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THE DEVELOPMENT AND APPLICATION OF A NEW METHODOLOGICAL APPROACH TO EXAMINE THE ROLE OF LIFE EVENTS AND THEIR SUBJECTIVE MEANING PRIOR TO THE ONSET OF A DISEASE OR A DISORDER

BY

JUDITH MARIE MCGILLIVRAY

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled The Development and Application of a New Methodological Approach to Examine the Role of Life Events and Their Subjective Meaning Prior to the Onset of a Disease or a Disorder submitted by Judith Marie McGillivray in partial fulfillment of the requirements for the degree of Master of Nursing.

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Abstract

The purpose of this research undertaking was to explore the mediating role primary cognitive appraisal may have played between the occurrence of a life event and the onset of depression (MDE), panic disorder (PD), and coronary artery disease (CAD). To facilitate this investigation a methodological approach was developed - Measuring Emotionally Significant Life Events (MESLE). This approach involved a semi-structured interview, as well as content analysis of the interview. This methodology was utilized with a group of nineteen subjects, all of whom had chest pain, and some of whom had CAD, and current or past PD and/or MDE. The group consisted of eleven females, age 44 to 73, and eight males, age 44 to 64. Life event and appraisal data obtained indicated that all subjects recalled experiencing significant life events in the year prior to the onset of each disease or disorder. As well, almost all events were stressful for the subjects, involving actual harm or loss, a threat of harm or loss, and/or the potential for gain or mastery. When life events and appraisal data were further analyzed for a sub-group of eight subjects, who were not currently depressed and who reported at least three life events where appraisal data was available, three additional findings were noted. Firstly, life events preceding MDE involved objective loss and were appraised by subjects as involving loss. In contrast, life events preceding PD involved the health of someone of significance

to a subject, and were primarily appraised as threatening. Finally, life events preceding CAD primarily involved work and were appraised as challenging. Whether loss and threat appraisals also reflected activation of depressive or anxiety schemata is not known, as the MESLE methodology involved categorizing appraisals but not an assessment of whether or not those appraisals were distorted. Despite this limitation, the consistency of appraisals for life events prior to the onset of MDE, PD, and CAD deserves further investigation. If certain appraisals are consistently reported prior to the onset of a specific disease or disorder, clinicians may utilize this information to develop preventative and early intervention programs for specific subject groups.

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CHAPTER 1

Introduction

The study of stressful life events derives from a concern with the way social factors influence health. The term life event has been used in research where disease or disorders are studied in one of two ways. First, life event has referred to a general notion of severity of threat an individual experiences as a function of the amount of change an event entails for that person (Holmes & Rahe, 1967). Second, life event is used to refer to a more specific notion of emotional significance that an event has for an individual (Brown & Harris, 1978).

Historically, research efforts aimed at exploring the link between life events and disease or disorder onset had two main foci: the number and type of life event. Although significant in terms of determining the numbers and types of events which occurred prior to the onset of a specific disease or disorder, this approach did not predicate which person, under what circumstances, would become ill. To better understand the nature of the relationship between life events and disease or disorder onset, moderator variables thought to render an individual susceptible to an event were investigated.

Initially, many investigators considering moderator variables focused on variables external to an individual. Social support, including the presence of a confidant or

close personal relationship, was among the most important of the external variables studied (Brown & Harris, 1978; B.P. Dohrenwend & B.S. Dohrenwend, 1973). The focus on external moderator variables was expanded over time as variables internal to an individual received increasing attention (Brown & Harris, 1978; Dohrenwend, B.S. & Dohrenwend, B.P., 1984; Johnson, Hall, & Theorell, 1989; Lazarus, 1966).

Among internal moderator variables, cognitive processes and coping strategies have been acknowledged as important influences in terms of how an individual responds to a life event (Brown & Harris, 1978; Depue, Monroe, & Shackman, 1979; Lazarus, 1966; Paykel, 1979; Rahe & Arthur, 1978). Cognitive processes however, have not been included in the empirical work in the life event arena to any extent (Gall & Evans, 1987).

