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Contributions of Leisure Participation in Predicting Stress Coping and Health among Police and Emergency Response Services Workers

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Abstract

This study examined the extent to which frequency and enjoyment measures of leisure participation predict adaptational outcomes, over and above the contributions of general coping. Police and emergency response services workers ($N = 132$) participated in the study, and a repeated measures design was used. The study provides evidence that the type of leisure activity matters in predicting immediate adaptational outcomes (coping effectiveness, coping satisfaction and stress reduction) and mental and physical health. Relaxing leisure was found to be the strongest positive predictor of coping with stress, while social leisure and cultural leisure significantly predicted greater mental or physical health.

Keywords

coping, coping effectiveness, health, leisure, stress, stress reduction

THE GROWTH of coping research has been a recent phenomenon in the social sciences. Indeed, coping is one of the topics that have been most widely studied in contemporary psychology (Moos, Holahan & Beutler, 2003; Somerfield & McCrae, 2000). Evidence has been found that coping influences the relationship between stress and illness or health (see Gottlieb, 1997; Hobfoll, 1998; Kaplan, 1996; Lazarus, 1999; Zeidner & Endler, 1996).

Despite the advancements of coping research, researchers have paid little attention to the role of leisure as a strategy or resource for coping with stress (e.g. Bolger & Eckenrode, 1991; Cohen & Hoberman, 1983, Reich & Zautra, 1981; Rook, 1987, 1990; Wheeler & Frank, 1988). Part of the reason for the lack of attention to leisure in coping research is likely due to the tendency to see leisure behaviour as trivial or insignificant relative to more *serious* behaviour. Leisure is often seen simply as a form of escape from everyday life and/or non-productive activity (Kelly, 1996; Kraus, 2000). In the coping research literature, leisure has often been conceptualized as a form of emotion-focused coping only (Trenberth, Dewe, & Walkey, 1999).

However, leisure is a much broader concept than the above descriptions and has been defined generally according to what people do (i.e. leisure behaviour) and what people think and feel (i.e. leisure experience; Kelly, 1999; Mannell & Kleiber, 1997). When leisure is defined as behaviour, the focus is on the type of activity in which they participate (e.g. sport, social, cultural) and/or the quantity of participation (e.g. frequency of participation, time duration). The definition of leisure as behaviour is also based on the setting or environment in which leisure activities take place (e.g. fitness gyms, wilderness). On the other hand, when leisure is defined as experience, researchers have focused on: (a) mental experiences; and (b) psychological functions, mechanisms or meanings. More specifically, the former is concerned with *immediate conscious experiences* accompanying leisure participation such as enjoyment, emotions and moods, whereas the latter includes attitudes, beliefs and symbolic meanings associated with leisure.

Researchers have started systematically to explore the idea that leisure may help people

cope with stress and maintain good health (e.g. Caltabiano, 1994, 1995; Dattilo, Caldwell, Lee, & Kleiber, 1998; Hull & Michael, 1995; Iwasaki, 2003; Iwasaki, Mannell, Smale, & Butcher, 2002; Iwasaki, Zuzanek, & Mannell, 2001; Ouellet, Iso-Ahola, & Bisvert, 1995; Patterson & Carpenter, 1994). Based on their extensive review of social psychological and leisure research on stress and coping, Coleman and Iso-Ahola (1993) developed a model of leisure and health postulating that leisure-generated enduring feelings of self-determination and social support are two major dimensions or types of leisure coping. Some support for these functions of leisure has been reported (Coleman, 1993; Iso-Ahola & Park, 1996). Also, it has been found that personality and attitudinal characteristics and people's life circumstances influence the ways in which people use leisure to cope with stress (e.g. Patterson & Coleman, 1996; Zuzanek, Robinson, & Iwasaki, 1998). For example, Iwasaki and Smale's (1998) longitudinal analyses of Canadian national health survey data over a seven-year period have shown that leisure influences coping with stress differently depending on the interaction of factors such as gender and the type of life events experienced. According to Iso-Ahola (1997), an active leisure style, as opposed to a passive or sedentary leisure style, operates as a buffer against the negative impact of stress to maintain physical and mental health. Kleiber (1999) emphasizes the potential of palliative coping functions of leisure and suggests that leisure may assist individuals in getting back to *normal* when negative life events (e.g. traumas, daily hassles, role strain) disrupt normal patterns of personal expressiveness and sociability.

More recently, Iwasaki and Mannell (2000) have developed a scheme, the *hierarchical dimensions of leisure coping*, for classifying the various underlying psychosocial functions and mechanisms associated with leisure that likely facilitate coping with stress. At the most general level, two dimensions are distinguished: (a) *leisure coping beliefs* (people's beliefs that their leisure helps them cope with stress); and (b) *leisure coping strategies* (actual situation-grounded coping behaviours or cognitions available through leisure). Leisure coping *beliefs* gradually develop over time and constitute relatively stable and enduring psychological

dispositions. Leisure coping *strategies*, however, are more situation-specific than leisure coping beliefs, and their use and effectiveness are assumed to vary depending on the specific life circumstances encountered by the individual. In a short-term longitudinal study, Iwasaki (2001) found evidence to support Iwasaki and Mannell's model that leisure coping beliefs and strategies are significant predictors of adaptational outcomes including coping effectiveness, mental health and psychological well-being, when the effects of general coping (coping that is not directly associated with leisure such as problem-focused coping) are taken into account.

In another theoretical development, Kleiber, Hutchinson and Williams suggested that 'leisure is a resource for the self-protective effects of emotion-focused and problem-focused coping, and that such experience may be the foundation for adjustment and personal growth following a negative life event' (2002, p. 225). Based on Lazarus, Folkman and colleagues' idea that the experience of pleasant events plays an important role in coping with stress (Folkman, Moskowitz, Ozer, & Park, 1997; Lazarus, Kanner, & Folkman, 1980), Kleiber et al. have proposed four major functions of leisure in transcending negative life events. Two of them deal with leisure as ways of coping for self-protective devices, whereas the other two consider leisure as a means of adjustment to negative life events. The latter adjustment functions focus on the role of leisure in restoring or reconstructing one's valued self that is continuous with the past, as well as in transforming oneself to grow through finding new opportunities and perspectives and through realizing new self. More recently, *Leisure Sciences* has published a special combined issue on leisure, stress and coping, edited by Iwasaki and Schneider (2003), that consists of a diverse collection of innovative articles on this topic.

Examining the underlying psychological functions and mechanisms available through leisure and conducive to coping with stress, therefore, is an important area of study. Another idea that needs to be explored is the role of different leisure activities in coping with stress. This research could have important practical implications, for example, in developing effective stress management programs. It may be

assumed that some types of leisure activity are more conducive to coping with stress than other types of leisure activity under certain circumstances. Although physical activity appears to have a stress-resistant property (e.g. Froelicher & Froelicher, 1991; Long & Flood, 1993; Paffenbarger, Hyde, & Dow, 1991), researchers have given only scant attention to the potential of non-physical forms of leisure (e.g. relaxing leisure, social leisure) to provide stress-coping benefits (e.g. Caltabiano, 1994; Trenberth et al., 1999).

