI with their Indian samples, we opted for a principal axis factoring, because more recent research indicates such a procedure may provide more accurate communality estimates (e.g., Russell, 2002). A follow-up analysis indicated that component loadings did not appear to differ from the factor loadings provided by the principal axis factor extraction procedure. Following initial extraction, we used Catell's scree test to identify the number of factors to be retained in the factor rotation, rather than eigenvalues ≥ 1 criterion, as the latter procedure has been criticized for leading to potential overfactoring (i.e., extracting too many factors; Fabrigar et al., 1999). The scree test, prior to rotation, suggested that the first 2 factors to be extracted, which explained a total of 23% of the variance, represented the main sources of variance in the data set. Consistent with the Fabrigar et al. (1999) critique of the use of the Kaiser criterion, follow-up analyses suggested that there were 21, largely incoherent factors with eigenvalues $\geq$ 1.0. None of

these 21 factors resembled the original 11-factor structure identified by Nagpal and Sell (1985). Thus, we extracted 2 factors in the subsequent promax rotation. After this rotation, a total of 49 items were retained that loaded on to 1 of the 2 possible factors. Factor loadings for all retained items are presented in Table III.

These two factors appear to reflect overall positive or negative evaluations of well-being in important life domains. As is illustrated, the first factor appears to reflect positive evaluations of specific life domains that are associated with more collectivistic, interdependent value orientations (e.g, satisfaction derived from family and kin relations). The presence of these two factors is consistent with a general theory of the SWB evaluation process (e.g., Diener et al., 1999) and the previous SUBI scale development work conducted by Nagpal and Sell (1985). Both positions predict that SWB reports should reflect the operation of 2 relatively independent positive and negative affective evaluation dimensions. However, these factors differ in item content from previous conceptualizations because they appear to uniquely reflect Tongan values that emphasize smooth kin relations. As well, items on the positive well-being scale appear to encompass at least 5 of the factors (confidence in coping, family-group support, social support, primary group concern) initially identified by Nagpal and Sell (1985). This divergence is likely attributable to Nagpal and Sell's use of the Kaiser criterion for factor identification, which has been shown to lead to overfactoring (Fabrigar et al., 1999).

The second extracted factor appears to reflect a more general experience of negative emotions (e.g., disturbed by feelings of distraction), but still contains at least one item reflecting collectivistic values (e.g., worrying about disharmony in family relations). Similar to the positive factor, this scale encompasses items that loaded on to 4 different factors identified by Nagpal and Sell (inadequate mental mastery, perceived ill-health, deficiency in social contacts, general well-being negative affect). Scale reliabilities for each of the 2 factors were 0.90 and 0.85 for the positive and negative well-being factors, respectively. As might be expected with a promax rotation, which allows factors to be correlated with one another, the positive and negative affect scales were moderately, negatively correlated, $r = -0.17$, $p \leq 0.05$.

TABLE III

Rotated factor loadings for well-being items using principal axis factoring

Item	Factor 1	Factor 2
Consider your family a source of confidence in what you are doing	0.59	–
Think you would be looked after well by your family in the case you were seriously ill	0.58	–
Able to concentrate well on things you are doing	0.55	–
Consider it a source of confidence and strength for you that you are not alone in what you are aiming for	0.55	–
Feel your friends/relatives would help you out if you were in need	0.52	–
Think you have inherited values that are worthwhile passing on to your children	0.52	–
Feel confident that relatives and/or friends will look after you if you are severely ill or meet with an accident	0.52	–
Normally accomplish what you want to	0.52	–
Sometimes experience a joyful feeling of being part of mankind as one large family	0.51	–
When important decision to be taken in your family, are other members consulted by the head of the family	0.51	–
Consider that the family would be fully supporting any member in times of crisis	0.51	–
Think most of the members of your family feel closely attached to one another	0.50	–
Feel that you and things around you belong very much together and are integral parts of a common force	0.48	–
Feel you have control over your life the way you want to	0.48	–
Good agreement on how family income is spent	0.48	–
If something were to happen to your family, do you think neighbours would provide help	0.48	–
Feel about the extent to which you have achieved success	0.48	–
Feel about the relationship you and your friends have	0.47	–
Able to remain calm and control yourself in critical situations	0.47	–