The major purpose of the present research was to explore the mediating role one cognitive process may have played between the occurrence of a life event and the onset of a specific disease or disorder. The cognitive process focused on was primary cognitive appraisal. Primary cognitive appraisal, one of two types of cognitive appraisal outlined in Lazarus' model of stress and coping, involves how a person evaluates the significance of a life event for his or her well-being (Lazarus, 1966). Methodological approaches that facilitated the gathering of primary cognitive appraisal/life event information were not

available however, and as a result the present research focused on methodology development and its application with a group of subjects.

The new methodology (Measuring Emotionally Significant Life Events - MESLE) involved gathering data on both emotionally significant life events, as well as the primary cognitive appraisal subjects recalled for these events. Subjects involved had chest pain and also may have had a diagnosis of one or more of the following three disease and/or disorders: (1) depression (MDE), (2) panic disorder (PD), and (3) coronary artery disease (CAD). Each of these disease and/or disorders are associated with high morbidity and/or mortality. Depressive disorders for example, third in frequency of psychiatric disorders (Regier et al., 1984), cause an individual not only to suffer personally during a depressive episode, but also are associated with an increased risk of death due to suicide. In addition, recent findings report that MDE interferes with treatment and rehabilitation of both medical and surgical patients (Blumenthol, Williams, Wallace, Williams, & Needles, 1982; Carney et al., 1988). PD in turn, falls within the general category of anxiety disorders, the most prevalent of all the major groups of mental disorders (Regier et al., 1984). Finally, cardiovascular disease is the most common cause of death and disability in Canada today, accounting for approximately one-half of all deaths, about two-thirds due

to ischemic heart disease and one-fifth due to stroke (MacLean, 1989).

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CHAPTER 11

Literature Review

The literature overview is organized in relation to the three variables considered in this research undertaking: (1) the disease or disorders of depression (MDE), panic disorder (PD), and coronary artery disease (CAD), (2) life events, and (3) the individual moderator variable, primary cognitive appraisal. Initially, literature related to the specific disease and disorders of MDE, PD, and CAD is reviewed. Criteria that serve as guidelines for the clinical diagnosis of each of these disease or disorders, as well as the prevalence rates for each disease or disorder, is included in the review. Secondly, literature related to life events associated with the onset of MDE, PD, and CAD is reviewed. Finally, cognitive appraisals associated with specific types of life events as well as with the onset of MDE, PD, and CAD are discussed.

Disease and/or Disorder Literature

Depression

Criteria for the diagnosis of depression. The research on depression reflects a multiplicity in use of the term resulting in widely varying prevalence rates, in both community and clinical groups. "Depression" has been used to describe a particular type of mood, outlook or symptom, such as sadness, gloominess, low spirits or dejection. It

also has referred to a well defined disease entity in terms of onset, recovery and recurrence. As well, it has referred to a syndrome in which a variety of signs and symptoms typically occur in association with a mood change such as sadness (Davis & Payne, 1986).

Even when depression as a syndrome was conceptualized as a major psychiatric disorder, its measurement lacked uniformity in definition and validation of criteria, until research culminating in the publication in 1980 of the Diagnostic and Statistical Manual of the American Psychiatric Association - DSM-III (American Psychiatric Association, 1980). With the acceptance of these validated criteria, the ground work was provided for distinguishing depressive symptoms from a depressive syndrome.

Depressive symptoms are disturbances in cognition, affect, behaviour, and body function accompanying the experience of loss (Davis & Payne, 1986). The depressive syndrome, in turn, is a disorder characterized by the co-existence of a number of depressive symptoms. A set of validated operational criteria is provided for deciding what may be considered a depressive syndrome in the third edition, revised of the Diagnostic and Statistical Manual of the American Psychiatric Association - DSM-III-R (American Psychiatric Association, 1987). These criteria are as follows in Table II-1.

