

Satisfaction with personal and environmental quality of life: a black South African informal settlement perspective

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Abstract

A study was conducted with 487 black adult residents of a South African informal settlement (151 men and 336 women) to ascertain satisfaction with personal and environmental quality of life. It was hypothesised that: (1) health status and life satisfaction were the underlying dimensions of personal quality of life (PQOL); (2) health status and life satisfaction were more strongly associated with PQOL than environmental quality of life (EQOL); and (3) life satisfaction and satisfaction with EQOL were positively related. Seventy per cent of respondents rated their health as good or better. Age, schooling and employment status were significantly related to health, life satisfaction and PQOL. Reliability (internal consistency) coefficients were 0.77 for the 5-item life satisfaction scale and 0.82 for the 12-item EQOL measure. Factor analysis showed that safety and security was the major unmet service need. Health status and life satisfaction explained 38% of the variance in PQOL; health status explained only 4% of the variance in EQOL. Life satisfaction was significantly related to EQOL ($r = 0.16$, $p = 0.01$). The results provided support for all three hypotheses. It was concluded that the life satisfaction and EQOL measures had good reliability; there was a definite need for a safety and security programme; and good health was a more important predictor of PQOL than EQOL.

Key words: satisfaction, personal and environmental quality of life

Abstrak

'n Studie is gedoen op 487 volwasse swart inwoners van 'n Suid-Afrikaanse informele nedersetting (151 mans en 336 vroue) om tevredenheid met persoonlike en omgewingslewensgehalte te bepaal. Die hipotese was dat: (1) gesondheidstoestand en lewenstevredenheid die onderliggende dimensies van persoonlike lewensgehalte (PLG) is; (2) gesondheidstoestand en lewenstevredenheid sterker met PLG verband gehou het as met omgewingslewensgehalte (OLG); en (3) lewenstevredenheid en tevredenheid met OLG positief met mekaar verband gehou het. Sewentig persent van die respondente het hul gesondheid as 'goed' of beter bestempel. Ouderdom, geskooldeheid en werkstatus het beduidend met gesondheid, lewenstevredenheid en PLG verband gehou. Betroubaarheidskoeffisiënte (interne nie-strydigheid) was 0.77 vir die 5-punt lewenstevredenheidskaal en 0.82 vir die 12-punt OLG meting. Faktoranalise het getoon dat veiligheid en sekuriteit die grootste behoefte was wat onbevredig was. Geondheidstatus en lewensverwagting het 38% van die variansie in PLG verklaar; gesondheidstatus het slegs 4% van die variansie in OLG verklaar. Lewenstevredenheid was beduidend verwant aan OLG ($r = 0.16$, $p = 0.01$). Die resultate het al drie hipoteses ondersteun. Dit is afgelei dat lewenstevredenheid en OLG metinge goeie betroubaarheid gehad het; daar is 'n besliste behoefte aan 'n veiligheids en sekuriteitsprogram; en goeie gesondheidstoestand was 'n belangriker voorspeller van PLG as OLG.

Sleutelwoorde: tevredenheid, persoonlike en omgewingslewensgehalte

Introduction

Quality of life (QOL) is a multidimensional concept comprising objective and subjective dimensions (Veenhoven, 1996). Objective dimensions such as gross national product, infant mortality rate, homicide rate, suicide rate and gross human rights violations (Diener, 1995; Veenhoven, 1996; World Development Report, 1993) provide little or no information about the QOL of individuals or specific groups within populations (Evans, 1994). Therefore, international and local research has focused on subjective components of QOL (Canadian Institute for Health Information, 1999; CASE, 1995; Evans, 1994; Fadda and Jirón, 1999; Ferrans and

Powers, 1992; Jeffres and Dobos, 1995; Mears and Levin, 1996; Møller, 1989; Møller, 1996; Møller and Jackson, 1997; Raphael, Renwick, Brown and Rootman, 1996; Romney, Brown and Fry, 1994; Testa and Nackley, 1994; Westaway, Viljoen and Rheeder, 1999; WHOQOL, 1993; WHOQOL Group, 1998).