TABLE III

Continued

Item	Factor 1	Factor 2
Consider it a source of inner strength that you belong to a bigger group of people with whom you share common values	0.46	–
Feel part of a group of people who are mutually friendly and supportive	0.46	–
Have someone to whom you can talk freely when you feel like it	0.45	–
Feel you manage situations even when they did not turn out as expected	0.44	–
Feel about your family life	0.41	–
Feel confident that in the case of crisis you will be able to cope with/it face it boldly	0.41	–
Feel you have most of the things you need	0.41	–
Feel confident that your friends and/or relatives will help you in an emergency	0.40	–
Feel about the religious fulfillment in your life	0.40	–
Consider your family a source of help to you in finding solutions to most of the problems you have	0.40	–
Disturbed by the fact that your mind gets distracted when you want to do something	–	0.61
Worried over the lack of confidence in what you are doing	–	0.58
Find it difficult to relax when you want to	–	0.55
Feel disturbed by feelings of anxiety or tension	–	0.54
Easily upset if things do not turn out as expected	–	0.53
Feel your life is boring and uninteresting	–	0.53
Feel you life is miserable	–	0.50
Worry about accomplishing so little of what you want to accomplish	–	0.47
Worry about your mental well-being	–	0.47
Troubled by disturbed sleep	–	0.45
Feel too easily irritated	–	0.45
Consider it a problem for you that you sometimes lose your temper over minor things	–	0.45

TABLE III

Continued

Item	Factor 1	Factor 2
Worry about having less success in life than you think you deserve	–	0.44
Worry over disharmony and conflicts between members of your family	–	0.44
Feel sad without reason	–	0.43
Worry about your future	–	0.42
Disturbed by palpitations	–	0.41
Experience circumstances of your life that are beyond your control	–	0.41
Worry about your health	–	0.40
Get easily upset if criticized	–	0.40

Note. Only factor loadings of 0.40 and greater are shown.

Global Life Satisfaction Ratings and SWB

To determine the relationship of our well-being scales to global life satisfaction judgments, we conducted a multiple regression analysis with the positive and negative well-being scales as predictors of global life satisfaction. Results indicated that positive well being significantly predicted life satisfaction (standardized beta = 0.79), while negative well-being was a marginally significant predictor of overall satisfaction (standardized beta = –0.08). In total, both the positive and negative well-being scales accounted for 65% of the variance in global life satisfaction judgments. These results suggest that experience of positive well-being tends to most strongly predict life satisfaction, while negative well-being has a more modest impact on subjective assessments of the quality of life. Note, however, that the lack of relationship between negative well-being and life satisfaction may be attributable to the presence of cultural norms that discourage the expression of negative emotions.

Descriptor Variables and SWB

To examine the relationship of the measured demographic variables with the experience of positive and negative well-being, we conducted analyses similar to those carried out on the global satis-

faction scale described earlier. Positive and negative well-being items were scored such that higher values (3) indicated greater endorsement of the items. The average scores across items for each of the positive and negative well-being scales served as dependent variables in all of the following analyses. The results indicated that there were no significant differences between males and females in terms of positive and negative well-being, all p's > 0.10. Similarly, in terms of marital status there were no differences between single, married, and widowed respondents in reported positive and negative well-being. In terms of social status, mature respondents reported significantly greater positive well-being ($M = 2.46$) than youthful respondents ($M = 2.34$), $t(176) = 2.36$, $p < 0.05$. As well, mature respondents ($M = 2.01$) reported significantly less negative affect than youthful respondents ($M = 2.12$), $t(198) = -2.04$, $p < 0.05$. There were no differences observed on the positive and negative well-being scales in terms of education level, all p's > 0.10. Thus, it appears that only social status is related to overall positive and negative well-being, with older, mature respondents expressing greater positive and also less negative well-being relative to the youthful respondents.

DISCUSSION

The data presented in this paper are the first to empirically document the nature and meaning of the SWB construct in the Kingdom of Tonga. In terms of global life satisfaction, these results indicated that the Tongans in the current sample were, on average, at the time of investigation, quite satisfied with their lives. When compared to other nations, Tongan life satisfaction ratings are generally higher than existing world averages and greater than most countries that share similar levels of social and economic development. As well, our results indicated that several important demographic variables contribute to differences in global life satisfaction scores. Specifically, mature respondents, typically those older and married, reported higher overall satisfaction than youthful, typically unmarried respondents. As well, those who reported completing greater years of formal education tended to report lower overall life satisfaction. Such a pattern of results appears to suggest some unique