Table II-1

DSM-III-R Criteria for Major Depressive Disorder

A. At least five of the following symptoms have been present during the same two-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood, or (2) loss of interest or pleasure.
(1) depressed mood (or can be irritable mood in children and adolescents) most of the day, nearly every day, as indicated either by subjective account or observation by others
(2) markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated either by subjective account or observation by others of apathy most of the time)
(3) significant weight loss or weight gain when not dieting (e.g., more than 5% of body weight in a month), or decrease or increase in appetite nearly every day (in children, consider failure to make expected weight gains)
(4) insomnia or hypersomnia nearly every day
(5) psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)
(6) fatigue or loss of energy nearly every day
(7) feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)
(8) diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)
(9) recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

B. (1) It cannot be established that an organic factor initiated and maintained the disturbance
(2) The disturbance is not a normal reaction to the death of a loved one

C. At no time during the disturbance have there been delusions or hallucinations for as long as two weeks in the absence of prominent mood symptoms (i.e., before the mood symptoms developed or after they have remitted)

D. Not superimposed on Schizophrenia, Schizophreniform Disorder, Delusional Disorder, or Psychotic Disorder NOS)

(American Psychiatric Association, 1987, pp. 222-223).

Prevalence of depression. One of the most comprehensive epidemiological studies of psychiatric disorders reported in literature is the National Institute of Mental Health Epidemiologic Catchment Area Study (NIMH ECA). This survey provides data for psychiatric disorders defined using DSM-III criteria and was standardized to the 1980 United States population (Regier et al., 1984). Data from the NIMH ECA study provides a single best estimate of prevalence rates for MDE to be 2.2% of the population over one month, 3.0% of the population over six months and 5.8% of the population on a life time basis (Regier et al., 1984). In the NIMH ECA study the rate of MDE for females (2.9%) was significantly higher than the male rate (1.6%), remaining consistent with earlier studies that women report higher rates of depression compared to men (Regier et al., 1984).

The occurrence of depression has also been studied in clinical populations. Several researchers identified depression as the most common psychological manifestation of medical disease (Hall, Gardner, Stickney, LeCann, & Popkin, 1980; Maquire & Granville-Grossman, 1968). When Kathol and Petty (1981) reviewed the literature pertinent to the relationship of medical illness and the syndrome MDE however, they found it difficult to compare studies owing largely to different uses of the term depression by various investigators. When Rodin and Voshart (1986) subsequently

reviewed the literature they suggested that depressive symptoms were present in 12% to 36% of medical outpatients, and that more than 1/3 of medical inpatients reported moderate depressive symptoms, with 11% to 26% of medical inpatients having suffered from the depressive syndrome.

There is growing evidence that patients with MDE also represent a substantial portion of patients in primary care (Bridges & Goldberg, 1985; Duer, Schwenk, & Coyne, 1988; Prestidge & Lake, 1987). In fact, Akiskal (1983) asserts that depressive disorders with predominantly somatic presentation are likely to represent the most common form of affective disorder found in the community. Such patients are often misdiagnosed and inadequately treated, undergoing numerous unnecessary diagnostic tests and medical treatments that add to the high cost of health care.

Panic Disorder

Criteria for the diagnosis of panic disorder. The word "anxiety" describes an emotional symptom of apprehension or nervousness. Anxiety disorders refers to a set of syndromes involving a constellation of symptoms and signs that are found in association with the emotional symptom. Panic Disorder (PD) is one type of anxiety syndrome.

PD has been differentiated from a persistent anxiety state, known as Generalized Anxiety Disorder (GAD) by sudden recurrent panic attacks. Panic attacks are recurrent anxiety

reactions, lasting minutes to hours, and characterized by a sudden, often unpredictable onset and a combination of psychological and somatic symptoms. Psychological symptoms include intense nervousness or apprehension, feeling of impending death or doom, and mental confusion. Somatic symptoms include tachycardia or palpitations, chest pain, unsteadiness, and sweating.

If an individual experiences a minimum of four panic attacks in four weeks a diagnosis of Panic Disorder (PD) may be given. A set of validated operational criteria is provided for deciding what may be considered PD in the DSM-III-R (American Psychiatric Association, 1987). These criteria are as follows in Table II-2.

