

Correlates of Work-Place Stress: A Case Study of Botswana Nurses Working in Clinics

By Thabo T. Fako, Ntonghanwah Forcheh¹ and J. Gary Linn²

The nature of the work of a nurse incorporates several distinctive and stressful features which include dealing with crises, the continuous physical and emotional demands of patients, and daily confrontation with pain, suffering, and death (Douglas, Meleis, Eribes and Kim 1996; Hillhouse and Adler 1997; van Wijk 1997). As a result, nurses experience higher rates of stress-related disease, mortality, suicide, psychiatric admissions, and general physical illness than does the general population (Harris 1989).

Problematic life circumstances that give rise to stress and tax the individual's ability to respond include events that are usually undesirable and abrupt. Such events often result in discontinuity or change that requires adjustment, as well as persistent or continuing problems that occur within ongoing social roles (Pearlin and Aneshensel 1989:95). Stress situations might include battle conditions, rapid cultural change, intense competition, life crises, acute illness or injury, isolation, frustration and failure.

Stressful experience has been regarded as contributing to specific health conditions, such as heart disease (Jenkins 1976) and cancer (Schmale and Iker 1971), as well as to nonspecific morbidity including colds, flu, and chronic pain (Aneshensel and Huba 1983). After reviewing many studies on stress, Bunney *et al.* (1982) concluded that stressful circumstances exert an influence on health and well-being. From a biological point of view, stress has been defined as the state manifested by a specific syndrome that consists of all the nonspecifically induced changes within a biological system (Selye 1956: 54). A sign of stress is often illness or decline in health without an immediate proximate cause, including headache, muscle tension, chronic tiredness, depression, indigestion, heart attack, or even sudden death (Aneshensel and Huba 1983; Bunney *et al.* 1982; Douglas, Meleis, Eribes and Kim 1996; Jenkins 1976; Mechanic 1978).

Although the stress concept is wide and its applicability has remained elusive (Mechanic 1978), in a general sense it has been applied to disruptions in personal, social, and cultural processes that have some relationship to health and disease. Thus, unexplained decline in health is a useful empirical indicator of stress and has been the basis of many operational definitions of stress.

According to Arroba and James (1992), stress is a response to an inappropriate level of physical or psychological demands (pressure) placed on an individual beyond his/her capacity to cope effectively. Faced with these demands, the natural body mechanism may develop *fight for* or *flight from* behaviours associated with the triggering of physiological processes designed to help the body cope with or adapt to external (physical and psychological) life or death threats. *Fight* and *flight* behaviours can result in shallow and rapid breathing that can lead to hyperventilation and other respiratory diseases. They can also result in increases in acid in the stomach and disruption of the digestive system that can lead to digestive disorders, as well as sweating under pressure that may lead to rashes and skin disease. *Fight* and *flight* behaviours can lead to prolonged muscle tension that may lead to pain in the muscles, neck,

1. University of Botswana, P. Bag 0022, Gaborone, Botswana.

2. Tennessee State University, Nashville, Tennessee, 37209 USA

shoulders and back. Prolonged exposure to an environment of inappropriate levels of physical and mental exhaustion, in which the body is in a constant state of preparation for *fight or flight*, may drain energy reserves and may lead to physical or mental breakdown.

Failure to respond appropriately to early signs of stress, and working continually at an inappropriate level of pressure, may result in tiredness, exhaustion, burnout, mental or physical illness or death (Arroba and James 1992: 13-18).

The nursing profession is widely perceived as demanding (Guppy and Gutteridge 1991: 315). Due to prolonged exposure to stressful conditions and the con-comitant maintenance of a physiological alarm response, the nursing experience has been likened to combat (Hillhouse and Adler 1997). Continuous confrontation with crises puts helping professionals such as nurses at risk of a degree of stress leading ultimately to burnout careers (Maslach 1982; Duquette, Kerouac, Sandhu, and Beaudet 1994). It has been noted that, as burnout develops, the professional feels tired from work, and has no mental strength to invest in work (Maslach and Jackson 1986). This is followed by depersonalization, in which the professional may attempt to defend himself or herself by developing impersonal relationships with his or her clients in an attempt to avoid stress. He or she may develop feelings of guilt and failure, and may have a negative self-image as well as a negative image of his or her work. The effects of prolonged stress and burnout can therefore be quite severe to both the nurse and the patient, resulting in lower morale, reduced job performance, increased tardiness and absenteeism, somatic complaints, staff conflicts, requests for transfers, high turnover, and alcohol and drug abuse (Hillhouse and Adler 1997; van Wijk 1997). Thus, the effects of work-related stress have potentially enormous, but not always recognised, human and financial costs that deserve serious attention by researchers and nursing administrators; and the importance of early identification and prevention of workplace stress among nurses can, therefore, neither be over-emphasized nor over-investigated.

The Research Problem

The dominance of nurses in the Botswana health service is well documented and acknowledged. For example, in 1991 there were 2,413 nurses compared with 257 medical doctors in Botswana. Of the projected total of 7,377 health personnel reckoned to be required by year 2002, 65% were nurses (Botswana Government 1991). In view of their relative number and the referral structure of the Botswana Primary Health Care system, nurses in state - run-health services play a key role in the delivery of the health care and services. In many rural health services, such as clinics and health posts, the first contact person, and often the only one responsible for preventive, promotive, curative and rehabilitative health care services, is a nurse. Even the decision to refer a patient to other health care workers or a facility frequently rests with a nurse.

Owuor-Omondi and Kobue (1993) found nurses and midwives working in health facilities with inadequate equipment and transport for patients in need of referral to a higher-level health facility. These nurses and midwives had negative attitudes towards patients and a strong desire for refresher courses. Negative attitudes of nurses toward patients, their uncaring behaviours towards clients and their dissatisfaction with various aspects of work have resulted in Parliamentary debates throughout the 1970s, 1980s and 1990s (Hwara 1998; Mothobi 1982).

As a result of complaints by and about nurses, the organizational structure of the nursing service was changed three times between 1969 and 1980. However, this did not appear to have led to a reduction in the dissatisfaction that continued to reverberate throughout the body of the nursing service in Botswana (Mothasedi 1982; Selelo-Kupe 1993). Much of the criticism and complaints about nursing care have suggested that the work environment, shortage

of staff, low level of education, type of health care facility, and income are among factors relevant to the overall well-being or otherwise of nurses. The stress normally associated with job-related dissatisfaction, however, has not been documented.

Knowledge of the factors that cause stress would assist nursing managers in taking action to achieve the greatest reduction in workplace stress, dissatisfaction and possible burnout and, thereby, hopefully improve job performance and retention of staff. To provide more knowledge of the factors that cause workplace stress, researchers must investigate the relative importance of the array of variables that appear across relevant studies of nurses' work behaviour.

This study examines the extent of stress among nurses working in state run health facilities in Botswana, notably clinics and health posts. It investigates which of the factors that have been cited in the literature as possible workplace stressors may explain stress among nurses in Botswana. A parsimonious model for predicting workplace stress is also developed, and recommendations for reducing workplace stress among nurses are suggested for managerial interventions. The paper should contribute towards filling the gap in knowledge regarding the welfare of health care workers and their work-related attitudes.

