

The Significance of Sense of Coherence for the Perceptions of Task Characteristics and Stress During Interruptions Amongst a Sample of Public Health Nurses in Hong Kong: Implications for Nursing Management

Ann Tak-Ying Shiu, M.Sc., H.V., R.M.W., RN.

Abstract The study aimed to investigate the significance of sense of coherence (SOC) for the perceptions of task characteristics and for stress perceptions during interruptions of public health nurses (PHNs) with children in Hong Kong. The research design employed the experience sampling method. Convenience sampling was used to recruit 20 subjects. During stage one of the study a watch was worn that gave a signal at six random times each day for seven days to complete an experience sampling diary. PHNs on average responded to 34 signals (80%) to complete the diaries which collected data on work and family juggling, task characteristics, and their effects on mood states. At stage two respondents completed the SOC scale which measured confidence in life as comprehensible, manageable, and meaningful. Two major findings provide the focus for this paper. First, results indicate that there was positive correlation between SOC and perceived task characteristics. Second, results reveal that when interruptions occurred, PHNs with high SOC had higher positive affect and lower negative affect than PHNs with low SOC. These results suggest that SOC as a salutogenic model helps PHNs to cope with the family and work juggling as well as the occupa-

tional stress. Implications for nursing management on strengthening SOC of PHNs are discussed.

INTRODUCTION

Nursing management is faced with the challenge of identifying ways to curb the high turnover rates and low morale of nurses (Buchan, 1994; Royal College of Nursing, 1993). Despite considerable empiric evidence on nursing as a stressful and emotionally demanding job (Smith, 1992), there is minimal information available to help nurses identify the most appropriate coping strategies to meet the challenge of occupational stress and work-family juggling. Nurses who find it difficult to cope with the stress suffer from constant ill effects such as high turnover rate, increased absenteeism, and poor performance (Buchan, 1994; Seccombe & Buchan, 1993). Sense of coherence (SOC), as a salutogenic model that highlights factors contributing to health (Antonovsky, 1996), has provided an explanation for why some people facing stress select the most appropriate coping style and stress management strategy according to the demands of the situation. Although some initial research is available on the stressors arising from work as well as work-family juggling among female nurses with children (Ray & Miller, 1994), there is no research available on the role of SOC as a coping strategy for female nurses with children.

Address correspondence to Ann Tak-Ying Shiu, Assistant Professor, Department of Nursing, Faculty of Medicine, The Chinese University of Hong Kong, Shatin, Hong Kong.

BACKGROUND TO THE STUDY

Sense of Coherence: A Salutogenic Approach to Stress Management

Sense of coherence (SOC) is a relatively new construct proposed by Antonovsky (1987) to predict effective coping and good health. He defines SOC as not a particular personality trait or coping style but rather a dispositional orientation. It is composed of three components: comprehensibility, manageability, and meaningfulness. The construct explains that individuals with high SOC have the confidence that the world is understandable and makes sense to them (comprehensibility), have resources available for meeting the demands that they face (manageability), and are worthy of taking action on the demands, which have meaning in their lives (meaningfulness).

Unlike other coping models, which may vary from culture to culture and situation to situation, Antonovsky argues that strong SOC will allow one to "reach out, . . . apply the resources appropriate to that stressor" (1996). He uses the word "salutogenic" to highlight the main character of SOC as well as differentiate it from the "pathogenic" approaches to coping (1987). In other words SOC does not study what stressors will lead to what ill health but rather what salutary factors keep people physically and emotionally healthy in the face of stressful events.