Although there is no universally acceptable definition, theory or methodology for measuring QOL (Evans, 1994; Jeffres and Dobos, 1995; Lim, 2000), the literature reveals that health status, well being, ratings of personal quality of life (PQOL), life satisfaction and satisfaction with environmental quality

of life (i.e., housing, schools, health services, safety and security, roads and transport) are core components of QOL (e.g., Diener, 1995; Evans, 1994; Møller, 1996; Møller and Jackson, 1997; Veenhoven, 1994). Life satisfaction is associated with quality of life in the larger social environment (Jeffres and Dobos, 1995), but the two concepts are not identical (Fadda and Jirón, 1999). For example, some individuals rate their satisfaction with life as very good whilst living under extremely difficult environmental conditions, whereas others rate their life satisfaction as poor even though their environmental conditions are excellent.

International research has developed models and measures for QOL (e.g., Evans, 1994; Jeffres and Dobos, 1995; Stewart, Hays and Ware, 1988) and QOL assessments of specific populations, including cardiac patients (King, Porter, Norsen and Reis, 1992), cancer patients (Chaturvedi, 1991), patients with chronic conditions (Stewart, Greenfields and Hays, 1989) and patients with hypertension (Testa, Anderson, Nackley and Hollenberg, 1993). These assessments have been undertaken to evaluate interventions, select and monitor patients for treatments and evaluate drugs in clinical trials (Evans, 1994).

South African QOL research has assessed satisfaction with health services (CASE, 1995); service preferences to improve QOL (Mears and Levin, 1996); satisfaction with personal and environmental domains (Møller, 1989; Møller, 1996; Møller and Schlemmer, 1989); and the relationship between happiness and service delivery (Møller and Jackson, 1997). Building upon international and local QOL research, the present study was undertaken to: ascertain satisfaction with personal and environmental quality of life; evaluate progress in service delivery; develop and test an environmental quality of life (EQOL) measure; and determine factors affecting personal quality of life (PQOL) and EQOL. We attempted to empirically advance the theoretical and methodological debate on QOL by hypothesising that: (1) health status and life satisfaction were the underlying dimensions of personal quality of life (PQOL); (2) health status and life satisfaction were more strongly related to PQOL than environmental quality of life (EQOL); and (3) life satisfaction and satisfaction with EQOL were positively related.

Materials and methods

The Questionnaire

A structured questionnaire, with a consent form, was designed to obtain information on: demographic variables (age, gender, schooling and employment status); health status (self-assessed general health); life satisfaction; personal quality of life (PQOL); and satisfaction with environmental quality of life (EQOL).

One item from the Medical Outcomes Study was used to measure health status (Stewart *et al.*, 1988). Respondents were asked to rate their health as excellent, very good, good, fair or poor. Five items were used to measure life satisfaction: overall life satisfaction; household satisfaction; satisfaction with performance of daily living activities; satisfaction with capacity for work; and satisfaction with self (Møller, 1996; WHOQOL Group, 1998). Responses were scored on a 1 (very dissatisfied) to 5 (very satisfied) basis and averaged for an overall life satisfaction score. PQOL was measured by asking respondents to rate their quality of life on a 1 (very poor) to 5 (very good) scale (WHOQOL Group, 1998).

A 12-item environmental quality of life (EQOL) scale, adapted

from Jeffres and Dobos (1995), measured satisfaction with the quality of: housing; schools; police; safety and security; roads; transport; health services; environmental services (refuse removal, street cleaning and street lighting); employment opportunities; and recreational facilities (libraries, parks, playgrounds and sports grounds). Respondents rated their satisfaction for each item on a 1 (least satisfied) to 10 (most satisfied) basis. Responses were averaged for an overall EQOL score.