Comparative Literature

Although the search for the causes of stress in societies other than Botswana has been extensive and fruitful (Gray-Toft & Anderson 1981; Motowidlo *et al.* 1986; Norbeck 1985a, 1985b), the relative importance of the identified factors remains unclear (Blegen 1993). Research has not provided uniform support for the notion that certain types of health facility and care units entail more stress than other health facilities and units (Gray-Toft & Anderson 1981; Landeweerd and Boumans 1988; Lucas *et al.* 1993; Wakefield *et al.* 1988; Parasuraman *et al.* 1982; Wakefield *et al.* 1988). Although an association between night-shift work and negative work-related emotions has been reported (Norbeck 1985a), some researchers (Parasuraman *et al.* 1982) found that nurses on the night-shift had the most positive emotional states and favourable personal outcomes.

The association between supervisor support and work-related stress has been studied extensively (Baird and Deibolt 1976; Blegen 1993; Cook & Mandrillo 1982; Decker 1985; Douglas *et al.* 1996; Harri 1996; Jennings 1990, Lucas, Atwood, & Hagaman 1993; Loscocco & Spitze 1990; Motowidlo *et al.* 1986; Norbeck 1985a, 1985b; Packard & Motowidlo 1987; Revicki & May 1989, Robinson, Roth, & Brown 1993; Tumulty, Jernigan, & Kohut 1994; Weisman, Alexander, & Chase 1980). Positive relations with the head nurse and co-workers have been found to decrease stress and increase job satisfaction (Blegen 1993; Decker 1985; Gray-Toft & Anderson 1985; Norbeck 1985a; Revicki & May 1989; Robinson *et al.* 1993). Availability of work-related support from one's supervisor has been found to buffer the negative effects of work stress, role conflict and work overload (Huebner 1994; Himle, Jayaratne and Thyness 1989; Newsome and Pillari 1991; Terry, Nielsen and Perchard 1993; Rautkis and Koeske 1994).

A review of studies on organisational sources of stress that related to nursing burnout (Duquette, Kerouac, Sandhu, and Beaudet 1994: 344) found that socio-demographic and professional factors do not play a great role in producing burnout among nursing personnel. Burnout seemed much more influenced by sources of stress related to the workplace than by sources of stress related to characteristics of the nurses or their patients. Administrative and organisational factors have been identified as strongly related to burnout (Jones 1987; Chung

and Corbett 1998). Research by Huckabay and Jagla (in Watkinson 1991) found that external sources of stress (located in the work environment) were perceived by nurses to be more stressful than internal sources of stress (inner experiences and personal characteristics). On the other hand, many studies have found that individual predisposition influences work-related stress and job satisfaction (Agho 1993; Brief, Burke, George, Robinson & Webster 1988; Dailey 1980; Judge & Locke 1993; Parkes 1990; Staw, Bell, & Clausen 1986; Staw & Ross 1985; Watson & Clark 1984; Gray-Toft & Anderson 1981 1985; Jennings 1990; Keane *et al.* 1985; Maloney & Bartz 1983; Packard & Motowidlo 1987; Weisman *et al.* 1980).

The role of education level in work-related stress among nurses has been studied extensively (Blegen 1993, Brief, Aldag, Van Sell & Melone 1979; Decker 1985; Jennings 1990; Keane, Ducette & Adler 1985; Lucas *et al.* 1993; Motowidlo *et al.* 1986; Norbeck 1985a, 1985b; Packard & Motowidlo 1987; Revicki & May 1989; Tumulty *et al.* 1994; Weisman *et al.* 1980). These studies have, however, produced some conflicting findings. In one study there was no correlation between education level and work-related stress (Norbeck 1985a), while in another, baccalaureate nurses experienced more "burnout" than diploma nurses (Keane *et al.* 1985).

Studies have found a relationship between stress and the rank of nurse (Weisman *et al.* 1980; Schultz 1993). Professional tenure has been found to be related both to an increase in job satisfaction (Norbeck 1985a, 1985b) and to a decrease in stress (Motowidlo *et al.* 1986; Norbeck 1985a, 1985b). The number of years in the current position (unit tenure) and total years as a nurse (professional tenure) have been found to be associated with burnout among nurses (Keane *et al.* 1985; Wessells *et al.* 1989). Other studies, however, found no relationship between work-related affective states and total nursing experience (Blegen 1993; Decker 1985; Lucas *et al.* 1993).

Researchers have proposed that social integration or support outside the workplace counters or outweighs the effects of work strains on nurses' emotional states (Jennings 1990; Norbeck 1985b; LaRocco, House, and French 1980). Some studies have suggested that married persons experience more psychological well-being than unmarried persons (Gove, Hughes, & Style 1983; Thoits 1987) – a difference also found among staff nurses (Revicki & May 1989). Social integration (or relationships with others), such as sociability with relatives and friends, can enhance a person's sense of meaningful existence, affecting one's appraisal of life strains, and providing resources for support (Durkheim 1897/1951; Hughes & Gove 1981; Jennings 1990; Lin, Simeone, Ensel, & Kuo 1979; Myers, Lindenthal & Pepper 1975; Norbeck 1985b; Pearlin & Johnson 1977). This proposition is consistent with psychosomatic research that found that an increase in the serum levels of immunoglobulin G during periods of high job strain was greater among persons with low social support than for persons with high support (Theorell, Orth-Gomér & Eneroth 1990).

Norbeck (1985a: 254) has argued that the significance of sources of work-related stress identified by nurses across studies should be determined by studying them in relation to relevant outcomes, such as overall well-being or functioning, in order to implement organizational changes with an impact on nursing practice. The focus on overall well-being, job satisfaction and work-related stress by nursing managers has been considered important, because these may be the main determinants of nurses' job performance and job retention, among other things (Douglas, Meleis, Eribs and Kim 1996; McNeese-Smith 1996; Jamal 1984; Weisman & Nathanson 1985; Motowidlo, Packard and Manning 1986; Packard & Motowidlo 1987).

The Data

The data for this study were collected as part of a national survey of nurses in Botswana. The questionnaire for the survey was developed in consultation with nurses, nurse educators and administrators, officials of the Ministry of Health, and representatives of international health organisations in Botswana. Factors that have been found in the literature to affect work related issues such as performance, job satisfaction, stress, etc. were included in the questionnaire.

The target population consisted of all nurses working in health posts and clinics with and without maternity wards, run by the Ministry of Local Government in Botswana.

All clinics within each health region were targeted and a sample of questionnaires administered. For reasons of confidentiality and in view of the swift work practiced by nurses, the questionnaires were delivered to nurses for self completion and later collection, with the help of regional health officers. In all, questionnaires were sent to 600 nurses. Of these, 425 returned their questionnaire, and 313 responded to the questionnaire item relating to workplace stress.

