

SOCIAL AND HEALTH DETERMINANTS OF WELL BEING AND LIFE
SATISFACTION IN JAMAICAG. HUTCHINSON, D.T. SIMEON, B.C. BAIN, G.E. WYATT, M.B. TUCKER &
E. LEFRANC

ABSTRACT

Background: Psychological well being and the degree of satisfaction with life are likely to affect a range of social behaviours and determine uptake of health and social services. It is important to identify the factors that inform these constructs.

Aims: We sought to identify the variables which best predicted psychological well being in the Caribbean country, Jamaica and also those associated with feelings of satisfaction with life.

Methods: Interviews were conducted on young adults aged 15–50 years as part of a sexual decision-making survey in Jamaica. Information was collected on a range of social, health and demographic variables and a measure of psychological well being – Centre for Epidemiological Studies of Depression (CES-D). Satisfaction with life was measured using a Likert scale in response to the question ‘Are you satisfied with your life as a whole?’ Multiple regression analyses were used to determine the predictors of psychological well being and satisfaction with life.

Results: There were 2580 respondents (1601 women and 979 men). The mean age was 29.7 years (standard deviation 9.2 years). Women had lower levels of psychological well being and satisfaction with life. Independent predictors of lower psychological well being were having an acute illness, having a chronic illness in women and high religious behaviour in men. Satisfaction with life was predicted by younger age, marital status and employment.

Conclusions: Our findings suggest that health variables are more important for psychological well being while social circumstances are more significant for satisfaction with life. There are important gender differences in the mediation of psychological well being as well as age differences in the variables associated with satisfaction with life.

INTRODUCTION

Appreciation of the psychological well being of individuals is now considered fundamental to the understanding of individual and group behaviour (Shen & Lai, 1998). This is reflected in the marked increase in well being and quality of life assessments in both clinical research and practice (Holcik & Koupilova, 1999). Psychological well being is essentially a subjective

construct, and people appear to derive an assessment of their own well being using both external (social and environmental) as well as internal (personal) indicators. Diener (1998) has contended that well being is related to inherited temperament in addition to factors such as person–environment fit, self-esteem, life tasks and goals and the sense of agency in the realisation of these goals. This is consistent with the view that a strong sense of psychological well being may indicate an individual's perception of his mastery over life's challenges, especially in relation to that of others (Napholz, 1994). A diminished sense of emotional well being may contribute to poorer health status by affecting health behaviour and lifestyle as well as the level of risk awareness (Steptoe & Wardle, 2001). This suggests that health and psychological well being are intimately related and also impact on socio-economic indicators such as employment since depression and the resultant low level of psychological well being has been shown to decrease the chances of obtaining and maintaining employment (Alexandre & French, 2001). On the other hand, Keyes (1998) described the concept of social well being as an achievement facilitated by educational attainment and age, but also affected by social integration and acceptance.

Since life experience is an integral part of well being (Ryff & Heidrich, 1997), the interpretation of these experiences in terms of the degree of satisfaction with life must also be important. Life satisfaction may be one index of psychosocial well being, but the psychological is bound to inform the social and vice versa. However, while there may be covariation between the two concepts there is no evidence that well being and perceived self-mastery mediate the impact of objective life circumstances on subsequent life satisfaction (Marshall *et al.*, 1996). It is therefore important to distinguish between them. Also, since subjective assessments are more influential in determining well being and life satisfaction than objective circumstances (Stedman, 1996), it is clearly necessary to distinguish the internal determinants of well being from those that are predominantly social.

In terms of public health and social policy, it is important to pay attention to people's perceptions of their own health, partly because of the interactions between social relationships and physical and mental health. These interactions are even more significant when one considers how well being and satisfaction with life are inextricably linked to social and economic factors. Health policy therefore has to be seen in the framework of social and economic development (Steptoe & Wardle, 2001). In this larger context of social and economic development, Marsella *et al.* (1997) has suggested that success is meaningful only when it can be translated into personal well being and an acceptable degree of satisfaction with life. The other direction of this relationship also holds true that sustainable social and economic development is most likely to occur when the members of a society have a sense of psychological well being and life satisfaction. The measurement of well being and life satisfaction and the understanding of their determinants are therefore crucial to effective health and social policy formulation.