Procedure

A random sample of 500 plot numbers was drawn from 1,653 plots used in a 1995 health needs survey in the same area. The questionnaire was administered by trained and paid residents of the informal settlement. The fieldworkers were supervised by a black multilingual Medical Research Council researcher. Informed consent was obtained from each person who was interviewed.

Data Analysis

Data were analysed with the SPSS (Version 9) for Windows statistical package. Descriptive statistics were the first step for data analysis. Cronbach's alpha (1970), a measure of internal consistency, was estimated for the life satisfaction and environmental quality of life (EQOL) scales. Reliability coefficients of ≥ 0.70 were regarded as satisfactory, based on Nunnally's (1978) recommendation.

Factor analysis is the recommended statistical procedure for scale development (Child, 1970; Nunnally, 1978). Therefore, a principal components analysis, with an orthogonal (VARIMAX) rotational solution, was conducted to explore the construct validity of the EQOL scale. Only items with communality estimates (common factor variance) ≥ 0.30 were taken into consideration, as items with unique variance (specific variance + error variance) > 0.70 tend to be unreliable. In order to ascertain significant loadings at the 1% level, loadings $> \pm 0.40$ were examined (Child, 1970).

T-tests and Pearson correlation coefficients were used to ascertain demographic effects and relationships among the measures. As PQOL and EQOL are multivariate phenomena (Pedhazur, 1982), stepwise regression was used to tease out demographic effects, ascertain the underlying dimensions of PQOL and EQOL and develop explanatory models for PQOL and EQOL. Stepwise regression tested whether health status and life satisfaction were the underlying dimensions of PQOL (Hypothesis 1) and whether health status and life satisfaction were more strongly related to PQOL than EQOL (Hypothesis 2).

Results

Demographic Information

The questionnaire was administered to 487 adults (336 women and 151 men), aged between 16 and 79 years (average age = 38.8 years, standard deviation = 11.6). Just under half (47%) of the sample were single. The major languages were isiZulu (42%), isiSotho (29%) and isiXhosa (18%). The average number of years of schooling was 8.3 years (standard deviation = 3.0). Only 39% were employed, predominantly in unskilled occupations such as cleaning, packing, gardening or making tea. Of the unemployed group, 38% were supported by parents, relatives or children and 26% made a living from "piece jobs"

Table 1 : Demographic Information by Gender

Demographics		Males		Females	
		n	%	n	%
Age groups :	16-29 years	34	22	69	21
	30-39 years	45	30	129	38
	40-49 years	38	25	90	27
	50-59 years	21	14	28	8
	60+ years	13	9	20	6
Marital status :	Single	76	50	152	45
	Married	65	45	149	45
	Other*	10	66	34	10
Language	isiZulu	70	46	135	40
	isiSotho	35	23	104	31
	isiXhosa	23	15	66	20
	Other**	23	16	30	9
Schooling	None	5	3	10	3
	1-3 years	8	5	15	5
	4-7 years	42	28	84	25
	8-10 years	57	38	138	41
	11-12 years	39	26	89	26
Employment status	Employed	66	44	122	36
	Unemployed	85	56	214	64

Other* Widowed, separated, divorced, cohabit
 Other** isiVenda, isiNdebele, isiPedi, isiTsonga

such as selling fruit, vegetables and cool drinks. There were no significant differences between males and females on any of the demographic variables (Table 1).

Health Status

Most respondents (70%) rated their health as good or better; similar to the 72% for Spain and the 69% for Finland, but significantly less than the 90% reported for Canadians (Canadian Institute for Health Information, 1999). Only 9% rated their health as poor and 20% rated it as fair. Women, the unemployed, elderly persons and persons with lower levels of schooling rated their health as poorer than men ($p = 0.01$), the employed ($p < 0.01$), younger persons ($p = 0.01$), and persons with higher levels of schooling ($p = 0.04$). These findings were virtually identical to those reported for North Americans (Stewart *et al.*, 1988).