The idea that participation in leisure activities may act as a resource or constitute a strategy for coping with stress has been advocated not only by researchers specifically interested in leisure behaviour, but also by social psychologists and management researchers. For example, Bolger and Eckenrode (1991), Moen, Dempster-McClain and Williams (1989) and Rook (1987) found that discretionary activities or contacts such as leisure are more important buffers against stress than less discretionary activities or contacts (e.g. those in work). More recently, Folkman and Moskowitz have argued that:

Historically, coping has most often been evaluated in relation to its effectiveness in regulating distress . . . What has been under-represented in coping research is an approach that looks at the other side of the coin, an approach that examines positive affect in the stress process. (2000, p. 647)

Specifically, they used their research findings on care-givers of people with AIDS to suggest that a positive event that makes people feel good and is meaningful to them potentially generates positive affect (e.g. enjoyment, happiness) which may have important adaptational significance. Research needs to be carried out to understand 'the coping processes that people use to generate positive affect in the midst of stress' (Folkman & Moskowitz, 2000, p. 652). One of the important sources that may help individuals generate positive affect (including enjoyment) while they experience stress appears to be a meaningful leisure pursuit.

Trenberth et al. (1999) examined the role of leisure as a strategy in coping with work stress among 695 secondary school principals in New Zealand. The researchers developed an instrument to measure 'the motivations important for

using leisure to cope with work stress' (1999, p. 93) and examined the contribution of leisure as a strategy for dealing with work stress. They found that although the percentage of the variance explained by leisure was relatively small, leisure that was passive and allowed for recuperation was more important as a means of coping with work stress than active and challenging leisure. Particularly, 'the more strain the individual was experiencing, the more important passive leisure became as a means of coping' (1999, p. 99).

Although the approach used by Trenberth et al. is very useful and provides important insights into ways of coping through leisure, it is not entirely clear how individuals *actually* use leisure as a way of coping. Their measure of leisure assessed *perceptions* of the importance of various reasons for participating in a leisure activity (e.g. to relax, to do something challenging) for coping with work stress, and did not directly measure the influence of the actual leisure behaviour chosen or leisure experienced for managing stress. Having a certain perception about a particular aspect of leisure (e.g. the use of leisure to relax) does not automatically guarantee that the person actually participates in leisure to cope with stress in this way. The measurement of the actual type and frequency of leisure activities in which people engage, and of their experiences of this leisure involvement (e.g. enjoyment, commitment, positive moods) would seem to be useful. Another limitation of Trenberth et al.'s study was the use of a cross-sectional design that precludes causal interpretations of their findings. Along with the use of a leisure participation inventory and measures of stress and adaptational outcomes (e.g. coping effectiveness, mental and physical health), the use of a repeated measures design provides an opportunity to examine more directly the role of leisure in the relationship between stress and adaptational outcomes.

Furthermore, theorists and researchers have tended to over-emphasize the importance of physically active leisure for providing stress-coping and health benefits (e.g. Iso-Ahola, 1997). Participation in physically active leisure appears to facilitate cardiovascular fitness and physiological benefits that lead to the improvement of long-term physical, and subsequently, mental health (e.g. Froelicher & Froelicher,

1991; Paffenbarger et al., 1991). This exclusive reliance on physically active leisure has the danger of ignoring the potential of non-physical forms of leisure (such as relaxing leisure, social leisure and cultural leisure) as a means of coping with stress and maintaining good health. Although empirical evidence has been reported that active leisure styles including the engagement in physically active leisure can contribute to health under some circumstances (e.g. Chiriboga & Pierce, 1993; Haworth & Ducker, 1991), there has been other work suggesting that this type of leisure itself is not unconditionally a good predictor of effective coping (e.g. Kirkcaldy & Cooper, 1993).

Another idea that should be given greater attention is the distinction between behavioural and experiential indicators of leisure in their contributions to coping with stress and maintaining good health. The reliance only on one type of leisure indicator will preclude a broader understanding of the impact of leisure on stress coping and health. Of various experiential elements of leisure, enjoyment has been found to be a key factor accompanying leisure engagements (e.g. Podilchak, 1991; Samdahl, 1988; Shaw, 1985). In leisure coping research, it is important to examine whether an experiential indicator of leisure (e.g. enjoyment of leisure participation) significantly contributes to positive adaptational outcomes, over and above the effect of a behavioural indicator of leisure (e.g. frequency of leisure participation).

Researchers have typically classified leisure participation into a number of major types (see Godbey, 1994; Mannell & Kleiber, 1997). For example, Ragheb (1980) developed a leisure behaviour inventory that consists of 41 activities that are grouped into 6 major categories including mass media, sports activities, social activities, cultural activities, outdoor activities and hobbies. Using the similar leisure activity classifications, Caltabiano (1994) examined the stress reducing dimensions of leisure. Specifically, she explored the dimensionality of leisure activities based on perceived capacity of a leisure activity (e.g. jogging, camping, visiting friends, listening to music) to reduce stress. According to her factor analysis of 83 leisure activities reported by 340 respondents in Cairns, Australia, 3 groups of activities were identified (outdoor-active sport; social; and cultural-hobbies leisure)

and were 'perceived to be equivalent in potential to reduce stress' (Caltabiano, 1994, p. 17). She has provided evidence of past studies to support her findings, and her study is an important contribution to understanding better the role of leisure in helping people reduce or cope with stress.

However, the respondents in her study were asked to indicate their *perceptions* of the stress-reducing capacity of leisure activities and did not report if and how frequently they *actually* engaged in leisure to reduce or cope with stress. As pointed out earlier, it is important to distinguish between perceptions of certain aspects of leisure and actual participation in leisure. Also, the approach used in her study did not allow her to examine directly the relative strength or contribution of different groups of leisure activities in reducing stress. Thus, it is not entirely clear whether major types of leisure activity are equivalent in their capacity to reduce stress, or particular types of leisure activity more strongly contribute to helping people reduce or cope with stress. Consequently, it is important to use an approach that allows direct examination of whether types of leisure participation matter in predicting better adaptational outcomes.

Purpose and overview of study

The purpose of the present study was to examine whether and the extent to which leisure predicts effective coping with stress and good physical and mental health over and above the effects of general coping—coping that is not directly associated with leisure.¹ Specific aspects of leisure examined were frequency of participation in leisure activities, as well as individuals' enjoyment of their experiences in these activities. The rationale for focusing on these two aspects of leisure is that behaviour and experience represent two major dimensions of leisure (e.g. Mannell & Kleiber, 1997), and that it has been mostly unknown whether and the extent to which experiential aspects of leisure contribute to coping with stress and maintaining good health, above and beyond the contributions of behavioural aspects of leisure. As noted earlier, enjoyment is a central element of leisure experiences.