In the present study we investigated the health, social and demographic determinants of well being and life satisfaction in a developing country that has had significant socio-economic hardship in the recent past, with women being especially disadvantaged in this regard (Le Franc *et al.*, 1996). This analysis is also important because it could provide a template for understanding the interaction of health, social status and well being in other developing countries.

METHODS

The data used in this study were part of an investigation that set out to examine the psychosocial and socio-cultural factors related to sexual decision making among adult Jamaicans (Le Franc *et al.*, 1994). This was the primary aim of the project and has greatly facilitated an understanding of sexual behaviour in this population (Le Franc *et al.*, 1996; Simeon *et al.*, 1996). This present work grew out of the initial investigation and enabled a post hoc analysis of some of the determinants of psychological well being and life satisfaction.

The subjects comprised individuals aged 15 to 50 years. A two-stage probability sampling technique was used to ensure that a representative sample of the Jamaican population was obtained. A total of 4350 households were selected with one person per household to be interviewed. Of the selected households, 826 had no member in the desired age range, 365 were vacant and 158 had been demolished since the previous national census. This left 3001 households from which a selection could be made. A further 421 were excluded as 209 refused to participate and 212 were lost after indefinite call backs, i.e. persons selected for study failed to keep their appointments. The final sample was therefore 2580 households with a refusal rate of 14% of those contacted and eligible. After being selected, confidentiality of all responses was guaranteed to the subjects who then signed a consent form indicating their agreement. Further details on the sample and the method are available in the references given for papers previously published on this sample (Le Franc *et al.*, 1994; Simeon *et al.*, 1996).

Data collection was by an interviewer-administered questionnaire. Satisfaction with life was measured by asking the respondents whether they felt '*satisfied with life as a whole*'. Psychological well being was measured by the use of a shortened version of the Centre for Epidemiological Studies of Depression Scale (CES-D) (Radloff, 1977). A mean score was calculated that reflected a quantified measure of their perception of well being based on the number of days in the previous week that symptoms related to feelings of worry and unease were present. Possible scores ranged from 0 to 7 with the higher end of the scale indicating reduced well being or greater likelihood of depression and the lower end, better well being. A shortened version of the Rosenberg Self-Esteem scale was used to measure self-esteem (Rosenberg, 1979). This was also quantified with the scores ranging from 4 to 16 with lower scores indicating increased self-esteem. Other variables included in the analysis were the presence of acute and/or chronic illness. Acute illness was defined as any illness that required medical intervention occurring within three months of the interview while chronic illnesses were those that lasted for more than three months. Demographic data including age, gender, education, marital status, employment status, church attendance and religiosity were also obtained.

Interviewers were trained and inter-rater reliability measured; this was repeated on two occasions during the interviewing process. Overall the reliability was over 90% for all the questions.

Differences between categorical variables were examined using chi-square tests while differences in the mean values of interval scaled variables were examined using *t*-tests. The well being score was transformed using logs before analysis because of its skewed distribution. In order to determine whether associations were the same in males and females, multiple regression analyses were conducted to examine gender interactions. Multiple linear and

forced entry logistic regression analyses were used to identify the independent predictors of well being and satisfaction with life respectively. For these analyses the independent variables included the demographic and health status variables as well as gender interaction terms. The level of significance was set at $p < 0.05$ and the data were analysed using SPSS for Windows 9.0.

RESULTS

Of the 2580 respondents, 1601 (62%) were women and 979 (38%) were men. The demographic characteristics of the sample are given by gender in Table 1. The mean age of the sample was 29.7 years ($SD = 9.2$). In general, the women were better educated than the men. Women were also more likely to be in stable unions (married and common-law), more religious and they reported attending church more often than the men. More men were in full-time employment than women.