goal strivings (e.g., Emmons, 1986) or values present in Tongan society and may lend support to discrepancy theories of quality of life judgments (e.g., Michalos, 1985; Wilson, 1967). That is, these patterns of results suggest that maturity is a valued asset in Tonga. This may be explained ethnographically insofar as Tongan cultural practice places great emphasis on hierarchy and rank, wherein elders and female siblings receive social priority, are supposed to be protected and provided for economically, and are accorded greater degrees of authority and autonomy. Male siblings, and younger family members, in general, are expected to obey those of higher cultural rank, and provide them with labor and valuables. In addition, younger persons are subject to high degrees of social pressure, expectation, and are often at the beck and call of their elders. Simply put, these youth are less free to make decisions than those who have matured socially. This lack of freedom and greater social pressure could therefore account for the lower overall life satisfaction reported by those who have yet to achieve social maturity.

As well, in terms of the education-life satisfaction link, those who have been exposed to greater formal education may experience levels of aspiration, goals, or expectancies that differ from those who did not complete such training. As relatively high achievers (in terms of education) for most of their lives, those who have not carried on to university or moved into more prestigious forms of work, may feel that they have failed to live up to societal expectations. In the context of a culture characterized by status rivalry (Marcus, 1978), as are many Polynesian societies (Goldman, 1955), and a society in which achievements (and failures) tend to be public, this expectancy-achievement discrepancy may lead more highly educated Tongans in rural settings to report less satisfaction than those who have not completed such formal training.

A second goal of the current study was to develop a measure that characterized both the more traditional meanings of the SWB construct (e.g., Diener et al., 1999) and the possibly more unique prevailing values that influence these types of judgments in Tongan culture. Using items from the SUBI scale (Nagpal and Sell, 1985; Sell and Nagpal, 1992) that were adapted for administration in Tonga, our results suggest that well-being judgments, much like judgments made in more individualistically oriented cultures, reflect the experience of positive and negative affect in

a variety of life domains. However, the content domains in which these emotions were experienced uniquely reflected the traditional Tongan values. Items loading on to the positive well-being scale tended to reflect more collectivistic values (e.g., Hofstede, 1980; Markus and Kitayama, 1992; Triandis, 1995), which emphasize the importance of social roles and interpersonal relationships over individual goals and pursuits. To a lesser extent, the negative well-being scale also reflected these values. The resulting positive and negative affect scales were only moderately correlated, consistent with existing models of SWB and emotion which predict that such global appraisals of positive and negative affect are to a large extent independent of one another (e.g., Diener and Emmons, 1984). Interestingly, these findings also confirm the cultural construction of health suggested by Young Leslie (1999, 2002) such that 'health' identified as *mo'ui lelei* or 'living well' is defined by appropriate social relations, described in the Tongan language as *va lelei* and *tauhi vaha'a*, and is established through proper fulfillment of kinship based obligations, gender roles, and achievement of success.

Based upon the results of this factor analysis, several other notable outcomes were obtained. Experience of positive well-being was highly correlated with higher overall life satisfaction but experience of higher negative emotions was only modestly associated with lower life satisfaction. This suggests that in the Tongan setting at least, life satisfaction judgments may rely more on one's positive experience in the life domains that define SWB. Few of the measured demographic variables were related to the positive and negative well-being scales although, like the life satisfaction scale, mature social status was associated with greater positive well-being and lower levels of negative affect.

Finally, it should be noted that the factorial structure obtained in the present study was inconsistent with that predicted by the original authors of the scale (Nagpal and Sell, 1985). Using principal component analyses and the Kaiser criterion to identify the number of factors present in their data sets, Nagpal and Sell (1985) found that the SUBI consisted of 11 underlying factors. Yet in the current study, only 2 factors were identified in the Tongan self-reports. This result may be attributable to the differences in factor analytic procedures adopted by the current study, although this seems unlikely as follow-up analyses using methods similar to those used in the

development of the SUBI provided results that were consistent with principal axis factor analysis used in the current study. More recent methodological developments point to a plausible explanation for the differences in factorial structure. Specifically, researchers have pointed out that using the Kaiser criterion to identify number of underlying factors can lead to overfactoring (e.g., Fabrigar et al., 1999). A comparison of the current factorial structure with Nagpal and Sell's (1985) supports this possibility. The single positive well-being factor obtained in the current study contains items that that loaded onto at least 5 factors in Nagpal and Sell's original analysis, while the negative well-being factor contained items that loaded on to at least 4 of the original SUBI factors. The original 5 factors subsumed by the current positive well-being factor emphasize a common theme of positive social functioning (e.g., social support, family support, primary group concern) while the original 4 factors subsumed by the current negative well-being factor emphasize deficits in social functioning (e.g., experience of negative emotions, problems in family relations). Thus, these patterns suggest that Nagpal and Sell (1985) may have extracted too many factors in their original data set. Our results suggest that the SUBI items are applicable cross-culturally, but that the scale may differ in terms of its item-based structural characteristics within differing cultural groups.