Measurement of Variables

In this study, a decline in overall health after posting a nurse to her current workstation was regarded as an indicator of workplace stress. This was empirically represented by the difference between reported overall health before posting and reported overall health after posting a nurse in her workstation. Overall health before and after posting was measured by two ordinal variables with five categories: (1) excellent; (2) good; (3) fair; (4) poor; and (5) very poor. Two items that asked respondents to indicate how they would rate their overall health before and after posting captured this. A nurse who had comparatively poorer health after posting than before posting was regarded as having experienced a decline in health that represented work-related stress. A nurse who may have experienced stress due to sources outside of work, but whose reported overall health improved or stayed the same after posting, was regarded as not having experienced work-related stress. For example, nurses who might have been suffering from other types of stress (not related to work) but who had the same good, fair or poor overall health before and after posting were classified as not having work-related stress. It should be noted that nurses in district health facilities are posted or assigned to their workstation by nursing/health administrators, and the individual nurse has little or no choice in the matter.

The extent of satisfaction with different aspects of work was captured by various ordinal variables, each with five categories: (1) highly satisfied; (2) satisfied; (3) neither satisfied nor dissatisfied (i.e. neutral); (4) dissatisfied; and (5) highly dissatisfied. In order to facilitate the interpretation of results, levels of satisfaction were re-categorised as satisfied, neither satisfied nor dissatisfied (i.e. neutral) and dissatisfied, in most of the analyses. Similarly, marital status and religious affiliation were re-coded from an initial long list of options to a few categories to facilitate analyses and interpretation.

Data Analysis

Variables that have been reported in the literature to be possible determinants of work-related stress, or those identified in preliminary discussions with nurses and nursing authorities as possible determinants, were included in the analyses. The relationship between work-related stress and each of the independent variables was examined. Statistical analyses of the data explored the effects on work-related stress of individual background factors, type of health facility and work context factors, adequacy of resources, recognition and support factors, and membership of the Botswana Nursing Council and the Botswana Nurses Association.

Contingency table analysis and Chi-squared tests of association and independence were used to investigate the nature and strength of relationships between work-related stress and qualitative variables. An analysis of variance (ANOVA) technique was used to assess the relationship between work-related stress and quantitative variables.

Five independent variables that were significantly related to stress in the bivariate analyses were selected for further multivariate analysis. These included: job satisfaction, satisfaction with workstation, satisfaction with income, adequacy of telecommunication facilities, and attendance of seminars and workshops. Odds ratios were used to compare the relative degree of stress between satisfied nurses and other categories of nurses. Further investigations were carried out to assess whether satisfaction with workstation could have a cushioning effect on adequacy of telecommunication facilities, satisfaction with income, job satisfaction, and attendance of seminars and workshops.

Findings

Description of the Sample

The 313 nurses in this study were sampled from 15 of the 24 health districts in Botswana, with most of them (72.4%) deployed outside their district of birth. The deployment of nurses into different health facilities followed the nursing qualifications. All but one of the hospital-based nurses were registered nurses (some with midwifery training), while almost 80% of nurses in health posts were enrolled nurses. Other nurses were fairly evenly deployed in clinics with maternities and clinics without maternities.

The majority of the nurses were enrolled nurses, reflecting the dominance of enrolled nurses in the primary health care system at the time of sampling. Almost one in three of the nurses had midwifery training. The distribution of the nurses by highest level of basic academic qualification closely reflected the minimum academic qualifications required to enroll in the different nursing programmes. Thus over 90% of enrolled nurses and enrolled nurse midwives had a mid secondary qualification (Junior Certificate) while over 90% of registered nurses had general certificate of secondary education (GCE). For some 22% of registered nurse midwives, the highest level of basic education was a junior certificate, indicating that these nurses had upgraded from enrolled to registered nurse status.

Extent of Work-related Stress

Based on the operational definition of workplace stress, 137 of the 313 (43.8%) had experienced workplace stress since being posted to their new stations. Just over one third (34.8%) of nurses reported to have had good health before and after posting, while 2.6% had been in poor health before and after posting. The association between stress and over thirty variables that have been reported in the literature to be related to work place stress was examined using a chi-squared test of association. The summary of these results tests is shown in Table 1.

Factors that Distinguish Stressed from Non-Stressed Nurses

The univariate chi-squared tests of association revealed that only five of a possible 32 variables were significantly related ($p < 0.05$) to workplace stress. These were the extent of satisfaction with work station ($p < 0.001$), extent of satisfaction with salary ($p = 0.004$), extent of satisfaction with current position ($p = 0.034$), adequacy of telecommunication facilities ($p = 0.003$), the and extent of attending workshops and seminars during the year ($p = 0.047$).

Further analysis conducted to gain greater insight into the impact of these factors on

Table 1: Association between Job Related Stress and Selected Variables.

	Variable	Statistic	df	P-Value
<i>Background Variables</i>				
1	Academic education	0.132	1	0.717
2	Professional Training	1.368	5	0.928
3	Type of health facility	2.617	3	0.454
4	Age	1.233	4	0.873
5	Number of Children	1.746	3	0.627
6	Marital status	0.513	2	0.774
7	Religious affiliation	1.128	2	0.569
8	Level of income	4.750	2	0.093
<i>Work Load and Stress Related Variables</i>				
9	Satisfaction with salary	10.922	2	0.004
10	Satisfaction with current position	6.786	2	0.034
11	Satisfaction with workstation	24.263	2	0.000
12	Involvement with the Community	0.019	1	0.890
13	Staff shortages	1.384	2	0.501
14	Workload	0.178	1	0.673
15	Deployment in district of birth	0.923	1	0.337
16	Consistency of work with training	0.091	1	0.763
17	Conflict between admin and nursing duties	2.863	2	0.239
18	Overall Health before posting	53.290	2	0.000
19	Overall Health after Posting	110.477	2	0.000
<i>Resources Related Variables</i>				
20	Adequacy of telecommunications	13.347	2	0.001
21	Adequacy of equipment	1.495	2	0.474
22	Adequacy of transport facilities	1.495	2	0.474
<i>Recognition and Support Variables</i>				
23	Attendance of workshops/seminars	7.958	3	0.047
24	Attendance of Mehary Project course	0.264	1	0.608
25	Attendance of refresher courses	1.686	3	0.640
26	Recognition from supervisors	2.907	2	0.234
27	Reliance on workshops/seminars	1.109	3	0.775
28	Reliance on supervisors	0.935	2	0.627
29	Peer reliance	0.618	2	0.734
30	Self reliance	3.994	2	0.136
<i>Membership of Unions</i>				
31	Registration with Nursing Council	1.635	1	0.201
32	Registration with the Nurses Association	0.035	1	0.852

work place stress revealed that only 5.3% of nurses reported that they were satisfied with their workplace, their income as well as with their jobs, while 14.5% (44 nurses) were dissatisfied