The participants in the study represented workers in police and emergency response services. The people who work in these services have been identified as members of occupational groups that tend to experience very high stress levels (see Violanti & Paton, 1999). According to Williams,

for cops, the war never ends . . . they are out there 24 hours a day, 7 days a week to protect and serve, to fight the criminal . . . our peace time enemy. The police officer is expected to be combat-ready at all times while remaining normal and socially adaptive when away from the job. (1987, p. 267)

Also, this description appears applicable to emergency response workers including fire fighters who must always be ready for emergencies. Consequently, these occupational groups were chosen because of their regular and ongoing experience of relatively high stress levels, and the potential they provided for studying the stress coping process. Given recent world events such as terrorism, the use of this population group for the study appears timely and has important implications.

As recommended by researchers such as Zeidner and Saklofske (1996), *immediate* adaptational outcomes of stress and coping are distinguished from *distal* adaptational outcomes of stress and coping. According to Aldwin and Revenson (1987), Folkman et al. (1986a) and Zautra and Wrabetz (1991), immediate adaptational outcomes represent the extent to which: (a) people feel that their coping strategies are effective (*coping effectiveness*); (b) they are satisfied with coping outcomes (*coping satisfaction*); and (c) their stress levels are reduced (*stress reduction*). In contrast, distal adaptational outcomes that are assumed to be influenced by stress and coping on a longer-term basis include physical and mental health (Folkman, Lazarus, Gruen, & DeLongis, 1986b; Lazarus, 1991; Meneghan, 1982; Taylor, 1986). This distinction was made to examine more effectively stress coping functions in the present study, by recognizing potentially differential effects of stress and coping on immediate versus distal adaptational outcomes (Zeidner & Saklofske, 1996).

The present study focused on examining the effects of recent stressors. A variety of

approaches have been used to identify types or dimensions of stressors (e.g. Avison & Gotlib, 1994; Wheaton, 1994). For example, the impact of major life events (e.g. death of a loved one, acute illnesses, major life transitions; Holmes & Rahe, 1967; Vossell, 1987) has been the focus of life event approaches, whereas daily hassles and minor annoyances (e.g. arguments with family members or friends; frustrations caused by traffic, weather or sleep disturbance) have been emphasized in daily event approaches (e.g. Kanner, Coyne, Schaefer, & Lazarus, 1981; Porter & Stone, 1996). Types of stressors that have been identified in the stress and coping research dealing with recent life events include: (a) role strain (e.g. demanding work, family-related demands and/or conflict between roles such as worker, parent, care-giver); (b) health-related stressors (e.g. a sudden illness, serious long-term illnesses and/or injuries); (c) interpersonal stressors (e.g. problems with family members, friends and/or co-workers); (d) environmental stressors (e.g. uncomfortable working environment, poor living conditions, unsafe community and/or financial problems); and (e) traumas (e.g. death of a loved one, accidents, disasters or any overwhelming life events; Mattlin, Wethington, & Kessler, 1990; Moos & Moos, 1994).

A measure of general coping that is not directly associated with leisure was used to take into account contributions of general coping so that we were able to examine whether leisure participation predicts coping with stress over and above the effects of general coping. Specifically, this study used Carver, Scheier and Weintraub's (1989) Coping Orientation for Problem Experiences (COPE) inventory which has been one of the most widely used coping instruments. It was constructed to measure a wide range of potential responses to stressors and is based on a model that identifies four primary coping dimensions: (a) problem-focused coping (active coping, planning and suppression combined); (b) social support and emotion-focused coping (instrumental and emotional social support and venting of emotions recombined); (c) acceptance, restraint and positive reframing combined; and (d) disengagement coping (denial, mental disengagement, behavioural disengagement and use of religion combined).

Furthermore, a repeated measures design was employed to gain stronger confidence in the causal nature of the relationships examined. We were interested in examining the contributions of leisure to coping with recent stressors and maintaining good health on a short-term basis (i.e. one to three months), as opposed to on a long-term basis (e.g. one to three years).

Research questions

Within the framework of the purpose stated earlier, the present study examined the following specific questions:

1. Does the type of leisure activity matter in predicting better adaptational outcomes?
2. Do the enjoyment indicators of leisure significantly predict positive adaptational outcomes over and above the effects of the frequency indicators of leisure?

These two questions were examined by taking into account or controlling the level of stress the participants experienced, and the effects of general coping.

Methods

Participants

Two hundred randomly selected employees in the Police and Emergency Response Services Department in a western Canadian city received a project envelope including a cover letter, instructions and three sets of questionnaires. The number of participants who completed questionnaires at Stages One, Two and Three was 156 (males = 131, females = 25), 141 (males = 117, females = 24) and 132 (males = 109, females = 23), respectively. That is, 66 percent of the original 200 participants ($N = 132$) completed all three stages. Of the 132 respondents, all but two were full-time employees of police or emergency response services, and their ages ranged from 24 to 61 (mean = 39). For marital status, the respondents were married with children ($n = 76$), married without children ($n = 20$), single parents ($n = 5$), single without children ($n = 13$), common-law ($n = 10$), separated ($n = 6$) or divorced ($n = 2$). Seventy-seven of the 132 respondents had their children living at home.

Measures

Health The Medical Outcomes Study (MOS) 36-Item Short-Form Health Survey (SF-36; Ware, Kosinski, & Keller, 1994) was used to assess people's health. The SF-36 has been widely used and was designed to obtain summary measures of eight health concepts—four each for physical and mental health (Ware, Kosinski, & Keller, 1996). Physical health represents: (a) Physical functioning (limitations in physical activities because of health problems, 10 items); (b) Role-physical (limitations in usual role activities because of physical health problems, 4 items); (c) Bodily pain (2 items); and (d) General health (general perceptions about physical health, 5 items). Mental health is operationalized by: (a) Vitality (energy and fatigue, 4 items); (b) Social functioning (limitations in social activities because of physical or emotional problems, 2 items); (c) Role-emotional (limitations in usual role activities because of emotional problems, 3 items); and (d) Mental health (psychological distress and well-being, 5 items). To operationalize physical and mental health, first, mean scores for each of the eight dimensions of health on the original scales were calculated. Then, these mean scores representing either physical health or mental health were averaged and converted on a five-point scale (1 = very poor physical or mental health to 5 = excellent physical or mental health) to estimate each individual's physical health and mental health, respectively. For example, physical health consisted of four dimensions that used different scales (i.e. two-point, three-point and five-point scales). Mean scores of the items representing each dimension (e.g. ten items for physical functioning on a three-point scale) were converted on the five-point scale described above. Then, the converted mean scores for the four dimensions were averaged for each individual to estimate her/his physical health. The SF-36 has proven to be useful for a variety of purposes (Ware et al., 1994), and Rejeski, Brawley and Shumaker's (1996) review of numerous health measures has suggested that the SF-36 is one of the best measures for general population health research. For example, in cross-sectional and longitudinal tests, both the SF-36 Physical Component Summary and the Mental Component Summary have detected hypothesized

differences in nearly all tests based on physical or mental criteria (Ware et al., 1994).