To date, more than 80 research studies using SOC as one of the instruments have been identified in a literature review. The majority of these studies relate to clinical and applied psychology; results support that SOC predicts good health and positive adjustment (Rena, Moshe & Abraham, 1996). Due to the recent nature of the construct, only a few studies focused on work stress. Ryland & Greenfeld, (1991) undertook a correlated study of 302 faculty members to measure the relationship between perceived work stress measure and the general well-being measure using the SOC scale. The findings concluded that SOC enhanced well-being. Palsson, Hallberg, Norberg & Bjorvell (1996) studied 33 Swedish district nurses to examine the relationship between burnout, empathy, and SOC. The results showed that SOC was positively correlated with empathy and negatively correlated with burnout. Lewis, Campbell, Beckett, Cooper, Bonner & Hunt (1992) studied 238 dialysis nurses in the United States to examine the relationship among work stressors, burnout, and SOC. Results indicated that work overload was the major contribution to overall stress and burnout and supported SOC as salutogenic. Lewis, with other colleagues (1994), studied another sample of 49 dialysis nurses. Results indicated that there was a positive correlation between personal and work-related stress, especially with work load. The findings of both studies demonstrated SOC as a powerful predictor of coping and a mediating factor in stressful events at work.

Indeed the findings supported the notion that the higher the SOC scores, the lower the perceptions of work stress and the better utilization of coping resources.

Public Health Nurses: Occupational Stress and Work and Family Conflicts

Nursing has been well documented as a high stress occupation in the literature (Chung, 1996; Farrington, 1995; Walcott-McQuigg & Ervin, 1992). The relationship between stress and disease has been empirically demonstrated in nursing as well as in other occupations (Lazarus, 1971; Norrie, 1995). Many researchers also demonstrate the positive relationship between high stress and less than desirable performance (Baglioni, Cooper & Hingley, 1990). Health visitors in the United Kingdom were found to be the most dissatisfied among all nurses working in the community in terms of personal satisfaction, workload, as well as pay and prospects (Royal College of Nursing, 1993). Research evidence from both nurse administrators (Seccombe & Buchan, 1993) and industrial and organizational psychologists (Griffin & Bateman, 1986) indicates that job dissatisfaction is related to job stress and is significantly predictive of workers' turnover, absenteeism, and performance.

Public health nursing in Hong Kong has evolved from the model of health visiting practice in the UK (Department of Health, 1993). The recommendations of the Scott Report (Wong, 1996), which gave rise to the Department of Health in 1989, and is currently the primary employer of public health nurses (PHNs), created a number of challenges for public health nursing. This reorganization coincided with the restructuring in the public health service provision following the recommendations of the report on primary health care (Working Party of Primary Health Care, 1990). These recommendations included a shift from bureaucratic to consumer-oriented service as requiring PHNs to act as a change agent for health promotion initiatives, as opposed to approaching clients as passive receivers of charitable services. This led to increasing demands with the management to maintain quality service with finite resources (Department of Health, 1994-95).

Although figures for turnover rate of PHNs are not published in Hong Kong, anecdotal evidence suggests that these rates are high, with many PHNs leaving the service because of difficulties of coping with the high demands of work as well as family. As in other countries the majority of nurses are female (Cyr, 1992) with less than 100 male nurses employed by the Department. For more than a decade researchers such as Vredenburg & Trinkaus (1983) have highlighted that as most nurses are female, family issues are more likely to be relevant to "work and career considerations." Indeed authors such as Ray & Miller (1994) suggest that nurses provide a fertile ground for the investigation of home and work conflict because of the

domination of women in the profession. However, research on the occupational stress of nurses has always focused on investigating work-based stressors (McGrath, Reid & Boore, 1989; Seccombe & Ball, 1992) thus missing the impact of work-family conflicts.

Health care executives, such as Towery (1992), suggest that the primary cause of burnout in women working in the health care industry is the constant juggling of work-family responsibilities. Many writers regard nurses as holding two jobs: a full-time homemaker and a part- or full-time healthcare worker (Greenglass, Pantony & Burke, 1989). A literature review identified only one published study related to the effects of nurses having dual careers. Ray & Miller (1994) conducted a survey of 119 female nursing assistants and charge nurses in a nursing home. The findings showed a positive association between home/work stress and burnout. One important finding was the effect of children on nurses' levels of stress. Interestingly, however, the study showed that the number of children was not significant.