Table II-2

DSM-III-R Criteria for the Diagnosis of Panic Disorder

A. At some time during the disturbance, one or more panic attacks (discrete periods of intense fear or discomfort) have occurred that were (1) unexpected, i.e., did not occur immediately before or on exposure to a situation that almost always caused anxiety, and (2) not triggered by situations in which the person was the focus of others' attention

B. Either four attacks, as defined in criterion A, have occurred within a four-week period, or one or more attacks have been followed by a period of at least a month of persistent fear of having another attack

C. At least four of the following symptoms developed during at least one of the attacks:
   (1) shortness of breath (dyspnea) or smothering sensations
   (2) dizziness, unsteady feelings, or faintness
   (3) palpitations or accelerated heart rate (tachycardia)
   (4) trembling or shaking
   (5) sweating
   (6) choking
   (7) nausea or abdominal distress
   (8) depersonalization or derealization
   (9) numbness or tingling sensations (paresthesias)
   (10) flushes (hot flashes) or chills
   (11) chest pain or discomfort
   (12) fear of dying
   (13) fear of going crazy or of doing something uncontrolled

D. During at least some of the attacks, at least four of the C symptoms developed suddenly and increased in intensity within ten minutes of the beginning of the first C symptom noticed in the attack

E. It cannot be established that an organic factor initiated and maintained the disturbance, e.g. Amphetamine or Caffeine Intoxication, hyperthyroidism

(American Psychiatric Association, 1987, pp. 237-238).

Prevalence of panic disorder. The prevalence data for PD reported in the NIMH ECA study on three of the five Epidemiologic Catchment Areas (New Haven, Baltimore, and St. Louis) reveal two major findings. Firstly, the prevalence rates of PD, ranging between 0.6% and 1.0% in the community

setting, were higher than expected. Secondly, the prevalence rate of PD in females was higher than expected at a rate as high as three times that found in males (Myers et al., 1984). Another report of the NIMH ECA study revealed a higher prevalence of PD in those with lower education and amongst separated and divorced individuals (VonKorff, Eaton, & Keyl, 1985).

In contrast to the community setting, the prevalence of PD in clinical populations is reported to be 6.5% - 13% (Katon, Vitaliano, & Russo, 1986). The peak age of onset in the clinical population is in the age range 22.5 to 25.5. There is growing evidence that patients with PD also represent an unrecognized but substantial portion of patients in primary care, internal medicine and cardiology practices. Katon (1986) found 6.5% of 195 primary care patients met DSM-III criteria for PD alone, and Finlay-Jones and Brown (1981) found 8% of 164 female primary care patients suffered from PD alone. Although the clinical course is uncertain most patients with panic attacks develop avoidance within a year and many report depression (Taylor & Arnow, 1988).

Coronary Artery Disease

Criteria for the diagnosis of coronary artery disease. The phrase "coronary artery disease" is used to describe a variety of processes that can affect the ostium of the coronary arteries or the epicardial coronary arteries,

resulting in obstruction (Cheitlin & Virmani, 1989). To be diagnosed with coronary artery disease a physiologically significant obstruction to blood flow in the human coronary system must be present. Wijns et al. (1985) suggest that 70% or more stenosis in at least one major epicardial coronary artery must be present to receive the diagnosis of significant CAD. Where arteriographic results indicate there is less than 70% stenosis in all coronary vessels a diagnosis of nonsignificant CAD may be made.

Prevalence of coronary artery disease. Cardiovascular disease not only accounts for approximately one-half of all deaths in Canada today (MacLean, 1989), but it is also the leading cause of premature death (less than 65 years of age) for both men and women. In Canada, the death rate from cardiovascular disease is highest in eastern Canada and lowest in western Canada. Cardiovascular disease mortality rates vary substantially with the level of education and income also, with people in the lower end of the scale having the highest death rate.

Life Event Literature

The literature on life events is reviewed for three disease or disorders considered in this study: (1) MDE, (2) PD, and (3) CAD. The review focuses on two themes common to the study of life events relating to these disorders or disease. Firstly, literature relating to the

number of life events and the temporal relationship of these events to the onset of each disease or disorder is reviewed. This is followed by a review of the types of life events identified as commonly occurring prior to the onset of each disease or disorder.