Stressors An 11-point Likert-type scale (0 = 'did not occur'; 1 = 'not very stressful' to 10 = 'extremely stressful' in which 10 is equivalent to the death of a loved one) was used to measure major types of stressors (i.e. recent stressful events): (a) role strains (e.g. demanding work, family-related demands and/or conflict between roles such as worker, parent, care-giver); (b) health-related problems (e.g. a sudden illness, serious long-term illnesses and/or injuries); (c) interpersonal problems (e.g. problems with family members, friends and/or co-workers); (d) environmental problems (e.g. uncomfortable working environment, poor living conditions, unsafe community and/or financial problems); and (e) traumas (e.g. death of a loved one, accidents, disasters or any overwhelming life events). The identification of the above stressors was based on Mattlin et al.'s (1990) and Moos and Moos' (1994) studies on recent stressful events and coping. In addition, the participants reported overall levels of stress in the past month using a 10-point Likert-type scale (1 = 'not very stressful' to 10 = 'extremely stressful'). Means for the stressor dimensions and overall assessment of stress levels were calculated for each participant to represent stress levels in the past month. Data from a large-scale population health survey ($N = 1415$; Iwasaki, 2005) suggested that each of the above scales assessing major types of stressors significantly correlated with a global measure of perceived stress scale (Cohen, Kamarck, & Mermelstein, 1983).

General coping The Coping Orientation for Problem Experiences (COPE; Carver & Scheier, 1994; Carver et al., 1989) inventory was used to assess general coping strategies that are not directly associated with leisure. The COPE inventory consists of 53 items with the use of a 5-point Likert-type scale (1 = 'I did not do this at all' to 5 = 'I did this a great deal') and has been widely used. Of the two response formats available for the COPE inventory, the present study used situationally framed instructions and items of the COPE. Carver et al. have suggested that 'the COPE should be applicable to assessment of situational or time-limited coping efforts as well as dispositional coping styles'

(1989, p. 277). It has satisfactory psychometric properties and evidence for validity has been provided (Carver & Scheier, 1993; Carver, Scheier, & Pozo, 1992). For example, the pattern of associations with theoretically related personality measures (e.g. optimism, control, hardiness, Type A) has provided evidence of the convergent and discriminant validity of the scale, and the factor structure of the scale has been supported (Carver et al., 1989). In the present study, Carver et al.'s (1989) four-factor model of coping was adopted to identify primary dimensions of general coping: (a) problem-focused coping (active coping, planning and suppression combined; 12 items); (b) social support and emotion-focused coping (instrumental and emotional social support and venting of emotions combined; 12 items); (c) acceptance, restraint and positive reframing combined (12 items); and (d) disengagement coping (denial, mental disengagement, behavioural disengagement and use of religion combined; 16 items). Their model was derived from their second order factor analysis.

Leisure participation A leisure participation inventory was used to assess the participants' overall levels of frequency and enjoyment in seven major groups of leisure activities in the past month. The identification of the seven groups was based on Ragheb's (1980) study on relationships among leisure participation, leisure satisfaction and leisure attitudes, as well as on Mannell and Kleiber's (1997) discussion of leisure participation. The major categories of leisure participation consisted of: (a) *physically active leisure* such as fitness activities, sports, exercise and/or other physical activities; (b) *social leisure* such as spending time with friends, dating, attending a party and/or other social activities; (c) *relaxing leisure* such as listening to music, contemplating, reading, watching TV and/or other activities which make people feel relaxed; (d) *outdoor recreation* such as hiking, canoeing, fishing, being in nature, day-outing (zoo, park, etc.) and/or other activities in the outdoors; (e) *cultural leisure* such as attending concerts, ballet, theatre, visiting museums and/or other such things; (f) *hobbies* such as painting, drawing, pottery, photography, sewing, floral arranging and/or other such things; and (g) *leisure travel* such as travel for

pleasure, attending a festival and/or other such things. Most of these classifications are consistent with Iso-Ahola, Jackson and Dunn's (1994) categories of leisure activities (e.g. exercise-oriented activities, outdoor recreational activities, hobbies). The participants were asked to indicate how frequently they participated and how much they enjoyed their participation in each of the seven groups of leisure activities, using a 6-point Likert-type scale (0 = 'did not participate in the past month', 1 = 'very rarely' to 5 = 'very frequently' for frequency; 0 = 'did not participate in the past month', 1 = 'not enjoyable at all' to 5 = 'very enjoyable' for enjoyment).

Immediate adaptational outcomes The immediate adaptational outcomes measured included: (a) coping effectiveness (the extent to which people's coping strategies are effective); (b) coping satisfaction (the extent to which they are satisfied with coping outcomes); and (c) stress reduction (the extent to which their stress levels are reduced). The coping satisfaction dimension is consistent with Folkman et al.'s (1986a) measure of coping outcomes and Zautra and Wrabetz's (1991) measure of coping efficacy, and the coping effectiveness dimension follows Beehr and McGrath's (1996) and Aldwin and Revenson's (1987) measures of perceived coping effectiveness. Each dimension is comprised of three items: (a) 'My coping response was ineffective' (reverse item), 'I coped well with this event' and 'Things have worked out after all' for coping effectiveness; (b) 'I am satisfied with my response to this event', 'This problem has been resolved satisfactorily' and 'The situation has become worse' (reverse item) for coping satisfaction; and (c) 'My feelings of stress were reduced', 'My coping strategies contributed to stress reduction' and 'The things I did to cope with this event helped me reduce my feelings of stress' for stress reduction. A 7-point Likert-type scale ranging from 1 ('very strongly disagree') to 7 ('very strongly agree') was used with each item. Iwasaki (2001) found evidence for psychometric properties of the scales, including the support for the internal structure of the construct for which the scale was developed using confirmatory factor analysis. Consistent with the recommendation by Zeidner and Saklofske (1996), immediate

versus distal adaptational outcomes were distinguished; thus, the composite measure of immediate adaptational outcomes was used.

Data collection

Prior to the collection of data, the principal investigator contacted the Director of the Police and Emergency Response Services Department and secured co-operation. The present study used a repeated measures design that consisted of three measurement stages. First, the participants received a project package that consisted of a cover letter describing the purpose and importance of the study, instructions summarizing their tasks, three sets of questionnaires and self-addressed and stamped envelopes. They were instructed to complete and return each of the three sets of questionnaires at the three measurement stages. In addition to providing them with the written instructions for the completion of the questionnaires, a research assistant periodically called each participant to remind them of the timing of completing each questionnaire. According to the participants' records of the dates of their completions, they completed the questionnaires in a timely manner.

At the first stage, the participants responded to the SF-36 and provided demographic information. It was necessary to measure participants' baseline health status at Stage One to take into account individual differences in initial health status. At Stage Two measurement, one month after Stage One, they completed a measure to assess the types and levels of stressors experienced during the past month, the COPE inventory and a leisure participation inventory. They also completed a measure to assess how well they coped with stress during the past month (i.e. immediate adaptational outcomes). At the third and final stage, one month after Stage Two, the participants again responded to the SF-36 to measure their health status. Because health is considered a longer-term outcome of stress and coping than immediate adaptational outcomes, immediate adaptational outcomes were measured at Stage Two and health at Stage Three. The questionnaires were returned in a self-addressed and stamped envelope following each stage. Those who completed all the stages received \$15 in cash in appreciation of their participation and time.