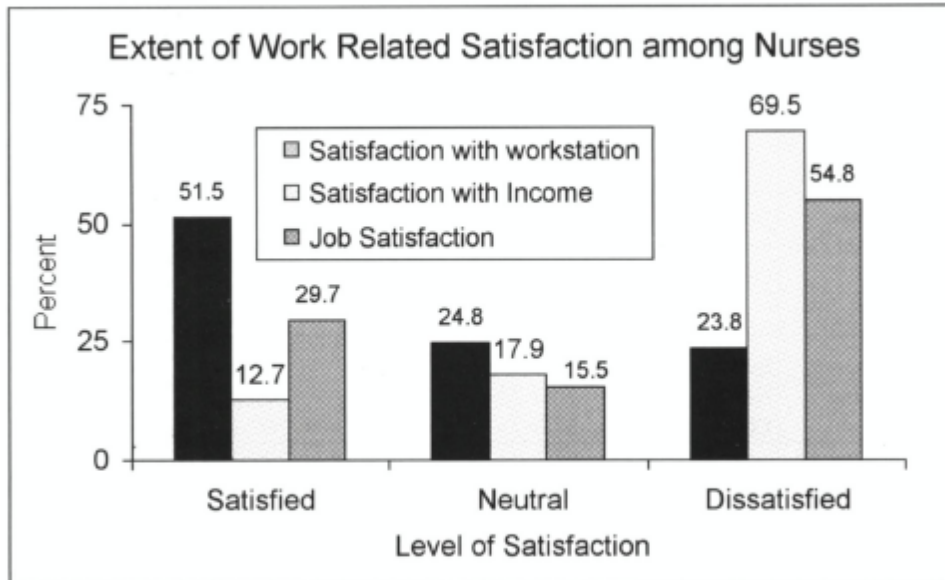


Figure 1. Sources of workplace dissatisfaction among nurses.

with all three aspects of work. As shown in Figure 1, the main cause of dissatisfaction was income, with 69.5% of the nurses saying they were dissatisfied with it.

The majority (54.8%) of nurses were also dissatisfied with their job, but only 23.8% were dissatisfied with their workstation. Only 12.7% of nurses felt satisfied with their incomes, 29.7% with their jobs, and just over half (51.5%) were satisfied with their workstations. Less than one in three (31%) of the nurses found their telecommunication facilities to be above average or excellent, and the majority (53.4%) found them to be below average or poor. A fairly high percent (70.4%) of nurses said that they attended at least one workshop and/or seminar during the previous year, with 19% having attended three or more workshops and/or seminars.

As shown in Table 2, the relationship between workplace stress and workplace satisfaction was negative. Nurses who were dissatisfied with their workstation, salaries and position were more likely to be stressed than nurses who were satisfied. For example, only 23.4% (under a quarter) of nurses who were satisfied with their workstation experienced workplace stress, compared with 44.7% of nurses who were indifferent and 60.3% of nurses who were dissatisfied with their workstation. With respect to income, the percentage of stressed nurses rose from 17.9% among those satisfied with their income to 29.1% and 43.0% among those who were indifferent and those who were dissatisfied respectively. The same pattern could be observed with respect to job satisfaction.

Workplace stress was also negatively related to adequacy of telecommunications facilities, although the main difference appears to be between those who found telecommunication facilities to be inadequate, and those who found them to be average or adequate. Similarly, the frequency with which nurse attended workshops and seminars in the previous year was negatively associated with stress, the main difference being between those nurses who attended three or more seminars and those who attended less than three in a year.

Logistic regression analysis was used to establish the relative impact of each of the five

Table 2. Extent of workplace satisfaction, adequacy of telecommunication, attendance of seminars among stress and non-stressed nurses.

		Work place stress		Per cent response	Total Response
		Not Stressed	Stressed		
Satisfaction with workstation	Satisfied	76.6	23.4	51.5	158
	Neutral	55.3	44.7	24.8	76
	Dissatisfied	39.7	60.3	23.8	73
Response Total		62.5	37.5	100.0	307
Satisfaction with Income	Satisfied	82.1	17.9	12.7	39
	Neutral	70.9	29.1	17.9	55
	Dissatisfied	57.0	43.0	69.5	214
Response Total		62.7	37.3	100.0	308
Job Satisfaction	Satisfied	75.0	25.0	29.7	92
	Neutral	66.7	33.3	15.5	48
	Dissatisfied	54.1	45.9	54.8	170
Response Total		62.3	37.7	100.0	310
Telecommunication	Good	74.2	25.8	31.0	97
	Average	73.5	26.5	15.7	49
	Poor	52.1	47.9	53.4	167
Response Total		62.3	37.7	100.0	313
Attendance of workshops and seminars	0	60.9	39.1	29.6	92
	1	63.0	37.0	29.6	92
	2	54.4	45.6	21.9	68
	3+	72.9	27.1	19.0	59
Response Total		62.4	37.6	100.0	311

significant factors on workplace stress. Odds ratios derived from the logistic regression models were used to establish which of the foregoing differences were significant, and to what extent. The summary results are presented in Table 3. The analysis revealed that the odds that a nurse who was dissatisfied with her workstation would experience stress were 4.06 ($p < 0.001$) times higher than for a nurse who was satisfied with her workstation. The odds that a nurse who felt indifferent about her workstation would experience workplace stress were 2.20 ($p = 0.006$) times higher than for a nurse who was satisfied with her workstation.

Nurses who were dissatisfied with their salary experienced significantly more stress ($p = 0.003$) than those who were satisfied with their salary. Nurses who felt indifferent about their salaries experienced marginally more stress ($p = 0.051$) than those who were satisfied with their salary. The odds that a nurse who was dissatisfied with her salary would experience workplace stress were 2.58 times higher than for a nurse who was satisfied with her salary. The odds of a nurse who felt indifferent about her salary experiencing workplace stress were 3.54 times higher than for a nurse who was satisfied with her salary.

Table 3: Independent impact of each factor on workplace stress.

Factor	B	S.E.	Wald	df	Sig.	Odds Ratio	95% CI for Odds ratio	
							Lower	Upper
CMSAT			22.998	2	.000			
Satisfied	0					1.000		
Indifferent	.790	.287	7.589	1	.006	2.204	1.256	3.867
Dissatisfied	1.400	.302	21.445	1	.000	4.056	2.242	7.335
Constant	-.790	.172	21.053	1	.000	.454		
INCSAT			9.391	2	.009			
Satisfied	0					1.000		
Indifferent	.947	.485	3.816	1	.051	2.578	.997	6.668
Dissatisfied	1.265	.421	9.032	1	.003	3.544	1.553	8.087
Constant	-1.322	.398	11.034	1	.001	.267		
JOBSAT			6.341	2	.042			
Satisfied	0					1.000		
Indifferent	.727	.372	3.827	1	.050	2.069	.999	4.286
Dissatisfied	.644	.274	5.543	1	.019	1.904	1.114	3.256
Constant	-.727	.226	10.334	1	.001	.483		
TELCOM			13.399	2	.001			
Adequate	0					1.000		
Average	-.181	.388	.217	1	.641	.835	.390	1.785
Inadequate	.810	.270	8.997	1	.003	2.249	1.324	3.819
Constant	-.677	.221	9.417	1	.002	.508		
SEM			8.320	3	.040			
Three Plus	0					1.000		
Two	.975	.359	7.384	1	.007	2.650	1.312	5.352
One	.640	.356	3.230	1	.072	1.897	.944	3.814
None	.898	.377	5.689	1	.017	2.455	1.174	5.135
Constant	-.928	.286	10.492	1	.001	.395		

Nurses who were dissatisfied with their jobs were 1.90 times more likely to experience workplace stress ($p=0.019$) than nurses who were satisfied with their jobs. Similarly, the odds that a nurse who felt indifferent with respect to her job satisfaction would experience workplace stress was 2.07 times higher ($p=0.050$) than for a nurse who was satisfied with her job. A nurse who found telecommunication facilities to be poor experienced significantly more stress ($p=0.003$) than one who found them to be adequate. The odds that a nurse who found telecommunication facilities to be poor would experience workplace stress were 2.25 times higher than that for a nurse who found telecommunication facilities to be adequate. However, a nurse who found telecommunication facilities to be average did not experience significantly more workplace stress ($p=0.641$) than a nurse who found them to be adequate.