Life Events Associated With the Onset of Depression

Research on the impact of life events has been reasonably consistent in establishing a significant association between stressful life events and depression (see reviews by: Faravelli, Pallanti, Frassine, Guerrini, & Albanesi, 1987; Lloyd, 1980; Paykel, 1979; Thoits, 1983). The majority of studies demonstrate that depressed patients experience more stressful events in the three weeks to six months that precede the onset of a depression than control subjects experience (Beck & Worthen, 1972; Brown, Sklair, Harris, & Birley, 1973; Jacobs, Prusoff, & Paykel, 1974; Paykel, Prusoff, & Myers, 1975). A direct relationship between stressful life events and depression however is weak, and the majority of individuals who experience stressful events do not become clinically depressed (Brown & Harris, 1978; Hammen, 1988; Paykel, 1979; Turpin & Lader, 1986).

To better understand other factors that influence why one individual develops depression in the face of a stressful life event and another individual does not develop depression, types of life events have also been

investigated. Increased frequency or occurrence of the following eight events have been reported by individuals who subsequently became depressed: (1) marital arguments, (2) marital separation, (3) starting a new type of work, (4) change in work conditions, (5) serious personal illness, (6) death of immediate family member, (7) serious family illness, and (8) family member leaving home (Beck & Worthen, 1972; Jacobs et al., 1974; Paykel et al., 1975).

Among types of life events, a particular type of event involving the departure of a person from the social sphere of the subject, has been implicated in the onset of depression (see review by Akiskal & McKinney, 1975). Investigators focusing on these "exit" events, have identified events involving an object loss or death of a loved one more often than other types of exit events prior to the onset of MDE (Birtchell, 1970; Briscoe & Smith, 1975; Frost & Clayton, 1977). More recently Roy-Byrne et al., (1986) in their investigation of the role of loss also support that losses involving the death of a family member or loss of a supportive relationship often precedes the onset of depression.

Life Events Associated With the Onset of Panic Disorder

The literature on life events preceding the onset of PD report a greater number of total life events in subjects (DeLoof, Zandbergen, Lousberg, Pols, & Griez, 1989; Farvelli & Pallanti, 1989), as well as a greater number of

life events in the one to three months prior to the onset of PD (Faravelli & Pallanti, 1989; Finlay-Jones & Brown, 1981). Other investigators focusing on life events experienced personally by an individual, but over the period of a year prior to the onset of PD, also support the general finding of an increased number of life events occurring to subjects prior to the disorder onset (Roy-Byrne et al., (1986). At the same time, other studies have found little difference in the total number of life events or number of recent life events before the onset of PD (Alnaes & Torgersen, 1989; Rapee, Litwin, & Barlow, 1990).

Discrepancy in the reporting of life events in PD literature may be a result of inconsistent methodologies. There was little consistency in life event scales utilized in the investigations as well as inconsistency in both the use of comparison groups and the use of normal control groups. Although there was a high degree of consistency in use of DSM-III (American Psychiatric Association, 1980), and DSM-III-R (American Psychiatric Association, 1987) criteria for the definition of PD, there was little consistency in the inclusion of subjects with pure PD only. Many studies included PD with varying degrees of agoraphobia, and other studies did not describe a breakdown of the PD inclusion criteria.

Aside from research on the total number of life events and their temporal relationship to the onset of PD,

investigators have also looked at types of life events in individuals who subsequently develop PD. Eight commonly reported stressful life events occurring in the six months prior to the onset of PD are: (1) threatened or actual separation from a significant person, (2) change in job, (3) pregnancy, (4) relocation, (5) marriage, (6) graduation, (7) death of a significant person, and (8) physical illness (Breier, Charney, & Heninger, 1985).