Overall, women had lower levels of well being and self-esteem and said that they were less satisfied with their lives than men (Table 2). Women were also more likely to report that they had experienced acute illness than men (Table 2). The results of the regression analyses, with the well being score as the dependent variable, revealed that there were significant and separate gender interactions with chronic illness ($p = 0.002$) and religiosity ($p = 0.002$). Women with chronic illness had lower feelings of well being than those without while this association was not seen in men. On the other hand, men who stated they were more religious had a lower sense of well being while there was no association between reported religiosity and well being in women.

The associations found through the use of linear regression analysis between well being and the various demographic and health variables are presented in Table 3 (p. 48). Well being was negatively associated with having a secondary education, being religious and having an acute or a chronic illness. It was also positively associated with full-time employment status and being married. There were significant interactions with gender with religiosity ($p = 0.01$) and having a chronic illness ($p = 0.005$). The negative association with religiosity was only found in men ($p < 0.001$) while there was no association in women. On the other hand, the negative association with having a chronic disease was only found in women ($p < 0.001$) while there was no association in men.

The results of the multiple linear regression analyses indicated that the independent predictors of well being were age ($p = 0.05$), the age-by-gender interaction ($p = 0.004$), having an acute illness ($p = 0.004$), having a chronic illness ($p < 0.001$), the gender-by-chronic disease interaction ($p = 0.02$), the gender-by-religiosity interaction ($p = 0.02$) and employment status ($p < 0.05$). The age-by-gender interaction was due to an absence of an association between age and well being in men while the level of well being increased with age in women ($p = 0.02$).

The associations between satisfaction with life and the various demographic and health variables are presented in Table 4 (p. 49). In summary, satisfaction with life was associated with having a tertiary education, being in full-time employment, being married, attending

Table 1
Demographic characteristics of the sample, by gender

	Males (<i>n</i> = 979)	Females (<i>n</i> = 1601)	<i>p</i> -value
Age (y) ^a	29.9 ± 9.6	29.5 ± 8.9	0.82
Education	No. (%)	No. (%)	< 0.001
Primary	405 (41)	511 (32)	
Secondary	539 (55)	1020 (64)	
Tertiary	34 (4)	70 (4)	
Union status			< 0.001
Never partnered	224 (25)	271 (19)	
Single	391 (44)	493 (34)	
Common-law	144 (16)	405 (28)	
Married	125 (14)	266 (19)	
Employment			< 0.001
Full-time	627 (64)	606 (38)	
Part-time	111 (11)	131 (8)	
Unemployed	138 (14)	447 (28)	
Housekeeper	0	250 (16)	
Student	100 (10)	161 (10)	
Religiosity			< 0.001
Very	192 (20)	449 (28)	
Moderate	304 (31)	605 (38)	
Slightly	370 (38)	431 (27)	
Not at all	107 (11)	112 (7)	
Church attendance			< 0.001
Weekly or more	209 (22)	629 (40)	
Occasionally	363 (38)	675 (42)	
Rarely	396 (41)	290 (18)	

^a Mean ± SD

Table 2
Well being, self-esteem, satisfaction with life and health status of the sample, by gender

	Males (<i>n</i> = 979)	Females (<i>n</i> = 1601)	<i>p</i> -value
Well being ^a (Mean (SD))	0.80 (1.05)	1.05 (1.23)	< 0.001
Self-esteem ^b (Mean (SD))	6.64 (1.83)	6.84 (1.79)	0.006
	No. (%)	No. (%)	
Life satisfaction	738 (76)	1149 (72)	0.04
Acute illness	76 (8)	256 (16)	< 0.001
Chronic illness	72 (7)	148 (9)	0.10

^a Scores ranged from 0–7 with a lower score indicating better sense of well being

^b Scores ranged from 4–16 with a lower score indicating better self esteem

Table 3
Results of linear regression analysis showing the association between the demographic and health variables with well being (log transformed)