A nurse who did not attend any workshop or seminar in a year was two and a half times (2.46) more likely ($p=0.017$) to experience work place stress than a nurse who attended three or more seminars in a year. Similarly, a nurse who attended two workshops and/or seminars in a year (2.67) was more likely ($p=0.007$) to experience workplace stress than a nurse who attended three or more seminars in a year. However, a nurse who attended just a single workshop or

seminar was likely to be only marginally more stressed ($p=0.072$) than one who attended three or more seminars or workshop.

The final sets of analyses were intended to determine a model for predicting workplace stress among nurses. For this purpose, logistic regression analysis was again employed. All five variables found to individually predict workplace stress were included in a single model, and stepwise logistic regression used to determine a parsimonious model. Nine nurses who did not respond to one or more of the five questions were excluded from this multivariate analysis.

Both forward and backward stepwise methods led to the exclusion of job satisfaction from the final model. As shown in Table 4, the analyses also revealed that satisfaction with workstation was the single most important variable that explained workplace stress (conditional change in chi squared statistic = 24.272, $df=2$; $p<0.001$). This was followed by adequacy of telecommunications facilities ($p=0.006$), number of workshops and seminars attended ($p=0.019$) and finally, satisfaction with income ($p=0.021$).

Table 4. Results of Stepwise Logistic Regression Analysis to determine a parsimonious model for predicting workplace stress among nurses.

Variable(s) Removed	Effect on Model Fit if Variable is Removed ^(a)			
	Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Step 1 Work Station	-208.338	24.273	2	.000
Step 2 Telecom Facilities	-196.217	10.152	2	.006
Work Station	-201.440	20.598	2	.000
Step 3 Telecom Facilities	-191.676	10.755	2	.005
Work Station	-196.742	20.886	2	.000
Workshops & Seminars	-191.162	9.726	3	.021
Step 4 Incom Satisfaction	-186.326	7.717	2	.021
Telecom Facilities	-187.651	10.367	2	.006
Work Station	-192.290	19.645	2	.000
Workshops & Seminars	-187.446	9.957	3	.019

(a) Based on conditional parameter estimates

The Cushioning Effects of Satisfaction

A nurse's satisfaction with her workstation seemed to help cushion the effect that dissatisfaction with a job had on work-related stress. When satisfaction with workstation was kept constant, the odds of a nurse experiencing stress when she was dissatisfied with her job were not significantly different from the odds of a nurse experiencing stress when she was satisfied with their job.

Similar analyses of other factors, however, revealed that satisfaction with workstation had no cushioning effect on any of the other variables. For example, nurses who were dissatisfied with their incomes remained about three times more likely to experience stress than those who were satisfied with their incomes, irrespective of the extent of their satisfaction with

the workstation. Similarly, nurses who found telecommunication facilities to be adequate were significantly less likely to experience stress ($p=0.006$) than nurses who found telecommunication facilities to be average or inadequate. Likewise, nurses who had attended three or more seminars in a year were significantly less likely to experience stress ($p=0.011$, $odds=0.386$) than nurses who did not attend any seminar, irrespective of the extent of their satisfaction with current workstation.

The foregoing analyses were repeated to see if job satisfaction could cushion the effect of dissatisfaction with income, inadequate telecommunication facilities and lack of attendance of seminars, on job-related stress. It was found that job satisfaction did not have any significant cushioning effect on the impact of inadequate telecommunication facilities on work-related stress. After adjusting for job satisfaction, nurses who found telecommunication facilities to be inadequate were still 2.4 times more likely to experience stress ($p=0.002$) than nurses who found telecommunication facilities to be adequate. Similarly, job satisfaction had no cushioning effect on the impact on work-related stress of not attending workshops and seminars.

Job satisfaction had a moderate cushioning effect on the impact of dissatisfaction with income on work-related stress. After adjusting for job satisfaction, nurses who felt indifferent about their incomes were not significantly more stressed ($p=0.110$) than those who were satisfied.

The results of the logistic regression reinforce earlier results obtained through contingency table analyses and cross-tabulations. In addition, these results indicate that the real differences in stress are between "satisfied" nurses and "dissatisfied" nurses, with the latter experiencing more work-related stress than the former. Nurses who felt indifferent about the state of their job, workstation and salaries did not experience more work-related stress than nurses who were satisfied. Similarly, nurses who found telecommunication facilities at their workstation to be average did not experience more work-related stress than nurses who found the equipment adequate. The results also suggest that satisfaction with workstation can help cushion the impact of job dissatisfaction on workplace stress, while satisfaction with the job can help cushion the impact of lack of attendance at seminars on work-related stress.

Given the strong relationship between workplace stress and satisfaction with workstation, further analysis was done to determine factors that could explain nurses' dissatisfaction with their workstation, even if these were not directly responsible for workplace stress.

The investigations revealed that nurses who received recognition from superiors were generally more satisfied with their workstations than those that did not ($p=0.023$). Similar positive associations were found with respect to satisfaction with income ($p=0.009$), perception of health after posting ($p<0.001$), learning from superiors ($p=0.043$), and adequacy of telecommunication facilities ($p=0.013$). Nurses with Junior Certificate qualifications tended to be more dissatisfied ($p=0.031$) with current workstation than those with GCE or higher basic qualifications. None of the other variables were found to be associated with satisfaction with current workstation. Even other variables that one would have expected to affect satisfaction with workstation, such as type of facility in which the nurse worked ($p=0.187$), whether or not the nurse had deployment in their district of birth ($p=0.964$), extent of staff shortages (0.128) and workload (0.417) were not related to satisfaction with workstation. However, nurses working in clinics with maternity tended to be more dissatisfied than other nurses.

However, as shown in Table 1, workplace stress was independent ($p>0.05$) of the following variables: level of low income, recognition from supervisors, participation in Maternal Child Health/Family Planning (MCH/FP) policy formulation, professional reliance on peers, the number of children, academic education, professional training, rank, marital status,

religious affiliation, involvement with the community, staff shortages, deployment in district of birth, consistency of work with training, conflict between administrative and nursing duties, perceived workload, type of health facility, adequacy of equipment, adequacy of transport facilities, registration with the Nursing Council, or registration with the Nurses Association.

Discussion

Several factors were investigated in this study in an attempt to understand the extent and sources of workplace stress among nurses in Botswana. Although the majority (56.2%) of nurses did not experience workplace stress, the high percentage (43.8%) that did was sufficient justification to examine sources and possible causes of workplace stress among the nurses.

Among the 32 factors investigated, only five - namely satisfaction with workstation, satisfaction with income, satisfaction with job, adequacy of telecommunication facilities and attendance of workshops and seminars - were found to be possible sources of workplace stress among the nurses. Nurses who experienced work-related stress were found to be those who were dissatisfied with their workstation, salary and job, as well as those who worked with inadequate telecommunication facilities, and those who did not have opportunities to attend workshops and seminars. Dissatisfaction with workstation stood out as the main source of workplace stress followed by working with inadequate telecommunication facilities. However, the effect of job dissatisfaction could be cushioned if the nurse was satisfied with her workstation.