Within the study of types of life events associated with the onset of PD, the impact of developmental events on an individual have also received attention. Developmentally, subjects fulfilling DSM-III criteria for PD have more grossly disturbed childhoods, including physical and sexual abuse, than generalized anxiety disorder subjects (Raskin, Peeke, Dickman, & Pinsker, 1982). Individuals with PD have also described frequent conflict with strict, domineering, overprotective fathers and perceived their childhood as unfavourable (Alnaes & Torgersen, 1989). Life events related to health and frequent change of residence, which may have led to isolation and precipitated the PD, were also more frequently reported by PD subjects than by controls (Roy-Byrne et al., 1986). Raskin et al. (1982) report anecdotally that 59% of PD subjects reported PD being precipitated by separation, the onset following leaving home or loss of a loved one. Other studies report that 28% of patients with PD

experienced separation from one or both parents (Coryell, Noyes, & Clancy, 1982). Comparison of the developmental events reported in these studies is difficult due to inconsistencies in both measurement of life events and comparison groups used.

Life Events Associated With the Onset of Coronary Artery Disease

Many studies on the relationship of life events to cardiovascular disease are reported in literature. Many investigators report positive associations between the number of life events (Ely & Mostardi, 1986; Gupta & Verma, 1983; Magni et al., 1983), stressful life events (Bhatia, Tiwari, Balkrishna, & Gupta, 1990) and the occurrence of myocardial infarction. Still others report no association between acute life events and atherosclerosis (Tennant, Langeluddecke, Fulcher, & Wilby, 1987). Other investigators have focused on the types of life events rather than numbers of life events. Seven stressful life events reported significantly more often in myocardial infarction patients compared with control subjects were: (1) death of a close family member, (2) major personal illness, (3) financial loss, (4) change in working condition, (5) trouble at work, (6) expansion of business (Bhatia et al., 1990) and (7) family conflict (Bhatia et al., 1990; Gupta & Verma, 1983).

Among these types of life events, workplace events have received considerable attention in the study of life events

associated with the onset of CAD. Karase, Theorell, Schwartz, Pieper, & Alfredson (1982) originally proposed that job strain, and high job demand accompanied with low control, was associated with CAD. This model was used to characterize jobs in terms of demand and control, with high demand/low control jobs being primarily blue collar. The authors of the model have demonstrated support for the model in earlier work (Johnson, Hall, & Theorell, 1989) however, more recent work has not supported the model (Braun & Hollander, 1987; Johnson et al., 1989; Reed, LaCroix, Karasek, Miller, & MacLean, 1989).

The job strain model has been refined, based on the lack of recent support, to reflect the combination of job demand and individual need for control (Siegrist, Peter, Junge, Cremer, & Seidel, 1990), and to reflect the combination of job demand, control, and isolation (Johnson et al., 1989). In both cases the refined models have been significantly associated with ischemic heart disease in blue collar men and cardiovascular disease in working men, respectively.

One study that failed to find an association between job strain and ischemic heart disease attributed this largely to the fact that subjects' perception of job strain was measured and that this differed from objectively assigned values of job strain used in other studies (Reed et al., 1989). In addition, this study looked at the usual

job rather than the current job in order to reflect the norm for an individual. Another study that measured individual perception of job demand found increased risk of ischemic heart disease in white collar Japanese workers who perceived their jobs to be demanding (Kayaba et al., 1990).

Cognitive Appraisal Literature

Literature indicates increased numbers of life events are common prior to the onset of MDE, PD, and CAD, but a direct relationship is weak and provides little information on which individual will develop what, if any, of the disease or disorders. Further complicating the relationship, common types of life events are reported prior to the onset of the respective disease and disorders. These event types include major personal illness, death of a person close to the subject, change in work or job, and family conflict, including threatened or actual marital separation. Why a similar event may play a role in the onset of three different disease or disorders remains unclear. In an attempt to answer this question, increasing attention has been given to how an event is appraised by an individual. Only recently however, have field investigators incorporated an individual's appraisal of an event into their studies of the onset of a specific disease or disorder. In this review a general overview of the literature relating to appraisals of life events associated

with the onset of MDE, PD, and CAD is given.