Analysis

First, means, standard deviations and alpha reliability coefficients of the measures were calculated, and descriptive analyses were performed to obtain correlation coefficients between each of the measures used. Then, hierarchical regression analyses were carried out to examine the effects of leisure participation measures on immediate adaptational outcomes and physical and mental health above and beyond the impact of general coping. To examine the research questions established, three regression models were developed and tested to predict three dependent variables, namely, immediate adaptational outcomes, physical health and mental health. For the prediction of immediate adaptational outcomes, physical and mental health at Time 1 were entered into a regression model at the first step to take into account individual differences in initial health status. Then, stress levels were entered into the model at the second step, followed by entering general coping dimensions at the third step. Then, the frequency indicators of leisure participation were entered at the fourth step, followed by entering the enjoyment indicators of leisure participation at the fifth and final step. This hierarchical regression procedure allowed us to test the effects of leisure participation on immediate adaptational outcomes when the impact of initial health status, stress levels and general coping was taken into account. Also, this procedure was suitable to test whether the enjoyment indicators of leisure significantly predict positive adaptational outcomes over and above the effects of the frequency indicators of leisure. The same procedure was used for the prediction of physical and mental health at Time 2, except that the corresponding physical or mental health measure at Time 1 was used at the first step.

Results

Correlation coefficients and descriptive statistics of measures used

Table 1 represents correlation coefficients, descriptive statistics and alpha reliability coefficients of the measures used. As expected, all the dependent variables (immediate

Table 1. Correlation coefficients, descriptive statistics and alpha reliability coefficients of measures used

	1	2	3	4	5	6	7	8	9	10	11	12
1. Physical health (Time 1)												
2. Physical health (Time 2)	.78*											
3. Mental health (Time 1)	.57*	.39*										
4. Mental health (Time 2)	.33*	.41*	.78*									
5. Immediate adaptational outcomes	.18	.21	.39*	.46*								
6. Stress levels	-.41*	-.48*	-.48*	-.59*	-.39*							
7. Problem focused coping	-.02	-.16	-.12	-.12	.12	.31*						
8. Social support and emotion-focused coping	.01	.03	-.29*	-.40*	-.15	.35*	.49*					
9. Acceptance, restraint and positive reframing	.18	.10	-.11	-.15	.18	.23*	.72*	.50*				
10. Disengagement coping	-.17	-.13	-.42*	-.38*	-.29*	.45*	.23*	.41*	.39*			
11. Physically active leisure-Frequency	.11	.14	.10	.09	.02	-.05	-.01	.14	.09	.05		
12. Social leisure-Frequency	.19	.06	.34*	.39*	-.02	-.11	.12	.08	.04	.05	.18	
13. Relaxing leisure-Frequency	.11	.19	.29*	.33*	.20	-.25*	-.25*	-.32*	-.18	-.13	.17	.18
14. Outdoor recreation-Frequency	.16	.12	.38*	.29*	.08	-.09	.18	-.04	.09	.01	.51*	.33*
15. Cultural leisure-Frequency	-.03	-.05	.08	.07	.004	.11	.17	.38*	.16	.21	.26*	.41*
16. Hobbies-Frequency	.17	.22*	-.02	-.02	-.02	-.02	.14	.23*	.23*	.09	.11	.25*
17. Leisure travel-Frequency	.12	.02	.26*	.19	.04	.06	.18	.16	.06	.06	.15	.49*
18. Physically active leisure-Enjoyment	.08	.15	.19	.28*	.09	-.13	.005	-.03	.18	.13	.58*	.24*
19. Social leisure-Enjoyment	.15	.08	.34*	.40*	.10	-.16	.08	-.04	.15	.10	.23*	.59*
20. Relaxing leisure-Enjoyment	.24*	.27*	.37*	.40*	.35*	-.23*	-.05	-.06	.15	-.05	.27*	.17
21. Outdoor recreation-Enjoyment	.14	.08	.31*	.28*	.16	-.10	.19	-.06	.14	.03	.42*	.22*
22. Cultural leisure-Enjoyment	-.01	-.08	.15	.17	.02	.01	.13	.26*	.09	.04	.33*	.39*
23. Hobbies-Enjoyment	.18	.26*	.12	.12	.07	-.07	.12	.18	.25*	.07	.15	.35*
24. Leisure travel-Enjoyment	.09	.02	.24*	.24*	-.07	.004	.15	.04	-.01	.10	.15	.42*
Means	4.30	4.31	4.08	4.13	4.79	2.95	2.85	2.26	2.72	1.51	3.17	2.86
Ranges of measures	1-5	1-5	1-5	1-5	1-7	0-10	1-5	1-5	1-5	1-5	0-5	0-5
Standard deviations	.52	.51	.71	.72	.89	1.98	.77	.81	.72	.41	1.42	1.21
Alpha reliability coefficients	.94	.91	.89	.88	.91	a	.88	.91	.86	.78	b	b

Table 1. Continued

	13	14	15	16	17	18	19	20	21	22	23	24
1. Physical health (Time 1)												
2. Physical health (Time 2)												
3. Mental health (Time 1)												
4. Mental health (Time 2)												
5. Immediate adaptational outcomes												
6. Stress levels												
7. Problem focused coping												
8. Social support and emotion-focused coping												
9. Acceptance, restraint and positive reframing												
10. Disengagement coping												
11. Physically active leisure–Frequency												
12. Social leisure–Frequency												
13. Relaxing leisure–Frequency												
14. Outdoor recreation–Frequency	.10											
15. Cultural leisure–Frequency	.09	.31*										
16. Hobbies–Frequency	.09	-.03	.15									
17. Leisure travel–Frequency	.17	.28*	.41*	.12								
18. Physically active leisure–Enjoyment	.25*	.32*	.22*	.11	.21							
19. Social leisure–Enjoyment	.18	.24*	.16	.18	.25*	.48*						
20. Relaxing leisure–Enjoyment	.41*	.22*	.15	.30*	.11	.48*	.47*					
21. Outdoor recreation–Enjoyment	.05	.71*	.21*	-.02	.19	.51*	.42*	.36*				
22. Cultural leisure–Enjoyment	.13	.31*	.58*	.11	.37*	.28*	.25*	.19	.30*			
23. Hobbies–Enjoyment	.19	.09	.32*	.59*	.18	.20	.27*	.33*	.14	.33*		
24. Leisure travel–Enjoyment	.17	.38*	.36*	.04	.57*	.33*	.35*	.22*	.38*	.40*	.19	
Means	3.17	2.64	.89	1.16	1.57	3.85	3.80	3.72	3.64	1.57	1.93	2.43
Ranges of measures	0–5	0–5	0–5	0–5	0–5	0–5	0–5	0–5	0–5	0–5	0–5	0–5
Standard deviations	1.09	1.58	1.21	1.42	1.60	1.15	1.21	.97	1.63	1.99	1.99	2.07
Alpha reliability coefficients	b	b	b	b	b	b	b	b	b	b	b	b

Note: * $p < .05$ (two-tailed); ^aNo alpha reliability coefficient for stress levels is reported because the dimensions of stressors were assessed by a single-item measure.;

^bNo alpha reliability coefficients for leisure participation measures are reported because these were assessed by a single-item measure

adaptational outcomes, physical health and mental health) were positively correlated with each other—eight of these ten correlations were statistically significant. Stress levels² were negatively and strongly correlated with each of the dependent variables. Interestingly, stress levels were *positively* and significantly correlated with all the general coping dimensions, whereas these were *negatively* and significantly correlated with the frequency and enjoyment measures of relaxing leisure.