Adequate telecommunication facilities are very important for nurses, especially in remote villages. Lack of telephones and other means of electronic or telecommunication limit normal social contact with the world outside the workstation. More importantly, telephones are necessary to facilitate communication with other clinics, central administrators and referral hospitals. The absence or inadequacy of telecommunication facilities could result in frustrating delays, which have direct implications for job-related attitudes and behaviours. Availability of telephones could also provide nurses with contacts to their families and friends while at work and such contacts could help ease the daily stress and frustrations encountered at work. As a result, nurses could find inadequate telecommunication facilities to be more frustrating than inadequate transport facilities.

Attendance of workshops and seminars is a form of recognition from supervisors, who nominate nurses to attend. Workshops are an important source of information about new nursing practices and other relevant developments in the health field. They also give a nurse a refreshing break from daily routine and her often-remote workstation, as well as a chance to be in town or out of the country. This perhaps explains why nurses who attended a single seminar or several seminars tended to be less stressed than those who did not attend any.

Although lack of recognition from superiors, and supervisor support, were not directly related to workplace stress, their association with satisfaction with workstation indicates that they remain important workplace factors in creating satisfied and hence less stressed nurses. Nurses with lower academic qualifications may prefer to work in stations that offer them opportunities for improving on their basic qualifications, and hence improving on their professional training. Such nurses would also tend to be dissatisfied with their workstations, leading to general workplace stress not directly related to level of basic education.

In general, the findings lend support to the observation by Blegen (1993) that the relative importance of an array of predictors of work-related stress remains unclear across studies of nurses. Although some researchers have found that nurses on intensive or critical care units were more satisfied and experienced less stress than nurses on other units (Lucas *et al.*

1993; Wakefield *et al.* 1988), this study found no significant relationship between stress and type of health facility. Nurses working in hospitals, clinics with a maternity ward, clinics without a maternity ward, and those working in health posts were similarly susceptible to stress. Studies have not provided uniform support for the notion that certain types of work setting, health facility or care units entail more stress than other settings (Hillhouse and Adler 1997). Future examination of work-related stress under different work settings, nursing units and shifts worked should shed further light on this.

Positive relations with the head nurse and co-workers have been found elsewhere to increase job satisfaction and decrease stress (Blegen 1993; Decker 1985; Gray-Toft & Anderson 1985; Norbeck 1985a; Revicki & May 1989; Robinson *et al.* 1993). This study found that recognition from supervisors tended to be associated with low levels of stress among nurses. However, the association between supervisor support and work-related stress was not statistically significant.

Although workload has been found to rank first among the worst features of work (Harri 1996), and was among frequent sources of stress (Douglas *et al.* 1996), this study found no significant relationship between workload and work-related stress. It also found no relationship between staff shortages and work-related stress - even though the majority of nurses found their duties to be quite heavy. It could be that Botswana nurses essentially accept the heavy workload as part and parcel of their profession and have found means of coping with it, such as looking for support from peers and supervisors. Such support has been found elsewhere in the literature to buffer the effects of workload (Terry, Nielsen and Perchard 1993).

This study found no relationship between stress and socio-demographic factors, such as academic education, professional training, marital status or religious affiliation of nurses. This is consistent with findings of earlier studies on organisational sources of stress related to nursing burnout (Duquette, Kerouac, Sandhu, and Beaudet 1994: 344). Work-related stress and burnout seem much more influenced by working conditions and other aspects of the workplace than by sources of stress related to individual characteristics of the nurses. This is consistent with research that found external sources of stress (located in the work environment) to be more stressful than internal sources of stress (inner experiences and personal characteristics) (van Wijk 1997). The findings are also consistent with studies that identified administrative and organisational factors as strongly related to burnout (Jones 1987; Chung and Corbett 1998).

Although some studies have suggested that married persons experience more psychological well-being than unmarried persons (Gove, Hughes, & Style 1983; Revicki & May 1989; Thoits 1987), this study found no relationship between work-related stress and marital status. It may well be that the married, being socially integrated, may have less stress because they have more supportive resources, and view events, including work-related events, in a manner that enhances well-being. On the other hand, conditions of nursing service in Botswana and elsewhere may produce stressful challenges to families that single people are in a better position to address effectively. In addition, there may be marriage-related stress that could counter the positive effects of social integration that married life provides. And, in any case, the sharp distinction between the categories "married" and "single" in many societies, including Botswana, is becoming blurred as many nurses and others enjoy the emotional benefits of married life within stable but unmarried relationships.

This study found no relationship between stress and rank of nurse. This is consistent with studies elsewhere that have found no relationship between stress, job satisfaction and professional tenure or total nursing experience (Blegen 1993; Decker 1985; Lucas *et al.* 1993; Schultz 1993; Weisman *et al.* 1980). The findings do not support studies that found professional

tenure to be related both to an increase in job satisfaction (Norbeck 1985a, 1985b) and to a decrease in stress (Motowidlo *et al.* 1986; Norbeck 1985a, 1985b). The findings do not support studies that found number of years in the current position (unit tenure) and total years as a nurse (professional tenure) to be associated with burnout among nurses (Keane *et al.* 1985; Wessells *et al.* 1989). It is reasonable, however, to expect that position in a job hierarchy, which is invariably a function of length of service, may differentiate affective responses to the job and should, therefore, be studied further.

The study did not collect information about personality traits that have been found to affect work-related stress and job satisfaction. Also, a proxy of social integration, such as involvement in the community, was not associated with workplace stress nor was the extent of social integration investigated. Future research on nurses in Botswana should, among other things, look into the effects of social integration and personality traits on work-related affective states, such as stress and job satisfaction.

Conclusions

This study found that a significant proportion of nurses in Botswana experience work-related stress. Among the many factors considered, dissatisfaction with the workstation ranked top-most among the workplace stressors. Inadequate telecommunication facilities, dissatisfaction with salary, dissatisfaction with the job, and lack of opportunities to attend workshops and seminars were other key factors that accounted significantly for work-related stress among nurses in Botswana. Satisfaction with workstation had a cushioning effect on job dissatisfaction, but not on any of the other three factors. Although the direction of influence indicated higher levels of work-related stress for nurses with low incomes, who got little or no recognition from supervisors, who did not participate in MCH/FP policy formulation, who were professionally dependent on others, and who had fewer children than others, these factors were not found to be significantly related to workplace stress.

Individual characteristics, background variables, work context variables, recognition and support variables, and membership of the Botswana Nursing Council or of the Botswana Nurses Association had no significant correlation with work-related stress.

The study points to the important role that satisfaction with different aspects of the job plays in reducing work-related stress. For example, satisfaction with workstation can help cushion the stress-generating impact of dissatisfaction with the job. Similarly, satisfaction with the job can help cushion the stress-generating impact of not being afforded the opportunity to attend workshops and seminars.