In the arena of industrial and organizational psychology the impact of role juggling on working mothers has received increasing research interest. Williams, Suls, Alliger, Learner, & Wan (1991) used experience sampling method to study immediate emotions of 20 working mothers to role juggling. Results supported that role juggling had immediate negative effects on their subjects' emotional well-being as shown by higher negative affect and lower positive affect. Affect was measured by means of the self-rating of mood states of the two-factor structure of the affect model established by Watson & Tellegen (1985). Williams & Alliger (1994) also used the same research method to study immediate emotions of 41 working parents to role juggling. Results from these studies suggested that the high stress levels of working mothers could in part be explained by multiple role juggling, which involved simultaneously attending to demands of different roles.

Task Characteristics and Stress

Apart from multiple role juggling, research evidence also supports that task characteristics are major sources of stress. A study of 41 working parents found that tasks experienced as out of control and making no goal progress resulted in higher stress levels as shown by higher negative affect and lower positive affect (Williams & Alliger, 1994). Ganster defined personal control as the perceived "ability to exert some influence over one's environment so that the environment becomes more rewarding or less threatening" (1989). Indeed a sense of control is a very important determinant of psychological well-being in work or nonwork settings (Sauter, Hurrell & Cooper, 1989). According to the control theory of behavior (Carver & Scheier, 1981), interruption acts as a break in the sense of control. Carver &

Scheier (1990) advance the argument in control theory of behavior and propose that affect is a function of progress toward one's goal. It is suggested that when the perceived rate of progress toward a goal and perceived control is lower than desired, it contributes towards a negative affect.

Aim of the Study

This research project aimed to investigate the impact of multiple role juggling as well as the significance of SOC on the daily emotional experience of PHNs who have children in Hong Kong. Two objectives provide the focus for this paper. The first objective was to describe the relationship between SOC and the perceptions of task characteristics of goal progress and perceived control. The second objective was to assess the significance of SOC on PHNs' emotional experience when role juggling occurred. This study did not attempt to identify the objective test for role juggling, and therefore the respondents' perception of role juggling was used. To measure the immediate emotional experience of nurses, the mood states developed by Williams & Alliger (1994) were adopted to assess self ratings of affect.

METHOD

Experience Sampling Method

In order to fulfill the aim of this study, experience sampling method (ESM) was adopted as the research design. Larson & Csikszentmihalyi (1983), in developing this design, identified ESM as investigating how people feel, act, and think during their daily lives. It involves the systematic self-reporting of activities, thought content, and emotion at random occasions during waking hours of a normal week. The subjects typically wear a signaling device to remind them to fill out a diary. Sets of these diaries become the "archival file of daily experience" (Larson & Csikszentmihalyi, 1983). Many researchers highlight that the ESM is very appropriate for the study of reactions *in situ* (Hillbrand & Waite, 1994; Hormuth, 1986). Because the method collects data on individual subjects, it allows for within-subject as well as between-subject analyses (Epstein, 1983; cited in Hormuth, 1986). ESM also has strength over other methods such as survey and interview since the accuracy of the data of those methods relies heavily on memory and single global measures.

Subjects

Convenience sampling was used to recruit 26 PHNs from two programs completed in the 1990s through the alumni class representatives of the School of Public Health Nursing of the Department of Health. The selection criteria for the sample were female with one or more children, promoted to nursing officer, and in charge of a center, unit, or team.

(Nursing officers function as PHNs as well as front-line managers accountable to nursing management for the effective running of the services provided by the nursing team.) The PHNs of the sample were then individually invited by telephone to participate. Since ESM intrudes into the private life of the subjects, the procedure and significance of the research were explained thoroughly to them and informed consent was obtained. All were reminded of the voluntary basis of the study and their right to withdraw at any time, and that anonymity would be kept.