	B	(95% CI)	p	Gender interaction
Gender				
Male	-0.114	(-.07, -.16)	.001	
Age	-0.01	(-.01, .01)	.10	.10
Education			< .001	.67
Primary	0.04	(-.06, .15)	.41	
Secondary	0.12	(.02, .23)	.02	
Tertiary (reference)				
Employment status			.03	.55
Part-time	0.06	(-.01, .14)	.08	
Unemployed	0.08	(.02, .13)	.004	
Housekeeper	0.06	(-.01, .13)	.10	
Student	0.04	(-.03, .11)	.23	
Full-time (reference)				
Union status			.02	.66
Married	-0.07	(-.13, -.01)	.06	
Common-law	0.02	(-.05, .08)	.60	
Visiting	0.03	(-.03, .09)	.31	
Never partnered (reference)				
Church reference			.52	.30
Weekly or more	0.03	(-.03, .08)	.34	
Occasionally	0.03	(-.02, .08)	.29	
Religiosity			.002	.01
Very	0.05	(-.00, .10)	.05	
Moderately	0.08	(.04, .13)	<.001	
Slightly/Not at all (reference)				
Acute illness	0.15	(.09, .21)	<.001	.15
Chronic illness	0.23	(.15, .30)	<.001	.005
Self-esteem	-0.01	(-.01, .02)	.40	.59

church at least once per week and being very religious. The absence of chronic illness was also positively associated with satisfaction with life and individuals who were satisfied with life also had greater levels of self-esteem. When gender interactions were examined, the only significant one was the interaction with age ($p = 0.01$). Younger men were more likely to be satisfied than older men ($p = 0.008$) while there was no association with age in women.

The results of the multiple logistic regression analyses indicated that the independent predictors of satisfaction with life were union status ($p < 0.001$), employment status ($p = 0.02$), church attendance ($p = 0.002$) and self-esteem ($p < 0.001$).

Table 4
Results of the logistic regression analysis showing association between the demographic and health variables and satisfaction with life

	OR	(95% CI)	<i>p</i>	Gender interaction
Gender				
Male	1.21	(1.01, 1.45)	0.04	
Age	0.99	(0.98, 1.00)	0.11	0.04
Education			0.03	0.32
Primary	0.47	(0.27, 0.82)	0.008	
Secondary	0.51	(0.29, 0.87)	0.01	
Tertiary (reference)				
Employment status			< 0.001	0.51
Part-time	0.66	(0.49, 0.90)	0.009	
Unemployed	0.60	(0.48, 0.74)	< 0.001	
Housekeeper	0.64	(0.48, 0.86)	0.004	
Student/Other	1.09	(0.78, 1.50)	0.62	
Full-time (reference)				
Union status			< 0.001	0.41
Married	2.14	(1.56, 2.94)	< 0.001	
Common-law	1.20	(0.92, 1.56)	0.18	
Visiting	1.46	(1.14, 1.86)	0.002	
Never partnered (reference)				
Church attendance			< 0.001	0.30
Weekly or more	1.65	(1.31, 2.09)	< 0.001	
Occasionally	1.00	(0.81, 1.24)	0.97	
Rarely (reference)				
Religiosity			0.04	0.37
Very	1.34	(1.06, 1.68)	0.01	
Moderately	1.14	(0.93, 1.39)	0.20	
Slightly/Not at all (reference)				
Acute illness				
Present	0.87	(0.68, 1.13)	0.30	0.18
Chronic illness				
Present	0.66	(0.49, 0.89)	0.006	0.46
Self-esteem	0.85	(0.81, 0.90)	< 0.001	0.97

DISCUSSION

Community surveys are valuable in the understanding of self-assessment and behavioural changes over time in views and attitudes towards health, illness and well being (Swain, 1993). The British Health and Lifestyle Survey illustrated this as it was found that the perception of one's state of health is intimately related to environmental circumstances and social

contacts. Gender differences are also likely and women reported more negative perceptions of their health in the absence of social support (Swain, 1993). Marriage and divorce were also shown to have differential effects on health in men and women (Baxter, 1993). Marriage had a positive effect on both men and women while divorce had a greater negative impact on men. This finding has been replicated in national surveys in North America (Mookherjee, 1997). The concept of health value may be recruited to explain these findings and the relationship of social factors to health (Fahey *et al.*, 1996). For example, it has been found that for mental health symptoms in later life, multiple role involvement is associated with higher life satisfaction (Adelmann, 1994). This is especially significant in developing societies where there are few resources to be allocated and primary prevention at the level of behaviour would be even more desirable.