Life Satisfaction

The majority of respondents were satisfied or very satisfied with themselves (84%), performance of daily living activities (71%), capacity for work (67%), the household (67%) and their lives overall (63%). Paired *t* tests showed that satisfaction with self was significantly higher than satisfaction with life, household satisfaction, performance of daily living activities and capacity for work ($p < 0.001$).

The average score on the 5-item life satisfaction scale was 3.8 (sd = 0.7), indicating that respondents had similar levels of satisfaction to those reported previously for black South Africans (Møller, 1996). Coefficient alpha was 0.77,

acceptable for research purposes (Nunnally, 1978). Employed, younger respondents had significantly better life satisfaction than unemployed, older respondents ($p = 0.01$). Life satisfaction was significantly related to health status ($r = 0.41$, $p = 0.01$).

Personal Quality of Life (PQOL)

Most respondents (65%) rated their quality of life as good or very good; only 15% rated it as poor or very poor and 20% rated it as neither poor nor good. Employed, younger persons and persons with higher levels of schooling rated their quality of life as better than the unemployed, older persons and persons with lower levels of schooling ($p = 0.01$). PQOL was

significantly related to health status ($r = 0.58$, $p = 0.01$) and life satisfaction ($r = 0.42$, $p = 0.01$).

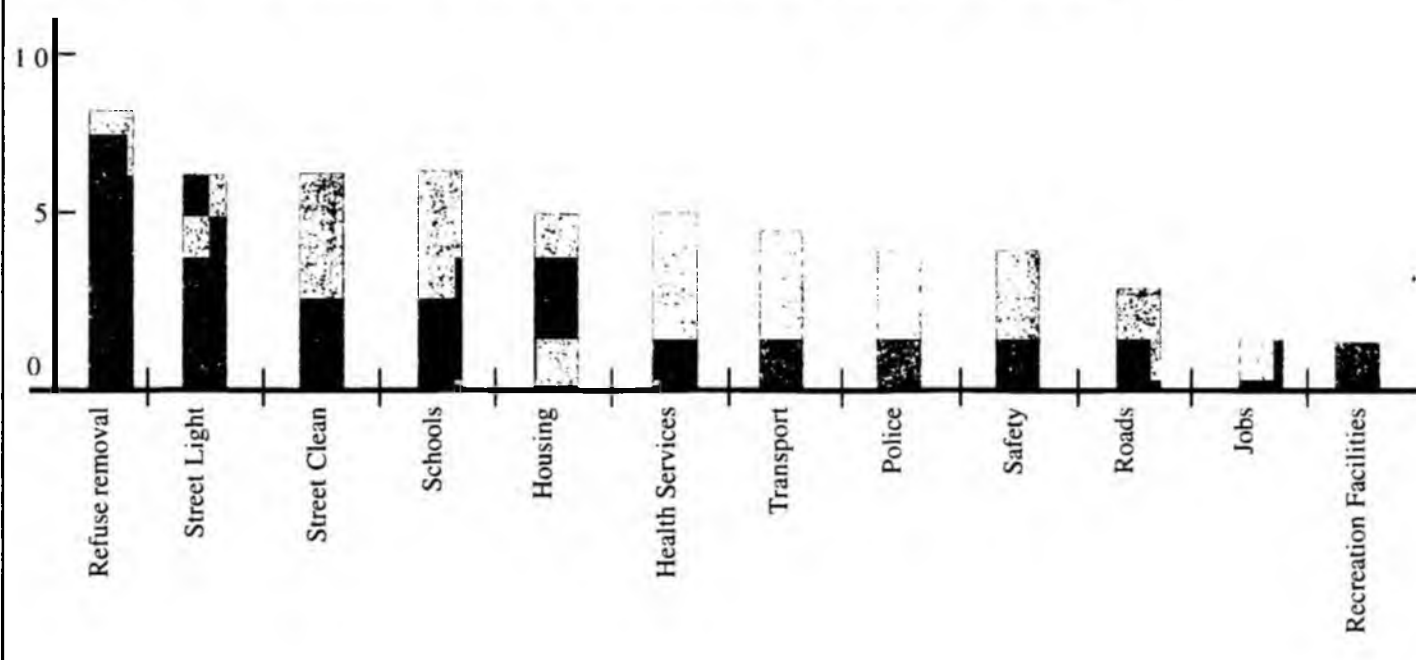
Environmental Quality of Life (EQOL)