Measures And Apparatus

Experience Sampling Diary and a Signaling Device

Data collection involved two stages. Stage one employed the experience sampling diary (ESD) which was developed using four sections on one page. The ESD was triggered by the use of a signaling device—all subjects wore a wrist-watch Casio BGP-20 multiplanner. The watch was preprogrammed to signal six times a day according to a random time table for seven days from 8 a.m. until 11 p.m. On hearing the signal, the subject completed one ESD. The first section of the ESD was concerned with the type of activities in which the subject engaged: home, work, social, or other. The second section was concerned with the perceptions of task characteristics of the activities. Respondents were asked to rate the perceived goal progress and perceived control on a seven-point Likert scale with “1” denoting “not at all” and “7” denoting “very much.” The third section was concerned with the task interruptions and task juggling. Interruptions were measured by asking respondents if, in the last 30 minutes prior to the signal, they had had to juggle two or more tasks simultaneously. They were asked to identify whether the tasks were related to work only, family only, work and social/leisure activities, or family and social/leisure activities.

The last section was concerned with mood states. An important stage in the development of this section was the validity of the diary in measuring immediate mood states of the respondents. Mood states used by Williams & Alliger (1994) were adopted. Translation from English to Chinese, then back to English, was undertaken to enhance the validity of the instrument (Brislin, 1986). A pilot test with nine working mothers was carried out to test for conceptual and linguistic relevance. (Detailed development of this section of the instrument has been presented in a previous paper.) The final product consisted of 16 mood states: aroused, blue, calm, distressed, dull, enthusiastic, excited, happy, nervous, quiet, relaxed, satisfied, sluggish, still, surprised, and unhappy. The mood states anchored on a 6-point scale with “0” indicating “not at all” and “5” “very much describing the feelings.”

The Sense of Coherence Scale and Demographic Data

The second stage of data collection involved a measure with two sections. The first section was the SOC scale and was used with a 7-point semantic differential scale. The scale consisted of 29 items, with the lowest possible score being 29 and the highest possible score being 203. In 26 previous studies cited by Antonovsky (1993), Cronbach's alpha of internal consistency ranged from 0.82 to 0.95. Test-retest reliability of the scale, although less frequently assessed in the research studies, was also found to show minor fluctuations. Although the construct consists of three main components of comprehensibility, manageability, and meaningfulness, researchers repeatedly find that the SOC scale is a unidimensional instrument, which measures the same construct rather than the three components (Antonovsky, 1993; Callahan & Pincus, 1995).

Antonovsky (1993) reported that the SOC scale has been translated into 14 languages and used in countries of Northern Europe, Middle East, and America. Although never used in Chinese-speaking countries, Antonovsky argues the concept as well as the scales to be super-cultural as well as applying equally well across gender, social class, and religion. The super-cultural and socioeconomic claim of the scale is empirically validated by Bowman (1996) who recruited 81 Native Americans living on a reservation and 105 Anglo-Americans living in urban region of the US. The two groups scored similar levels of SOC, and these SOC scores correlated negatively with depression, anxiety, and physical symptoms for the both groups. Bauman suggests that people from different cultures, family sizes, and socioeconomic conditions can develop, on average, essentially the same level of SOC. In the present study the scale was back translated prior to being pilot-tested for use in the main study. It obtained a Cronbach's alpha of 0.76. The second section of this stage collected demographic data including items on length of time since promotion to nursing officer, number and age of children, and the use of child care facilities.

Data Analysis

The Statistical Package for Social Sciences was used to analyze the data. Descriptive statistics were used to establish frequencies and distributions of all variables. Principal components analysis with varimax rotation was conducted to identify the underlying dimensions of the 16 mood states and to determine which mood states made up the positive and negative affect. Pooled time series analyses were conducted to test the effects of multiple juggling and task characteristics on positive and negative affect in work and family settings. Pearson correlations were conducted to establish the relationship between SOC and task characteristics. An independent groups *t*-test was performed compar-

ing the mean positive and negative affect of two groups of respondents with high and low SOC when interruptions occurred.