These findings point to the significant role that Conditions of Service play in determining the extent of stress among nurses in Botswana. The factors identified in this study can be effectively addressed by nursing managers. For example, telecommunication facilities can be improved, policies and resources that encourage and support nurses to attend workshops and seminars could be strengthened, and salary reviews should seek greater input from the nurses. Dissatisfaction with workstation, which is the main source of workplace stress, could be reduced through greater recognition and support by supervisors, and again by providing adequate telecommunication facilities.

References

- Agho, A.O. (1993) The moderating effects of dispositional affectivity on relationships between job characteristics and nurses' job satisfaction. *Research in Nursing & Health*, 16, 451-458.

- Aneshensel, C.S., and Hub, G.J. (1983) Depression, alcohol use, and smoking over one year: a four-wave longitudinal causal model. *Journal of Abnormal Psychology*, 92(2):134-150.
- Arroba, T., and James, K. (1992) *Pressure at work: a survival guide for managers*, New York: McGraw-Hill.
- Baird, J.E., and Deibolt, J.C. (1976) Role congruence, communication, superior-subordinate relations and employee satisfaction in organizational hierarchies. *Western Speech Communication*, 40 (4), 260-267.
- Blegen, M.A. (1993) Nurses' job satisfaction: A meta-analysis of related variables. *Nursing Research*, 42, 36-41.
- Botswana Government (1974) *Report of the commission of enquiry into the health department*. 1970-1973, Gaborone: Government Printer.
- Botswana Government (1991) *National Development Plan 7, 1991-1997*. Gaborone: Government Printer.
- Bunney, W. Jr., Shapiro, A., Adler, R., Davis, A., Herd, I., Krieger, D. Matthyse, S., Stunkard, A., Weissman, M. (1982) *Panel report on stress and illness*. In *Stress and human health*, Elliot, G. R. and C. Eisdorfer, 255-321. New York: Springer Publishing.
- Brief, A.P., Aldag, R.J., Van Sell, M., & Melone, N. (1979) Anticipatory socialization and role stress among registered nurses. *Journal of Health and Social Behavior*, 20, 161-166.
- Brief, A.P., Burke, M.J., George, J.M., Robinson, B.S., and Webster, J. (1988). Should negative affectivity remain an unmeasured variable in the study of job stress? *Journal of Applied Psychology*, 73, 193-198.
- Chung, M.C., and Corbett, J. (1998) The burnout of nursing staff working with challenging behaviour clients in hospital-based bungalows and a community unit. *International Journal of Nursing Studies*, 35, 56-64.
- Cook, C.B., & Mandrillo, M. (1982) Perceived stress and situational supports. *Nursing Management*, 13(9), 31-33.
- Dailey, R.C. (1980) Relationship between locus of control, task characteristics and work attitudes. *Psychological Reports*, 47, 855-861.
- Decker, F.H. (1985) Socialization and interpersonal environment in nurses' affective reactions to work. *Social Science and Medicine*, 20, 499-509.
- Douglas, M.K., Meleis, A.I., Eribs, C., and Kim, S. (1996) The work of auxiliary nurses in Mexico: stressors, satisfiers and coping strategies. *International Journal of Nursing Studies*. 33 (5) 495-505.
- Duquette, A., Kerouac, S., Sandhu, B., Beaudet, L. (1994) "Factors related to nursing burnout: a review of empirical knowledge". *Issues in Mental Health Nursing*, 15(4), 337-358.
- Durkheim, E. (1951) *Suicide* (J.A. Spaulding & G. Simpson, trans.). New York: Free Press. (Original work published 1897).
- Freudenberger, H. J. (1974). Staff burnout. *Journal of Social Issues*, 30, 159-175.
- Gove, W.R., Hughes, M., & Style, C.B. (1983) Does marriage have positive effects on the psychological well-being of the individual? *Journal of Health and Social Behavior*, 24, 122-131.
- Gray-Toft, P. and Anderson, J.G. (1981) Stress among hospital nursing staff: Its causes and effects. *Social Science and Medicine*, 15A, 639-647.

- Gray-Toft, P. and Anderson, J.G. (1985) Organizational stress in the hospital: Development of a model for diagnosis and prediction. *Health Services Research*, 19, 753-774.
- Guppy, A. and Gutteridge, T. (1991) Job satisfaction and occupational stress in UK general hospital nursing staff. *Work and Stress*, 5(4), 315-323.
- Hughes, M.D. and Gove, W.R. (1981) Living alone, social integration, and mental health. *American Journal of Sociology*, 87, 48-74.
- Harri, H. (1996) "I love my work, but ...": the "best" and the "worst" in nurse educators' working life in Finland." *Journal of Advanced Nursing*, 23(6), 98-109.
- Harris, R.B. (1989) Receiving nursing stress according to a proposed coping-adaptation framework. *Advances in Nursing Science*, 11, 12-28.
- Hillhouse, J.J. and Adler, C.M. (1997) "Investigating stress effect patterns in hospital staff nurses: results of a cluster analysis". *Social Science and Medicine*, 45 (12), 1781-1788.
- Himle, D.P., Jayaratne, S., and Thyness, P.A. (1989). The buffering effects of four types of supervisory support on work stress. *Administration in Social Work*, 13(1) 19-34.
- Huebner, E.S. (1994) Relationships among demographics, social support, job satisfaction and burnout among school psychologists. *School Psychology International*, (1994) 15(2), 181-186.
- Hwara, A.H. (1998) *Labour turnover of nurses in the health services of Botswana*. MPA Dissertation, University of Botswana, Department of Political and Administrative Studies.
- Jamal, M. (1984) Job stress and job performance controversy: An empirical assessment. *Organizational Behavior and Human Performance*, 33, 1-21.
- Jenkins, C.S. (1976). Recent evidence supporting psychologic and social risk factors for coronary disease. *New England Journal of Medicine*, 294, 987-994, 1033-1038.
- Jennings, B. M. (1990) Stress, locus of control, social support, and psychological symptoms among head nurses. *Research in Nursing & Health*, 13, 393-401.
- Jones, J.G. (1987) Stress in Psychiatric nursing. In: R. Payne, J. Firth-Cozens (Ed.). *Stress in Health Professions*, New York: John Wiley & Sons.
- Judge, T.A. and Locke, E.A. (1993) Effect of dysfunctional thought processes on subjective well-being and job satisfaction. *Journal of Applied Psychology*, 78. 475-490.
- Keane, A., Ducette, J. and Adler, D. (1985) Stress in ICU and non-ICU nurses. *Nursing Research*, 34, 231-236.
- Landweerd, J.A. and Boumans, N.P. (1988) Work satisfaction, health and stress: a study of Dutch nurses. *Work and Stress*, 2, 17-26.
- LaRocco, J.M., House, J.S. and French, J.R.P. (1980) Social support, occupational stress, and health. *Journal of Health and Social Behavior*, 21, 202-218.
- Lerner, D.J., Levine, S., Malspeis, S. and D'Agostino, R.B. (1994) Job strain and health-related quality of life in a national sample. *American Journal of Public Health*, 84, 1580-1585.
- Lin, N., Simeone, R.S., Ensel, W.M. and Kuo, W. (1979) Social support, stressful life events, and illness: A model and an empirical test. *Journal of Health and Social Behavior*, 20, 108-119.
- Loscocco, K.A. and Spitze, G. (1990) Working conditions, social support, and the well-being of female and male factory workers. *Journal of Health of Social Behavior*, 31, 313-327.