Psychological well being and general life satisfaction are clearly related (Kemmler *et al.*, 1997), however while psychological well being has been thought to be primarily related to self-esteem and affective state, general life satisfaction has been suggested to be founded more on social relations and health. While our findings generally support these views, one of our more striking findings was the association between psychological well being and physical health, with two of the three independent predictors of this domain being related to the presence of illness. Low levels of well being were associated with having acute and chronic illnesses.

Another significant finding that emerged from our analysis was the role of religion in the construction of well being and its differing importance for men and women. There was a negative relationship between reported religiosity in men and their sense of psychological well being whereas a similar association did not hold for women. Many studies have shown a correlation between religiosity and mental health. Grom (2000) in reviewing these reports, postulates that subjective well being is influenced by religiously motivated social interaction and suggests that the former acts as a protective counterpart to mental health deficits. Religious affiliation has also been found to be associated with greater life satisfaction, personal happiness and better coping mechanisms for traumatic life events (Elison, 1991). These associations might therefore suggest that religious behaviour is a proxy for the resilience identified by Christopher (2000) as a component of well being. Religion has had a central role in shaping Caribbean society and has been cited as one of the central axes of Jamaican life (Beckford, 1975). Its differing significance for men and women in the present study suggests that it remains a cornerstone of social interaction for women while male participants are perhaps negatively perceived by their peers for engaging in overt religious behaviour. Alternatively, it is possible that men with lower psychological well being try to seek support in religious activities. Cultural differences may also exist with regard to the association between reported religiosity and well being. For example, among Mexican-Americans in Texas, religious participation was associated with greater life satisfaction in older people but with depressive symptoms in the younger age groups (Levin *et al.*, 1996).

With regard to satisfaction with life, however more demographic variables were implicated, particularly being married, full-time employment and being older. Not surprisingly, increased self-esteem was also associated with greater feelings of satisfaction. Marital status and employment confirm the salience of social relations as a measure of life satisfaction. Social support, role mastery and perceived control over one's environment are all implicated in the genesis of life satisfaction (Kalimo & Vuori, 1990; Martire *et al.*, 1998;

Bisconti & Bergeman, 1999). Married women have been noted to report more life satisfaction than married men (Mookherjee, 1997). In men, there would seem to be the need for specific attention to issues of self-differentiation and perceived need fulfilment as precursors to psychological health in the marital situation (Bohlander, 1999). Being married was also associated with satisfaction in both men and women in the present study, however more research is needed to delineate clearly the gender-specific factors related to both psychological well being and general life satisfaction. The way they interact with age may also be important (Goodman *et al.*, 1997).

The finding that there were different predictors for well being and life satisfaction supports the notion that they are conceptually distinct. We have found that the predictors of well being were predominantly related to physical health and religion, which may be a proxy for social support and resilience but perhaps only for women. Life satisfaction on the other hand is more clearly related to social and demographic factors. The gender differential is interesting because there is a perception in the Caribbean that women are overtaking men in most areas of endeavour (Miller, 1994). However, although women are better educated, they are less likely to be in full-time employment and this may be the factor that contributes to their lower levels of well being and satisfaction with life when compared with men. However if this influences their concern with health, it may be rebounding to their benefit. Factors such as alcohol and drug use were not examined in the present study but these may also be implicated in these constructs and the differences between genders. In Britain, women who were single mothers and in full-time employment were found to have lower feelings of well being than their peers but this did not emerge from this analysis of Jamaican women.

The importance of demographic factors such as employment is consistent with other studies in this area (Reynolds & Ross, 1998). The role of perceived stability in social terms seems to be the crucial determinant; particularly in a society that places great emphasis on traditional values (Le Franc *et al.*, 1994). Marriage and employment may therefore be interacting with each other.