Median scores for the each of the 12 EQOL assessments are shown in Figure 1. Refuse removal received the highest rating; transport, police, safety and security, roads, employment opportunities and recreational facilities were rated as very poor. The average score for the EQOL scale was 4.5 (standard deviation = 1.5, range 1.2-9.6), showing low levels of satisfaction with overall environmental quality of life. EQOL was not significantly related to gender ($p = 0.45$), age ($p = 0.80$), schooling ($p = 0.41$), employment status ($p = 0.99$) or PQOL ($p = 0.16$). However, EQOL was significantly related to health status ($r = 0.20$, $p = 0.01$) and life satisfaction ($r = 0.16$, $p = 0.01$), providing some support for Hypothesis 3. Coefficient alpha was 0.82, demonstrating very good reliability (Nunnally, 1978).

A principal components analysis, with an orthogonal (VARIMAX) rotational solution, was conducted on the 12-item scale. Three factors, accounting for 56% of the variance, were extracted. Factor I explained 26% of the variance, Factor II explained 20% of the variance and Factor III explained 10% of the variance (Table 2). Factor I contained 8 significant loadings. The major loadings were: safety and security (0.76), police (0.73), roads (0.66), transport (0.63) and health services (0.61), suggesting that this factor was concerned with unmet service needs.

Factor II contained 5 significant loadings, with the emphasis

Figure 1 : Median satisfaction scores for environmental quality of life variables



on environmental services such as refuse removal (0.85), street cleaning (0.77) and street lighting (0.65). Health services and schools also loaded on Factor II, but more modestly than the environmental services. It would appear that satisfaction with health services and schools is related to both unmet service needs and service delivery. For example, the primary health care service rendered by the two clinics focuses predominantly on women and children; an unmet service need and delivery for men. At the time the study was conducted, educational facilities consisted of two primary schools; an unmet service need and delivery for high school pupils.

Factor III contained 2 significant loadings and was predominantly concerned with housing. According to the factor pattern, satisfaction with environmental quality of life (EQOL) tended to be based on unmet service needs, with a personal need for safety and security combined with good environmental management.

Stepwise Regression Analyses

Age, gender, schooling and employment status were entered into the personal quality of life (PQOL) model, as these variables were significant in previous analyses. Three variables (health status, life satisfaction and schooling) explained 38% of the variance in PQOL. Health status explained 34% of the variance and life satisfaction explained an additional 4% of the variance, indicating that good health is an essential component of PQOL. Health status alone explained 4% of the variance in EQOL (Table 3), demonstrating that good health is a more

important determinant of personal than environmental quality of life. These findings provided full support for Hypotheses 1 and 2.

Discussion

Although health status was similar to that reported for Spain and Finland (Canadian Institute for Health Information, 1999), it was significantly better ($p < 0.001$) than that of a sample of black type 2 diabetic patients, since only 53% of these diabetic

Table 2 : Orthogonal (VERIMAX) Rotational Solution for the Environmental Quality of Life (EQOL) Scale

	I	Factors II	III
Safety and security	0.76	0.23	0.07
Police	0.73	0.35	-0.10
Roads	0.66	-0.16	0.24
Transport	0.63	0.17	-0.16
Health services	0.61	0.42	-0.11
Schools	0.51	0.50	0.17
Employment opportunities	0.50	0.13	0.23
Recreational facilities	0.48	0.15	-0.46
Refuse removal	0.10	0.85	0.02
Street cleaning	0.13	0.77	0.17
Street lighting	0.19	0.65	0.08
Housing	0.16	0.17	0.84

Significant loadings in bold

patients reported good or better health (Westaway *et al.*, 1999). The demographic effects of gender, age, schooling, employment status and patient status provided considerable support for using this item to measure health status in cross-cultural research (Canadian Institute for Health Information, 1999; Stewart *et al.*, 1988; Westaway *et al.*, 1999).