RESULTS

This paper focuses on the results obtained from Pearson's correlations establishing the relationship between SOC and task characteristics and the independent groups *t*-test investigating the significance of SOC. Out of the 26 PHNs, 20 agreed to participate, giving a response rate of 77%. The length of time since their promotion ranged from 6 to 18 months ($M = 11$ months). Their ages ranged from 34 to 47 years ($M = 39$). Their children's ages ranged from 18 months to 15 years old ($M = 7$ years). Six respondents had 1 child, 13 had 2 children and only one had 3 children. Fourteen (70%) respondents employed a domestic helper and the rest had a relative offering help with the care of children. Respondents on average responded to 34 signals (ranging from 25 to 40) which involved completion of 34 ESDs giving an 80% response rate. This is comparable to those obtained by other investigators (Williams & Alliger, 1994; Williams et al., 1991; Hormuth, 1986). Out of all the responses (676), role juggling occurred on 326 occasions (48%). The mean SOC score of the 20 PHNs was 135.75 ($SD = 12.27$) ranging from 98 to 154, with the higher scores indicating a stronger SOC. For the 9 respondents obtaining below-average scores, 1 scored 98 with the rest scoring above 120.

Table 1 presents the mean, standard deviation, and inter-correlation matrix between sense of coherence and task characteristics of perceived goal progress and perceived control. The mean perceived goal progress was 5.08 ($SD = 1.53$) while that of perceived control was 4.98 ($SD = 1.55$). Pearson correlations were used to test the relationship between SOC and perceived goal progress as well as perceived control. As demonstrated in Table 1, statistical significance was found between SOC and perceived goal progress as well as perceived control, indicating there was moderate positive correlation between the SOC and perceived goal progress as well as perceived control.

In order to determine the significance of SOC to multiple

TABLE 1. Mean, Standard Deviation and Intercorrelation Matrix Between Sense of Coherence, Perceived Goal Progress, Perceived Control.

	(M)	(SD)	1	2	3
1 Sense of coherence	135.75	12.27	1.00		
2 Perceived goal progress	5.08	1.53	.43*	1.00	
3 Perceived control	4.98	1.55	.35*	.63*	1.00

2-tailed significance: * $p < .001$

role juggling occasions and immediate emotions, respondents were divided into two groups: those scoring the average score of 136 or above in the high SOC group and those below 136 in the low SOC group. This gave 11 and 9 respondents in each group, respectively. It is interesting to note that both high and low groups demonstrated similar rates of interruptions which were 48.3% (186 occasions) and 48.1% (140 occasions) of all sampled experience, respectively. An independent group's *t*-test was performed comparing the mean positive affect and mean negative affect with the interrupted occasions for the high SOC group and low SOC group. As illustrated in Table 2 this test was found to be statistically significant, indicating that low SOC group ($n = 9$) had lower positive affect, $t(323) = -6.79, p < 0.001$, and higher negative affect, $t(321.98) = 2.88, p < 0.005$, than the high SOC group ($n = 11$).

DISCUSSION

The current sample appears to represent a group in the middle range with neither exceptionally high nor exceptionally low SOC scores. Higher means have been obtained from the two previous studies with hospital nurses in nephrology settings, namely 148.7 ($SD = 24.2$) ranging from 82 to 193 (Lewis et al., 1994) and 143.1 ($SD = 23$) ranging from 78 to 189 (Lewis et al., 1992). Higher means again have been obtained from the previous study by Palsson et al. (1996) with Swedish district nurses, namely 148 ($SD = 17.5$) ranging from 123 to 178 with the experimental group ($n = 21$), and 154 ($SD = 13.6$) ranging from 135 to 183 with the control group ($n = 12$). However, lower means have been cited by Antonovsky (1993) on normative data from 26 published studies using SOC, which had a range from 152.6 to 117.0. It is also interesting to note that the current sample obtained the similar mean SOC scores as the Israeli Jewish national sample (136.5, $SD = 19.8, N = 297$) and Finnish university student sample (138.6, $SD = 23.1, N = 117$) (Antonovsky, 1993).