Gender role differentiation was best illustrated by the finding regarding religiosity where well being was diminished in men who were religious. However, since the study design was cross-sectional, it was not possible to determine whether the religiosity preceded the low sense of well being or vice versa. Women generally tended to be more religious than men so another factor could be concepts of masculinity related to religious behaviour.

In conclusion we can say that well being seems a more internally driven construct more closely related to psychological factors and physical health while satisfaction with life is more associated with social roles and perceptions. Well being is better related to what people feel they are able to do than what they actually have or are perceived to be by the rest of society, which seems more influential on feelings of satisfaction with life.

REFERENCES

- ADELMANN, P.K. (1994) Multiple roles and psychological well being in a national sample of older adults. *Journal of Gerontology*, **49**(6), S277–S285.
- ALEXANDRE, P.K. & FRENCH, M.T. (2001) Labor supply of poor residents in metropolitan Miami, Florida: the role of depression and the comorbid effects of substance use. *Journal of Mental Health Policy and Economics*, **4**(4), 161–170.

- BAXTER, M. (1993) Implications for health policy. In *Health and Lifestyle Survey, 7 Years On* (ed. B.D. Cox, F.A. Huppert & M.J. Whitelow). Aldershot: Dartmouth.
- BECKFORD, J.A. (1975) *The Trumpet of Prophecy: A Sociological Study of Jehovah's Witnesses*. Oxford: Blackwell.
- BISCONTI, T.L. & BERGEMAN, C.S. (1999) Perceived social control as a mediator of the relationships among social support, psychological well being and perceived health. *Gerontologist*, **39**(1), 94–103.
- BOHLANDER, R.W. (1999) Differentiation of self, need fulfillment and psychological well being in married men. *Psychology Reports*, **84**(3, ii), 1274–1280.
- CHRISTOPHER, K.A. (2000) Determinants of psychological well being in Irish immigrants. *Western Journal of Nursing Research*, **22**(2), 123–140.
- DIENER, E. (1998) Subjective well being and personality. In *Advanced Personality. The Plenum Series (Social and Clinical Psychology)* (ed. D.F. Barone & M.Hershen). New York: Plenum Press.
- ELISON, C.G. (1991) Religious involvement and subjective well being. *Journal of Health and Social Behaviour*, **32**(1), 80–99.
- FAHEY, A.L., BECK, A.D., PUGH, R.M., BUERGER, J.L. & CHANG, E.C. (1996) Preliminary study of health value as the moderator of the link between age and life satisfaction. *Psychological Reports*, **79**, 443–446.
- GOODMAN, E., AMICK, B.C., REZENDES, M.O., TARLOV, A.R., ROGERS, W.H. & KAGAN, J. (1997) Influences of gender and social class on adolescents' perceptions of health. *Archives of Paediatric and Adolescent Medicine*, **151**(9), 99–104.
- GROM, B. (2000) Religiosity and subjective well being. *Psychotherapy and Psychosomatic Medicine and Psychology*, **50**(3–4), 187–192.
- HOLCIK, J. & KOUPILOVA, I. (1999) Defining and assessing health related quality of life. *Central European Journal of Public Health*, **7**(4), 207–209.
- KALIMO, R. & VUORI, J. (1990) Work and sense of coherence: resources for competence and life satisfaction. *Behavioural Medicine*, **16**(2), 76–89.
- KEMMLER, G., HOLZNER, B., NEUDORFER, C., MEISE, U. & HIMTERHUBER, H. (1997) General life satisfaction and domain specific quality of life in chronic schizophrenic patients. *Quality of Life Research*, **6**(3), 265–273.
- KEYES, C.M. (1998) Social well being. *Social Psychology Quarterly*, **61**(2), 121–140.
- LE FRANC, E., TUCKER, M., WYATT, G., BAIN, B. & SIMEON, D. (1994) The making of sexual partnerships: reexamining the Jamaican family system. *Bulletin of Eastern Caribbean Affairs*, **19**, 17–30.
- LE FRANC, E., WYATT, G.E., CHAMBERS, C., ELDEMIRE, D., BAIN, B. & RICKETTS, H. (1996) Working women's sexual risk taking in Jamaica. *Social Science and Medicine*, **42**(10), 1411–1417.
- LEVIN, J.S., MARKIDES, K.S. & RAY, L.A. (1996) Religious attendance and psychological well being in Mexican Americans: a panel analysis of three generation data. *Gerontologist*, **36**(4), 454–463.
- MARSELLA, A.J., LEVI, L. & EKBLAD, S. (1997) The importance of including quality of life indices in international social and economic development activities. *Applied and Preventive Psychology*, **6**(2), 55–67.
- MARSHALL, G.N., BURNAM, M.A., KOEGEL, P., SULLIVAN, G. & BENJAMIN, B. (1996) Objective life circumstances and life satisfaction: results from the course of homelessness study. *Journal of Health and Social Behaviour*, **37**(1), 44–58.
- MARTIRE, L.M., STEPHENS, M.A. & TOWNSEND, A.L. (1998) Emotional support and well being of mid-life women: role specific mastery as a mediational mechanism. *Psychology and Aging*, **13**(3), 396–404.
- MILLER, E. (1994) *Marginalization of the Black Male: Insights from the Development of the Teaching Profession*. Mona: University of the West Indies Press.
- MOOKHERJEE, H.N. (1997) Marital status, gender and perception of well being. *Journal of Social Psychology*, **137**(1), 95–105.
- NAPHOLZ, L. (1994) Indices of psychological well being and sex role orientation among working women. *Health Care of Women International*, **15**(4), 307–316.
- RADLOFF, L. (1977) The CES-D scale: a self report depression scale for research in the general population. *Applied Psychological Measurement*, **1**, 385–401.
- REYNOLDS, J.R. & ROSS, C.E. (1998) Social stratification and health: education's benefit beyond economic status and social origins. *Social Problems*, **45**(2), 221–247.
- ROSENBERG, M. (1979) *Conceiving the Self*. New York: Basic Books.
- RYFF, C.D. & HEIDRICH, S.M. (1997) Experience and well being: explorations on domains of life and how they matter. *International Journal of Behavioural Development*, **20**(2), 193–206.