- Lucas, M.D., Atwood, J.R. and Hagaman, R. (1993) Replication and validation of anticipated turnover model for urban registered nurses. *Nursing Research*, 42, 29-35.
- Maloney, J.P. and Bartz, C. (1983) Stress-tolerant people: Intensive care nurses compared with non-intensive care nurses. *Heart and Lung*, 12, 389-394.
- Magowe, M. K. (1986) *Factors related to the attrition of nursing personnel from central government departments in Botswana*. B.Ed. thesis, University of Botswana, Department of Nursing Education.
- Maslach, C. (1982) Understanding burnout: definitional issues in analysing a complex phenomenon. In W.S. Paine (Ed), *Job Stress and Burnout*. Sage, London.
- Maslach, C. and Jackson, S.E., (1986) *Maslach Burnout Inventory (Manual)* 2nd ed. Palo Alto, California: Consulting Psychologists Press.
- McNeese-Smith, D. (1996) "Increasing employee productivity, job satisfaction, and organisational commitment". *Hospital and Health Services Administration*, 41(2), 160-175.
- Mechanic, D. (1978). *Medical sociology*. London: The Free Press.
- Mothobi, C.T. (1982) *Attitudes of nurses towards patients in Botswana hospitals*. B.Ed. Thesis, University of Botswana, Department of Nursing Education.
- Motlhasedi, P. (1982) *A survey on the causes of job dissatisfaction among nurses in Botswana*. B.Ed. Thesis, University of Botswana, Department of Nursing Education.
- Motowidlo, S.J., Packard, J.S. and Manning, M.R. (1986). Occupational stress: Its causes and consequences for job performance. *Journal of Applied Psychology*, 71, 618-629.
- Myers, J.K., Lindenthal, J.J. and Pepper, M.P. (1975). Life events, social integration and psychiatric symptomatology. *Journal of Health and Social Behavior*, 16, 421-427.
- Norbeck, J.S. (1985a) Perceived job stress, job satisfaction, and psychological symptoms in critical care nursing. *Research in Nursing and Health*, 8, 253-259.
- Norbeck, J.S. (1985b) Types and sources of social support for managing job stress in critical care nursing. *Nursing Research*, 34, 225-230.
- Owuor-Omondi, L. and Kobuoe, M. (1993) *Determinants of maternal mortality in Botswana: an institutional, household and community perspective*. Ministry of Health, Safe Motherhood Programme, Gaborone: Government Printer.
- Packard, J.S. and Motowidlo, S.J. (1987) Subjective stress, job satisfaction, and job performance of hospital nurses. *Research in Nursing & Health*, 10, 253-261.
- Parasuraman, S., Drake, B.H. and Zammuto, R.F. (1982). The effect of nursing care modalities and shift assignments on nurses' work experiences and job attitudes. *Nursing Research*, 31, 364-367.
- Parker, D.F. and DeCotiis (1983) Organizational determinants of job stress. *Organizational Behavior and Human Performance*, 32, 160-177.
- Parkes, K.R. (1990). Coping, negative affectivity, and the work environment: Additive and interactive predictors of mental health. *Journal of Applied Psychology*, 75, 399-409.
- Pearlin, L.I. and Aneshensel, C.S. (1989) Stress, coping, and social supports. In Brown, P. (Ed) *Perspectives in medical sociology*. 95-102. Prospect Heights, Illinois: Waveland Press.
- Pearlin, L.I. and Johnson, J.S. (1977) Marital status, life-strains, and depression. *American Sociological Review*, 42, 704-715.
- Rauktis, M.E. and Koeske, G.F. (1994) "Maintaining social worker morale: when supportive supervision is not enough". *Administration in Social Work*. 18 (1), 39-60.

- Revicki, D.A. and May, H.J. (1989). Organizational characteristics, occupational stress, and mental health in nurses. *Behavioral Medicine*, 15, 30-36.
- Robinson, S.E., Roth, S.L. and Brown, L.L. (1993). Morale and job satisfaction among nurses: What can hospitals do? *Journal of Applied Social Psychology*, 23, 244-251.
- Schmale, A.H. and Iker, H.P. (1971). Hopelessness as a predictor of cervical cancer. *Social Science and Medicine*, 5, 95-100.
- Schultz, A.W. (1993). Evaluation of a clinical advancement system. *Journal of Nursing Administration*, 23(2), 13-19.
- Selelo-Kupe, S. (1993). *An uneasy walk to quality: a history of the evolution of black nursing education in the Republic of Botswana*. Michigan: W. K. Kellogg Foundation.
- Selye, H. (1956). *The stress of life*. New York: McGraw-Hill.
- Staw, B.M., Bell, N.E. and Clausen, J.A. (1986). The dispositional approach to job attitudes: A lifetime longitudinal test. *Administrative Science Quarterly*, 31, 56-77.
- Staw, B.M. and Ross, J. (1985). Stability in the midst of change: A dispositional approach to job attitudes. *Journal of Applied Psychology*, 70, 469-480.
- Terry, D.J., Nielsen, M. and Perchard, L. (1993). Effects of work stress on psychological well-being and job satisfaction: the stress-buffering role of social support. *Australian Journal of Psychology*. 45(3), 168 -175.
- Theorell, T., Orth-Gomér, K. and Eneroth, P. (1990). Slow-reacting immunoglobulin in relation to social support and changes in job strain: A preliminary note. *Psychosomatic Medicine*, 52, 511-516.
- Thoits, P.A. (1987). Gender and marital status differences in control and distress: Common stress versus unique stress explanations. *Journal of Health and Social Behavior*, 28, 7-22.
- Tumulty, G., Jernigan, I.E. and Kohut, G.F. (1994). The impact of perceived work environment on job satisfaction of hospital staff nurses. *Applied Nursing Research*, 7, 84-90.
- van Wijk, C. (1997). Factors influencing burnout and job stress among military nurses. *Military Medicine*, 162(10), 707-710.
- Wakefield, D.S., Curry, J.P., Price, J.L., Mueller, C.W. and McCloskey, J.C. (1988). Differences in work unit outcomes: Job satisfaction, organizational commitment, and turnover among hospital nursing department employees. *Western Journal of Nursing Research*, 10, 98-105.
- Watkinson, G.E. (1991). Intensive stress? Caring under pressure. *Journal of the Reserve Naval Medical Service*, 77, 87-101.
- Watson, D. and Clark, L.A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin*, 96, 465-490.
- Weisman, C.S., Alexander, C.S. and Chase, G.A. (1980). Job satisfaction among hospital nurses: A longitudinal study. *Health Services Research*, 15, 341-364.
- Weisman, C.S. and Nathanson, C.A. (1985). Professional satisfaction and client outcomes: A comparative organizational analysis. *Medical Care*, 23, 1179-1192.
- Wessells, D.T. Jr., Kutscher, A.H., Seeland, I.B., Selder, F.E., Cherico, D.J. and Clark, E.J. (Eds.) (1989). *Professional burnout in medicine and the helping professions*. New York: Haworth Press.