All of the five statistically significant correlations between the general coping dimensions and the dependent variables were *negative*. Social support and emotion-focused coping were negatively correlated with mental health at Times 1 and 2. Also, disengagement coping was negatively correlated with mental health at Times 1 and 2 and with immediate adaptational outcomes. In contrast, all of the twenty-one statistically significant correlations between the leisure participation indicators and the dependent variables were *positive*. For example, the frequency measures of social leisure, relaxing leisure and outdoor recreation were positively correlated with mental health at Times 1 and 2, and the frequency measures of hobbies and leisure travel with physical health at Time 2 and mental health at Time 1, respectively. Enjoyment of relaxing leisure was positively correlated with all the dependent variables, and enjoyment of social leisure, outdoor recreation and leisure travel with mental health at Times 1 and 2.

Hierarchical regression in predicting adaptational outcomes

According to hierarchical regression analyses (see Table 2),³ as expected, health at Time 1 very strongly predicted the dependent variables in all three regression models. After *controlling* baseline health status, stress levels and general coping, 22 percent of the variance in predicting immediate adaptational outcomes was uniquely explained by frequency of participation in leisure activities. Also, 12 percent and 10 percent of the variance in predicting physical and mental health at Time 2, respectively, were uniquely explained by frequency of leisure participation while controlling the corresponding health measures at Time 1, stress levels and

general coping (see Table 2). All of these variances uniquely explained by frequency of leisure participation were statistically significant at the .05 level. In contrast, general coping significantly predicted only two of the three dependent variables. The effects of general coping on mental health at Time 2 were not statistically significant.

As for the effects of the general coping dimensions, acceptance, restraint and positive reframing combined ($\beta = .30$) were related to better immediate adaptational outcomes, whereas problem-focused coping ($\beta = -.20$) significantly predicted lower levels of physical health at Time 2. With respect to the effects of the specific types of leisure participation, higher frequency of relaxing leisure ($\beta = .28$ & $.22$, respectively) significantly predicted better immediate adaptational outcomes and mental health at Time 2 above and beyond the effects of general coping. Higher frequency of social leisure ($\beta = .18$) was significantly associated with better mental health at Time 2 when the effects of general coping were taken into account. Finally, the more frequently the participants engaged in cultural leisure ($\beta = .28$), the greater physical health they reported at Time 2.

At the fifth and final step, the enjoyment measures as a whole uniquely and significantly predicted two of the three dependent variables examined (i.e. immediate adaptational outcomes and mental health), over and above the effects of the frequency measures of leisure (see Table 2). Enjoyment of relaxing leisure ($\beta = .30$) significantly predicted positive immediate adaptational outcomes, whereas enjoyment of outdoor recreation ($\beta = .34$) was significantly associated with better mental health at Time 2.⁴

Discussion

The findings of the present study confirm that leisure participation plays a role in effectively coping with stress and maintaining good physical or mental health when the effects of general coping are taken into account. The frequency measures of leisure participation, as a whole, significantly predicted better immediate adaptational outcomes and greater mental and physical health, whereas general coping was significantly related to only two of the three dependent variables. Greater mental health was

Table 2. Hierarchical regression in predicting adaptational outcomes
(a) Immediate adaptational outcomes:

Predictors	R^2_{Total}	R^2_{Change}	β
Step 1: Health at Time 1	.38*	.38*	
Physical health			.04
Mental health			.60*
Step 2: Stress	.40*	.02	-.17
Step 3: General coping	.54*	.14*	
Problem-focused coping			.15
Social support and emotion-focused coping			-.03
Acceptance, restraint and positive reframing			.30*
Disengagement coping			-.16
Step 4: Leisure participation: Frequency	.76*	.22*	
Physically active leisure			-.02
Social leisure			-.07
Relaxing leisure			.28*
Outdoor recreation			-.06
Cultural leisure			.06
Hobbies			-.05
Leisure travel			.02
Step 5: Leisure participation: Enjoyment	.83*	.07*	
Physically active leisure			-.02
Social leisure			.04
Relaxing leisure			.30*
Outdoor recreation			.02
Cultural leisure			-.04
Hobbies			.12
Leisure travel			-.05

* $p < .05$

(b) Physical health at Time 2:

Predictors	R^2_{Total}	R^2_{Change}	β
Step 1: Physical health at Time 1	.57*	.57*	.75*
Step 2: Stress	.61*	.04*	-.22*
Step 3: General coping	.66*	.05*	
Problem-focused coping			-.20*
Social support and emotion-focused coping			.07
Acceptance, restraint and positive reframing			.13
Disengagement coping			.05
Step 4: Leisure participation: Frequency	.78*	.12*	
Physically active leisure			-.01
Social leisure			-.05
Relaxing leisure			-.01
Outdoor recreation			.09
Cultural leisure			.28*
Hobbies			.11
Leisure travel			.03
Step 5: Leisure participation: Enjoyment	.81*	.03	
Physically active leisure			.14
Social leisure			.01
Relaxing leisure			.11
Outdoor recreation			-.04
Cultural leisure			.11
Hobbies			.03
Leisure travel			-.02

* $p < .05$

Continued

(c) Mental health at Time 2:

<i>Predictors</i>	<i>R²_{Total}</i>	<i>R²_{Change}</i>	<i>β</i>
Step 1: Mental health at Time 1	.63*	.63*	.79*
Step 2: Stress	.69*	.06*	-.29*
Step 3: General coping	.71*	.02	
Problem-focused coping			-.04
Social support and emotion-focused coping			-.06
Acceptance, restraint and positive reframing			.08
Disengagement coping			.04
Step 4: Leisure participation: Frequency	.81*	.10*	
Physically active leisure			-.02
Social leisure			.18*
Relaxing leisure			.22*
Outdoor recreation			-.04
Cultural leisure			.03
Hobbies			.01
Leisure travel			.03
Step 5: Leisure participation: Enjoyment	.89*	.08*	
Physically active leisure			.07
Social leisure			.03
Relaxing leisure			.14
Outdoor recreation			.34*
Cultural leisure			.15
Hobbies			.08
Leisure travel			-.02

* *p* < .05

significantly predicted only by the frequency measures of leisure participation, not by general coping. The findings underscore the need to pay more attention to the role of leisure as a potential means of coping with stress and maintaining good health.