- SHEN, S.M. & LAI, Y.L. (1998) Optimally scaled quality of life indicators. *Social Indicators Research*, **44**(2), 225–254.
- SIMEON, D., BAIN, B., WYATT, G., LE FRANC, E., RICKETTS, H., CHAMBERS, C. & TUCKER, M. (1996) Characteristics of Jamaicans who smoke marijuana before sex and their risk status for sexually transmitted diseases. *West Indian Medical Journal*, **45**, 9–13.
- STEDMAN, T. (1996) Approaches to measuring quality of life and their relevance to mental health. *Australian and New Zealand Journal of Psychiatry*, **30**(6), 731–740.
- STEPTOE, A. & WARDLE, J. (2001) Health behaviour, risk awareness and emotional well being in students from Eastern Europe and Western Europe. *Social Science and Medicine*, **53**(12), 1621–1630.
- SWAIN, V.J. (1993) Social relationships and health. In *Health and Lifestyle Survey, 7 Years On* (ed. B.D. Cox, F.A. Huppert & M.J. Whitelow). Aldershot: Dartmouth.

G. Hutchinson, University of the West Indies, St Augustine, Trinidad & Tobago.

D.T. Simeon, University of the West Indies, St Augustine, Trinidad & Tobago.

B.C. Bain, University of the West Indies, Mona, Jamaica.

G.E. Wyatt, University of California at Los Angeles, USA.

M.B. Tucker, University of California at Los Angeles, USA.

E. LeFranc, University of the West Indies, Cave Hill, Barbados.

Correspondence to Gerard Hutchinson, Psychiatry Unit, Faculty of Medical Sciences, University of the West Indies, Mount Hope Medical Complex, Mount Hope, Champs Fleurs, Trinidad and Tobago.

Email: gah@tstt.net.tt