The contribution of SOC as a salutogenic model to nursing management provides the focus of discussion. The

TABLE 2. Results of the Independent Groups *t* test Comparing the Mean Positive Affect and Negative Affect During Interruptions for the High SOC ($n = 11$) and Low SOC ($n = 9$) Group

Affect	Low SOC Group		High SOC Group		<i>t</i>
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	
Positive affect	1.54	1.41	2.70	1.60	-6.79**
Negative affect	1.95	0.82	1.65	1.11	2.88*

2-tailed significance: * $p < 0.005$; ** $p < 0.001$

findings of the study demonstrate that SOC was positively correlated with perceived goal progress and perceived control. Results such as these support that PHNs with high SOC are more likely to perceive tasks as comprehensible, manageable, and meaningful. The results of the study reported elsewhere also support that tasks perceived as making progress and under control resulted in higher positive and lower negative affect. Results reported in this paper also demonstrate that when role juggling occurred, PHNs with high SOC had less negative affect and more positive affect than those with low SOC. The present study extends an understanding of SOC by applying it to the arena of occupational stress and work-family juggling, and supports SOC as a salutogenic construct in explaining emotional well-being in the face of constant stress arising from occupation and work-family juggling (Antonovsky, 1996).

The author would argue that the results of this study provide insight to nursing management in reducing the high cost of stress on the nursing workforce such as high turnover, absenteeism, poor performance and lack of emotional well-being arising from occupation and work-family juggling. As individuals with high SOC tend to select the most appropriate coping strategies to manage stressful situations, nursing management could foster SOC of PHNs by promoting experiences of "consistency, underload-overload balance, and participation in socially valued decision-making" in the workplace (Antonovsky, 1996). Antonovsky argues that SOC as a salutogenic model is particularly appropriate to health promotion (1996). This is especially appropriate to PHNs as health promotion plays a major role in their clinical practice. Indeed, health promotion highlights the importance of the advocacy of salutogenic factors in combating ill health rather than focusing on risk factor reduction alone. Researchers such as Kreitzer, Wright, Hamlin, Towey, Marko, & Disch (1997) argue that in the midst of organizational change, creating a healthy working environment is of particular significance in staff recruitment and retention. Nursing management could adopt an environmental approach to building up a healthy working environment according to the three components of SOC, rather than the individual focus of stress management which requires individuals to adopt new behaviors or to change the perceptions of stress using techniques such as time management, relaxation exercise, or counseling.

Indeed Antonovsky (1996) recommends that SOC, which consists of three core components of comprehensibility, manageability, and meaningfulness, may be strengthened by providing the appropriate working environment. Nursing management can apply this construct to create a working environment that fosters SOC. A sense of comprehensibility may be enhanced by the experience that the roles and responsibilities of PHNs are clear, and open communication channels are in place. Such experiences

foster a sense of consistency over events happening in the workplace. An appropriate workload and availability of necessary resources at PHNs' disposal may also enhance a sense of manageability (Lewis et al., 1994; Lewis et al., 1992). Participatory management style (Lewis et al., 1992) and clear career paths may provide the experience of participating in a socially valued decision making and thereby strengthen a sense of meaningfulness.

Strengthening SOC may be particularly helpful for younger PHNs (Ryland & Greenfeld, 1991). Although SOC is suggested to be relatively stable after the third decade of life, it may be shaped progressively throughout life (Antonovsky, 1987). Nursing management is therefore in a position to help strengthen SOC of the new recruits as well as more experienced staff. Indeed, the author would argue that a high score of SOC enables PHNs to choose the most appropriate coping strategies and to experience well-being.

CONCLUSION

This study examined the significance of SOC to perceptions of task characteristics and stress arising from occupation and work-family juggling. The author, while acknowledging such limitations of the study as sampling method, frame, and size, suggests that two pertinent conclusions can be drawn from the study. The first conclusion has implications for nursing management. PHNs with high SOC had a greater sense of emotional well-being in the face of occupational stress and work-family juggling, and were more likely to perceive tasks as progressing toward the goal and to be within control. These findings may provide direction for nursing management on enhancing a health-promoting working environment and thereby strengthening the stress coping ability of PHNs. The second conclusion has implications for further research. Although this study extends the understanding of SOC as a salutogenic construct in explaining emotional well-being in the face of constant stress arising from occupation and work-family juggling, the author suggests the replication of the study with larger sample in community and hospital settings to allow for the generalization of results.