Although general coping was used only as a controlling variable, the findings regarding the significant effects of general coping are briefly discussed here. The positive contribution of acceptance, restraint and positive reframing to effective coping is consistent with the literature. Acceptance that is often considered as ‘the opposite of denial’ tends to be a functional coping strategy particularly under ‘circumstances in which the stressor is something that must be accommodated to, as opposed to circumstances in which the stressor can easily be changed’ (Carver et al., 1989, p. 270). Restraint coping involves ‘waiting until an appropriate opportunity to act presents itself, . . . and not acting prematurely’ (Carver et al., 1989, p. 269), whereas positive reframing refers not only to managing distress emotions, but also to interpreting a stressful event in positive ways which

‘lead the person to continue (or to resume) active, problem-focused coping actions’ (Carver et al., 1989, p. 270). Thus, positive reframing seems to have both emotion-focused and problem-focused elements. A number of studies have reported that positive reframing or re-appraisal is effective in reducing distress and promoting well-being (e.g. Dunkel-Schetter, Feinstein, Taylor, & Finkle, 1992; Folkman et al., 1997; Gottlieb, 1997; for a review, see Aldwin, 1994). Unexpectedly, problem-focused coping was significantly and negatively associated with physical health. The use of problem-focused coping might be triggered by high levels of stress experienced that might have a negative impact on physical health.

The study provides evidence that the type of leisure activity matters in predicting better adaptational outcomes. Of the seven major groups of leisure activity examined, relaxing leisure was found to be the strongest predictor of effective coping with stress. Higher levels of participation in relaxing leisure (frequency) predicted better immediate adaptational outcomes and mental health over and above the

contributions of general coping. Greater enjoyment in relaxing leisure also had a positive and significant association with immediate adaptational outcomes. These results are consistent with the major findings of Trenberth et al.'s (1999) study on the role of leisure as a strategy in coping with work stress among principals of secondary schools. They found that the passive and recuperative nature of leisure had a stronger impact on coping with work stress than did the active and challenging nature of leisure. To relax and to do something quiet and peaceful were key aspects of the passive and recuperative nature of leisure in their study. Likewise, Zuzanek et al. have suggested on the basis of their analyses of the 1990 US National Health Interview Survey ($N = 31,868$) that higher stress levels may be better countered by 'leisurely' activities involving relaxation and recuperation than by physical exercise only (1998, p. 270).

Similar to Trenberth et al.'s (1999) study, our study did not find significant effects of physically active leisure on coping with stress and maintaining good health. Both frequency and enjoyment measures of physically active leisure had no significant association with adaptational outcomes. This finding is at odds with Iso-Ahola's (1997) idea that an active leisure style, as opposed to a passive or sedentary leisure style, has a positive effect on coping with stress and maintaining good health. Health benefits of physical activity have been widely reported by governmental documents (e.g. Federal, Provincial and Territorial Advisory Committee on Population Health, 1999; US Department of Health and Human Services, 1996). In addition, Zuzanek et al. (1998) showed that higher levels of frequency in physically active leisure were associated with greater perceived health among both women and men when age, education and stress levels experienced were controlled. In contrast, as shown earlier, Trenberth et al. (1999) found a stronger and positive impact of the passive and recuperative nature of leisure on coping with work stress than for the active nature of leisure. One could argue that the unique characteristics of the populations examined in these studies and the present study might have influenced the findings with respect to the effects of physically active leisure. Specifically, the present study used police and emergency response service workers (mostly male, 82.6

percent of the sample) whose responsibilities tend to include higher levels of physical activity than the *average* population. Because of the *excessively physical* nature of these workers' lifestyles, the present study might not provide significant evidence for the contributions of physically active leisure to effective coping and health. A study of *less physical* occupational groups might have revealed a significant effect of physically active leisure. Nevertheless, the findings of Trenberth et al.'s (1999) study and the present study appear to suggest that participation in physically active leisure may *not always* be an effective means of coping with stress. Caltabiano has suggested that 'leisure activities themselves may involve an element of stress . . . Leisure which involves acquisition of new skills, competition, or an adaptive response by the person may serve to exacerbate stress' (1995, p. 45).

Of course, it does not seem appropriate to discount the role of physically active leisure in coping with stress. Perhaps, physically active leisure and active leisure styles have long-term health benefits (e.g. improvements of physiological and cardiovascular fitness leading to long-term physical health and subsequent mental health), whereas other types of non-physically active leisure may have short-term coping benefits that are more likely to be uncovered in studies such as ours and others that have been reported (e.g. Trenberth et al., 1999). Therefore, it appears important to advocate a balance between physically active leisure and non-physically active leisure that tend to provide different outcomes (i.e. long- and short-term outcomes). The findings highlight the importance of broadening the focus of stress management and health promotion programmes to include non-physical forms of leisure pursuits as a potential means of coping with stress and maintaining good health.

One type of leisure participation that may have a positive association with stress coping and health is social leisure. The present study showed that higher levels of frequency in social leisure significantly predicted greater mental health above and beyond the contributions of general coping. This result is consistent with a finding of Iso-Ahola and Park's (1996) study that examined the role of leisure in coping with stress among Taekwondo practitioners. They

found that leisure companionship (shared leisure activities engaged in primarily for the sake of enjoyment) helped their participants deal with life stress to maintain good mental health. Leisure activities often take place in social settings, and the social nature of leisure participation may operate as an important means of coping with stress. Caltabiano (1994) found that social leisure is one of the three major groups of leisure activities that are perceived to possess the potential to reduce stress. It has been shown that discretionary activities are more important buffers against stress for the maintenance of good health than less discretionary activities (Moen et al., 1989; Rook, 1987). For example, in a prospective study of a medical school entrance examination to investigate the stress coping effects of social relationships, Bolger and Eckenrode's analyses suggested that 'only discretionary contacts—ties to religious and leisure groups and ties to friends and neighbors—were effective. Less discretionary contacts, those in school and work, did not protect against the effects of stress' (1991, p. 446).

Other types of leisure activities that potentially contribute to coping with stress and maintaining good health include cultural leisure and outdoor recreation. The present study showed that higher levels of frequency in cultural leisure significantly predicted greater physical health. In addition, greater enjoyment in outdoor recreation was significantly associated with better mental health. According to Caltabiano (1994), cultural-hobbies leisure and outdoor-active sports represent two of the three major groups of leisure activities that are perceived to have the capacity to reduce stress. Also, Hull and Michael's (1995) study on nature-based recreation has shown that stress reduction appears to result while people recreate in the natural environment. Their conclusion was based on mood changes observed at the start, middle and end of their participants' leisure experiences. For example, they found that 'anxiety decreased during the park visit, and this was more so for highly stressed persons than for less stressed persons' (1995, p. 12). Likewise, Hartig, Mang and Evans (1990) found that those participants who completed a 40-minute nature walk in an experimental condition recovered faster following exposure to a stressor than did those

participants in the urban walk or magazine/music relaxation conditions.