Conclusion, Limitations, and Future Directions

The results from the present study that examined SWB in the Kingdom of Tonga provide a promising first step for researchers wishing to understand the psychology of happiness and other determinants of quality of life in the Pacific Island region in particular, and to non-Asian, non-Euroamerican societies in general. Our results suggest that SWB evaluations in Tonga, although similar to other cultures at the global level of the construct, are to a large extent quite unique at the constituent level and reflect the prevailing values present in Tongan culture. Although the pool of items used to assess life satisfaction and SWB were constructed outside of Tongan culture, we feel that with the intent of the original investigators for the items to reflect a wide array of cultural values, the careful translation procedures used, and by foregrounding the survey process, as much as possible, with culturally appropriate interactions, the

Tongan experience of well-being has been adequately captured. We recognize the limitation of the relatively small population base of potential respondents in Tonga; this practicality made it difficult to develop items with one sample and have a separate sample validate the scale. Future research might attempt such a strategy and test whether new items converge with the current scale structure.

Since we believe this study is the first of its kind to be conducted in Tonga, there is a great potential for future research. For example, future studies might be conducted to further validate the structure of well-being judgments and test judgmental models of SWB and life satisfaction (e.g., Mallard et al., 1996; Michalos, 1985) in Tonga. As families, government and overseas aid donors collectively continue to champion higher education, globalization of the economy, and modernization of social forms, temporal comparisons of SWB may prove to be very relevant and provide locally specific tools for evaluating the success of a variety of development projects intended to improve health and social well-being. While the Ha'apai region in which these data were collected suffers more from economic and infrastructural disparity, and is characterized as being slightly more culturally conservative than the capital region to the south (Tongatapu) or the more tourist-frequented region to the north (Vava'u), there is enough travel and telephone contact between Ha'apai and these other areas that we feel comfortable asserting that Ha'apai people are not significantly different from other Tongans. Nevertheless, there remains the possibility that some of the identified SWB trends express region-specific values (e.g., the heavy emphasis placed on both traditional social practices and on education by the Ha'apai people), which warrant testing in the other regions, to assess their generalizability. It is possible too, that a replication of the study with more urban populations, which tend to have different types of social networks and tensions, would produce different results. At the same time, a variety other of Pacific Island areas (e.g., Fiji, Tahiti, Marquesas, Cook Islands, Samoa, Federated States of Micronesia, Vanuatu, etc.) have yet to be included in any research of this type. To understand the commonalities and unique qualities of SWB in these Pacific nations, particularly in contrast to the more hegemonic data sets from Euroamerican and Asian populations, cross-cultural and cross-national data might also be collected to make comparisons possible. As well, future research can focus on identifying unique

determinants of SWB in terms of specific values, goal orientations, personality, and demographic variables. Finally, since the majority of SWB research is, for the most part, concerned with quality of life, but because our findings resonate with cultural constructions of health, one could also examine how SWB is associated with more objective health outcomes including prevalence of illness, treatment seeking behavior, and compliance with medical directions. Given the promising results described in this paper, it seems clear that an expansion of research aimed at examining quality of life in relation to culture, using a method and approach similar to the one described in this paper, is both a fruitful and worthy pursuit.

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APPENDIX A

Global Life Satisfaction Items

1. How do you feel about what you have accomplished in your life?
2. One the whole, how happy are you with things you have been doing in recent years
3. Taking all things together, how do you feel things are these days?
4. Compared with the past, do you feel your present life is: Very happy, Quite Happy, Not so Happy
5. Compared with others, do you feel your life is: Very happy, Quite Happy, Not so Happy

6. Do you feel your life is interesting?
7. Do you feel your life is worthwhile?
8. Considering your life as a whole, do you think it is the life you most want to live?
9. How do you feel about your life as a whole?

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