During the 1980s, life satisfaction and happiness were significantly lower among the African population than the other racial groups (Møller, 1989; Møller and Schlemmer, 1989). However, there was a 48% improvement in life satisfaction and happiness for African respondents in 1994, closing the enormous satisfaction and happiness gap between Africans and the other racial groups (Møller, 1996). Although Møller (1996) considers that participation in the first universal franchise election accounted for the dramatic increase in life satisfaction and happiness among Africans, the current findings on life satisfaction imply that factors other than voting have maintained these high levels of life satisfaction. It would appear that satisfaction with oneself, as was found in the 1980s (Møller, 1989; Møller and Schlemmer, 1989), tended to maintain these high levels of life satisfaction.

In contrast with findings from Port Elizabeth (Thomas *et al.*, 1999), refuse removal received the highest satisfaction rating; most likely due to the introduction of a regular community-based refuse removal initiative. There was a definite increase in satisfaction with the environmental services of street lighting and street cleaning (Møller, 1989), reflecting some progress in service delivery. However, employment opportunities were still the major concern of respondents (Møller, 1989); not surprising as only 39% were formally employed.

The results from the factor analysis showed that safety and security was the major environmental threat to these respondents. These findings were similar to those from cities as diverse as Cape Town (Lerer, Matzopoulos and Bradshaw, 1995), Lusaka (Moser, 1994), São Paulo (Jacobi and Camara, 1993; Stephens, 1995; Stephens *et al.*, 1997), Metro Manila (Moser, 1994) and Washington (van Vliet, 1992). Traumatic injury and death, particularly from violence, seem to be overshadowing the infectious diseases of childhood (Stephens, 1995). For example, mortality rates in the poorest areas of São Paulo were considerably higher for homicide/traffic accidents (11/10,000) than infectious diseases (2.7/10,000). Similar findings have been reported from Cape Town: homicide/traffic accidents were responsible for 59% of childhood deaths and 83% of adolescent/early adult deaths in 1994 (Lerer *et al.*, 1995). Although health workers deal with the consequences of violence, attention needs to be focused on safety and security as the major public health challenge for South Africa.

The large amount of variance explained by health status (34%) in comparison with life satisfaction (4%) for the PQOL model implied that good health was a major dimension of personal quality of life. Health status also explained 4% of the variance

Table 3 : Stepwise Regression Predicting Personal and Environmental Quality of Life

Step	Variable Entered	R ²	R ² Change	F
Personal Quality of Life				
1.	Health Status	0.338	0.338	247.5**
2.	Life Satisfaction	0.377	0.038	29.8**
3.	Schooling	0.384	0.007	5.8*
Environmental Quality of Life				
1.	Health Status	0.041	0.041	20.8**

*p = 0.02, **p < 0.001

in the EQOL model. These findings provided empirical evidence on the importance of health status for personal and environmental quality of life. In addition, the results from the regression analyses provided considerable support for Hypotheses 1 and 2, thereby empirically advancing the theoretical and methodological debate surrounding quality of life. The relationship between life satisfaction and EQOL was consistent with previous research (Jeffres and Dobos, 1995). This finding also confirmed Fadda and Jirón's (1999) proposition concerning the distinction between concepts.

In conclusion, the life satisfaction and EQOL measures had good reliability; one environmental service (refuse removal) had made good progress; safety and security is becoming a major public health challenge for South Africa; good health is essential for personal and environmental quality of life; and promoting health will enhance the personal and environmental quality of all South Africans.

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