In contrast to outdoor or nature-based recreation, researchers have paid little attention to the role of cultural leisure as a means of coping with stress. It remains unknown what aspects of cultural leisure contribute to coping with stress and maintaining good health. It may be assumed that cultural leisure might provide an opportunity to have a *break* or *time-out* from a stressful event, which allows people to feel refreshed and regroup to handle better stressful events or problems. This idea refers to palliative coping through leisure that may also allow individuals to renew their energy and perspective (Iwasaki & Mannell, 2000). The idea is consistent with Kleiber's (1999) notion that leisure may provide an opportunity to restore the disruption of individuals' normal life patterns when they experience negative life events. Similarly, Folkman and Moskowitz (2000) have argued that meaningful positive events such as leisure can act as 'breathers' from stress, 'sustainers' of coping effort and 'restorers'. Cultural leisure may have the potential to operate as a means of palliative coping to help individuals effectively manage stress. Such palliative coping function through cultural leisure may have partly accounted for the positive association between cultural leisure and physical health found. Clearly, more research is needed to understand better the role of non-physical forms of leisure including cultural leisure in coping with stress.

The present study also provides evidence that the enjoyment indicators of leisure significantly predict positive adaptational outcomes, over and above the effects of the frequency indicators of leisure. Enjoyment of relaxing leisure and outdoor recreation was found to have a positive and significant association with immediate adaptational outcomes and mental health, respectively, while controlling the effects of frequency of leisure participation. These results suggest that it is important to take into account the quality of the experience of leisure activities, as opposed to behavioural participation per se, in order better to understand ways of coping through leisure.

In summary, the findings from this study highlight the importance of giving attention to the types of leisure participation as a means of coping with stress and maintaining good health.

Relaxing leisure was found to be the strongest in predicting better immediate adaptational outcomes and greater mental health. Social leisure, outdoor recreation and cultural leisure were found significantly to predict mental or physical health. These types of leisure had a significant association with immediate adaptational outcomes, mental health or physical health when the contributions of general coping were taken into account. Contrary to the popular belief about the positive impact of physically active leisure on stress coping and health, physically active leisure was *not* found significantly to predict any adaptational outcomes. These findings add to the accumulating evidence that physical activity and exercise may not always operate as a means of effectively coping with stress and maintaining good health (e.g. Kabanoff & O'Brien, 1986; Long & Flood, 1996; Steffy, Jones, & Wiggins Noe, 1990; Trenberth et al., 1999). Leisure is a much broader concept than just physical exercise, and as shown in the present study, other types of leisure including non-physical types of leisure may in fact provide individuals with an opportunity to deal effectively with stress and help maintain greater physical and mental health. Policy makers, managers and professionals who are involved in health promotion and intervention should pay greater attention to a broad range of leisure pursuits including relaxing leisure, social leisure, outdoor recreation and cultural leisure as a potential means of coping with stress.

This study also underscores the importance of recognizing both behavioural and experiential properties of leisure. Leisure is a multidimensional concept (Kelly & Freysinger, 2000; Mannell & Klieber, 1997), and it is necessary to consider what and how people do in leisure, as well as what and how they experience in leisure. Although other dimensions of leisure (e.g. social, ethnic, gendered or style of life) should not be ignored, behavioural and experiential dimensions appear central in conceptualizing and explaining leisure. The present study shows that enjoyment of people's experiences in specific types of leisure may predict stress coping and health, above and beyond frequency of participation in leisure.

Another idea that may help provide important insights into ways of coping through leisure

is to identify specific aspects of leisure that are conducive to coping with stress rather than to focus on activity types of leisure. Iwasaki and Mannell (2000) have developed their idea of hierarchical dimensions of leisure coping to conceptualize a variety of ways in which people may use leisure to cope with stress. For example, *leisure empowerment* is a sub-dimension of the leisure belief dimension (i.e. dispositional coping resources developed through leisure pursuits). Leisure may provide individuals with an opportunity to feel empowered and develop resources that help them effectively cope with stressors (Freysinger & Flannery, 1992; Henderson & Bialeschki, 1991). Those individuals with high leisure empowerment tend to interpret stressful encounters positively as challenges or opportunities for personal growth and therefore are motivated to *fight against* the life constraints and challenges they experience. Having these *positive attitudes* towards life and *strong resources* appears important to manage better challenges/obstacles in life, and leisure may contribute to the development of those attitudes and resources. The importance and usefulness of Iwasaki and Mannell's conceptualization have been shown in a series of recent research on leisure, stress and coping (see a special issue of *Leisure Sciences* on leisure, stress and coping—Iwasaki & Schneider, 2003).

Another important inquiry may involve the use of profiles for measuring participation in multiple types of leisure, as opposed to the measurement of independent, single types of leisure, the approach used in this study. People are likely to pursue various types of leisure rather than strictly focus only on one type of leisure. For example, some people may participate in physically active leisure and social leisure more frequently than hobbies and leisure travel, whereas others may be almost equally active in engaging in relaxing leisure, social leisure and cultural leisure. The use of leisure profiles will allow researchers to classify individuals based on overall participation patterns in leisure, as opposed to participation in independent, single types of leisure. The former approach appears more realistic than the latter approach for capturing *actual* pictures of people's leisure participation patterns.

The findings of the present study should be carefully interpreted because the majority of the

respondents were male (82.6%), and workers of police or emergency response services represent a unique occupational group due to their special responsibilities and work situations (e.g. highly stressful and physical, sometimes life-threatening; Violanti & Paton, 1999). The role of leisure as a means for coping with stress may be population-specific according to people's unique characteristics and life contexts. Generalizability of the contribution of leisure to managing stress should be examined in future research. Also, with the use of a short time-interval (i.e. two months between Stages One and Three), distal effects (i.e. effects on distal adaptational outcomes—mental and physical health) were unlikely to be fully revealed. A longer time-interval should be used to examine more effectively distal effects. Nevertheless, the consideration of both general coping and leisure participation as ways of dealing with stress, as well as the use of a repeated measures design, were strengths of the study. Obviously, further efforts are required to strive for a broader and better understanding of ways of coping. To achieve this goal, it is important to give greater attention to the role of leisure as a means for coping with stress.

Notes

1. We realize the possibility that general coping and leisure may act as a moderator or mediator of the relationships between stress and adaptational outcomes. However, testing of these moderating and mediating effects is beyond the scope of the present article. As the purpose statement indicates, the study reported in this article examined whether leisure participation predicts adaptational outcomes above and beyond the contributions of general coping.
2. With respect to the stress dimensions, the participants appeared to experience higher levels of role strain (mean = 4.48 on a 10-point Likert-type scale) and interpersonal problem-related stress (mean = 3.43) than other dimensions (health-related problems, mean = 1.92; environmental problems, mean = 2.50; and traumas, mean = 1.10). These results might be influenced by the fact that fewer respondents experienced traumas ($n = 69$) and health-related problems ($n = 85$) than role strain ($n = 129$) and interpersonal problems ($n = 116$) during the study period.
3. According to screening for multicollinearity in the SPSS program, all the independent variables

entered to regression models met the default tolerance level of .01. Thus, multicollinearity was not identified as a problem among the independent variables.

4. Although the sample consisted of a very small number of women ($n = 23$, in comparison to $n = 109$ for men), we performed analyses to explore effects of leisure using hierarchical regression, separately for men and women. The results of these analyses did not show any significant sex difference. Thus, the analyses reported in this article were based on a male–female combined sample.

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