ACKNOWLEDGMENTS

The author would like to express sincere thanks to Dr. Sheila Twinn for her precious comments to the earlier drafts of the paper.

REFERENCES

- Antonovsky, A. (1987). *Unravelling the mystery of health: How people manage stress and stay healthy*. San Francisco: Jossey-Bass Publishers.

- Antonovsky, A. (1993). The structure and properties of the sense of coherence scale. *Social Sciences Medicine* 36, 725–733.
- Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion. *Health Promotion International* 11(1), 11–18.
- Baglioni, A. J., Cooper, C. L., & Hingley, P. (1990). Job stress, mental health and job satisfaction among UK senior nurses. *Stress Medicine* 6, 9–20.
- Bowman, B. J. (1996). Cross-cultural validation of Antonovsky's sense of coherence scale. *Journal of Clinical Psychology* 52(5), 547–549.
- Brislin, R. W. (1986). The wording and translation of research instruments. In J. W. Lonner & J. W. Berry (Eds.) *Field methods in cross-cultural research, Vol. 8. Cross-cultural Research & Methodological Series*. (pp. 137–164). London: Sage.
- Buchan, J. (1994). Nursing shortages and human resources planning. *International Journal of Nursing Studies* 31(5), 460–470.
- Callahan, L. F., & Pincus, T. (1995). The sense of coherence scale in patients with rheumatoid arthritis. *Arthritis Care and Research* 8(1), 28–35.
- Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control-theory approach to human behaviour*. New York: Springer-Verlag.
- Carver, C. S. & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control process view. *Psychological Review* 97, 19–35.
- Chung, R. T. Y. (1996). *Survey on medical and nursing staff's opinions on nursing manpower in public hospitals*, Public Opinion Programme of Social Sciences Research Centre of The University of Hong Kong.
- Cyr, J. P. (1992). Males in nursing. *Nursing Management* 23(7), 54–55.
- Department of Health (1993). *Family Health Services: 60th Anniversary*. Hong Kong: HK Government Printer.
- Department of Health (1994–95). *Annual departmental report*. Hong Kong: HK Government Printer.
- Farrington, A. (1995). Stress and nursing. *British Journal of Nursing* 4(10), 574–578.
- Ganster, D. C. (1989). Work control and well-being: A review of research in the workplace. In S. L. Sauter, J. J. Hurrell, Jr., & C. L. Cooper (Eds.) *Job Control and worker health*. (pp. 3–23). Chichester: Wiley.
- Greenglass, E. R., Pantony, K., & Burke, R. J. (1989). A gender-role perspective on role conflict, work stress and social support. In E. B. Goldsmith (Ed.) *Work and family: Theory, research, and applications*. (pp. 317–328). Newbury Park: Sage.
- Griffin, R. W. & Bateman, T. S. (1986). Job satisfaction and organizational commitment. In C. L. Cooper & I. T. Robertson (Eds.) *International review of industrial and organizational psychology*. (pp. 317–328). Chichester: Wiley.
- Hillbrand, M. & Waite, B. M. (1994). The everyday experience of an institutionalised sex offender: An idiographic application of the experience sampling method. *Archives of Sexual Behaviour* 23(4), 453–463.
- Hormuth, S. E. (1986). The sampling of experience in situ. *Journal of Personality* 54, 262–293.
- Kreitzer, M. J., Wright, D., Hamlin, C., Towey, S., Marko, M., & Disch, J. (1997). Creating a healthy work environment in the midst of organizational change and transition. *Journal of Nursing Administration* 27(6), 35–41.
- Larson, R. & Csikszentmihalyi, M. (1983). The experience sampling method. In H. T. Reis (Ed.) *Naturalistic approach in studying social interaction*. (pp. 41–56). San Francisco: Jossey-Bass.
- Lazarus, R. S. (1971). The concept of stress and disease. *Social Stress Disease* 1, 53–60.
- Lewis, S. L., Bonner, P. N., Campbell, M. A., Cooper, C. L., & Willard, A. (1994). Personality, stress, coping, and sense of coherence among nephrology nursing dialysis settings. *American Nephrology Nurse Association Journal* 21(6), 325–336.
- Lewis, S. L., Campbell, M. A., Becktell, P. J., Cooper, C. L., Bonner, P. N., & Hunt, W. C. (1992). Work stress, burnout, and sense of coherence among dialysis nurses. *American Nephrology Nurse Association Journal* 19(6), 545–554.
- McGrath, A., Reid, N., & Boore, J. (1989). Occupational stress in nursing. *International Journal of Nursing Studies* 26(4), 343–358.
- Norrie, P. (1995). Do intensive care staff suffer more stress than staff in other care environments? A discussion. *Intensive and Critical Care Nursing* 11(5), 293–297.
- Palsson, M., Hallberg, I. R., Norberg, A., & Bjorvell, H. (1996). Burnout, empathy and sense of coherence among Swedish district nurses before and after systematic clinical supervision. *Scandinavian Journal of Caring Sciences* 10, 19–26.
- Ray, E. B., & Miller, K. I. (1994). Social support, home/work stress, and burnout, who can help? *Journal of Applied Behavioural Science* 30(3), 357–373.
- Rena, F., Moshe, S., & Abraham, O. (1996). Couples' adjustment to one partner's disability: The relationship between sense of coherence and adjustment. *Social Sciences Medicine* 43(2), 163–171.
- Royal College of Nursing (1993). Research briefing. The morale of nurses working in the community: A study of three NHS trusts: Year 2. Research at the Daphne Heald Research Unit, Royal College of Nursing.
- Ryland, E., & Greenfeld, S. (1991). Work stress and well-being: An investigation of Antonovsky's sense of coherence model. *Journal of Social Behaviour and Personality* 6(7), 39–54.
- Sauter, S. L., Hurrell, J. J., & Cooper, C. L. (ed.) (1989). *Job control and worker health*. Wiley series on studies in occupational stress. Chichester: John Wiley & Son.
- Seccombe, I., & Ball, J. (1992). *Motivation, morale and mobility: A profile of qualified nurses in the 1990s*. London: Institute of Manpower Studies.
- Seccombe, I., & Buchan, J. (1993). *Absent nurses: The cost and consequences*. London: Institute of Manpower Studies.
- Smith, P. (1992). *The emotional labour of nursing: How nurses care*. Hong Kong: Macmillan.
- Towery, T. L. (1992). Extinguishing healthcare burnout. *Healthcare Executive* 7(2), 34–35.
- Vredenburgh, D. J., & Trinkaus, R. J. (1983). An analysis of role

- stress among hospital nurses. *Journal of Vocational Behaviour* 23, 82–95.
- Walcott-McQuigg, J. A., & Ervin, N. E. (1992). Stressors in the workplace: Community health nurses. *Public Health Nursing* 9(1), 65–71.
- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin* 98(2), 219–238.
- Williams, K. J., & Alliger, G. M. (1994). Role stressors, mood spillover, and perceptions of work-family conflict in employed parents. *Academy of Management Journal* 37(4), 837–868.
- Williams, K. J., Suls, J., Alliger, G. M., Learner, S. M., & Wan, C. K. (1991). Multiple role juggling and daily mood states in working mothers: An experience sampling study. *Journal of Applied Psychology* 76(5), 664–674.
- Wong, V. C. W. (1996). Medical and health. In M. K. Nyaw & S. M. Li (Eds.) *The other Hong Kong report 1996*. (pp. 449–468). Hong Kong: The Chinese University Press.
- Working Party on Primary Health Care (1990). *Report of primary health care: The way ahead*. Hong Kong: HK Government Printer.