Appraisals of Life Events Associated With the Onset of Depression

Life events appraised as involving a loss have been identified as particularly important in the onset of MDE (Finlay-Jones & Brown, 1981). In discussing the concept of loss, Beck (1976) hypothesizes that an individual may, in the course of his of her development, become sensitized by certain unfavourable types of life situations, such as the loss of a parent. Such a traumatic loss may predispose a person to a certain type of cognitive schema, which acts as a screen for incoming stimuli, and which may be activated later in life around the theme of a loss. If activated, an individual may appraise an event as: (1) negative, often over interpreting experiences associated with the event in terms of defeat or deprivation, (2) reflecting deficiencies, inadequacies, and unworthiness in him-or herself, and (3) involving difficulties that will continue indefinitely (Beck, 1976).

Events appraised as involving loss and associated with the onset of MDE have also received attention in developmental research. Sethi (1964) studying separation events in a group of subjects covering the six months prior to the onset of depression found that a greater number of highly depressed subjects had both a childhood loss as well as a recent separation event occurring. This prompted him

to wonder whether adult separation events serve as a trigger mechanism precipitating the onset of depression in individuals predisposed to depression by a childhood loss. Beck (1976) in turn, identified seven types of events often appraised as involving a loss of something valued (Table II-3).

Table II-3

Seven Types of Events Associated with a Loss Appraisal

1. Loss of a tangible object that is considered a source of gratification or is valued for some other reason
2. An intangible loss such as the diminished self-esteem produced by an insult or disparagement
3. A reversal in the value of a component of the domain; for example, what was regarded as an asset is now judged negatively
4. A discrepancy between what is expected and what is actually received; i.e., a disappointment
5. A fantasy or expectation of a future loss: The individual tends to live through the anticipated loss as though it were happening right now, and so he experiences the sadness before the loss actually occurs
6. Hypothetical loss: No loss has occurred but it "could" happen
7. Pseudo loss: The person incorrectly perceives an event as subtracting from his domain

(Beck, 1976, p. 59).

In contrast to events appraised as involving a loss, Brown and Harris (1978) reported change resulting from a life event associated with what was appraised as a long-term threat to an individual more often preceded the onset of MDE. Other investigators also note that life events experienced by individuals who subsequently develop MDE were significantly more threatening to the person when compared with life events identified by control subjects (Brown, Sklair, Harris, et al., 1973; Beck & Worthen, 1972).

Appraisals of Life Events Associated With the Onset of PD

Life events appraised as threatening in nature have been identified as particularly important in the onset of PD (Finlay-Jones & Brown, 1981). Discussing the concept of threat, Beck (1976) states that when individuals consider

themselves to be in imminent danger they are likely to feel anxious. Threats of imminent danger may be real or imaginary, and may involve the self in terms of physical harm, serious illness, economic disaster, or social rejection. As well, threats of danger may arise not only in relation to the self but also from another person within the individual's personal domain; and/or some institution or principle the person values (Beck, 1976).

The concept of danger evolves from a person's fear, or cognitive appraisal of an event that is oriented to the future and refers not only to the possibility of the possible consequences of an event but also to personal suffering associated with these consequences. Anxiety in turn, is an unpleasant emotion with familiar subjective and physiological correlates that accompanies a fear appraisal.

Where threatening events have occurred in childhood and were associated with fear, a predisposition to an anxiety schema may develop and be activatated in later life when an individual encounters other threatening events (Ottaviani & Beck, 1987; Silove, 1987). Such a schema involves involuntary fixation on the concept of danger and the perception of danger signals and is seen in an appraisal pattern involving : (1) repetitive thoughts about danger, (2) a reduced ability to "reason" with the fearful thoughts, and (3) an increase in the range of stimuli capable of evoking an appraisal of danger (Beck, 1976).

In contrast to events appraised as threatening, some researchers suggest the perceived negative impact of certain types of life events is a more relevant factor contributing to the onset of PD (Rapee et al., 1990). Roy-Byrne et al. (1986) suggest that life events viewed as being uncontrollable, undesirable, or causing extreme loss of self-esteem were seen more often prior to the onset of PD.

Appraisals of Life Events Associated With the Onset of CAD

Work related events appraised as undesirable and uncontrollable have been identified as particulary important in the onset of CAD (Magni et al., 1983). As well as this type of appraisal regarding work related events, a personality or coping style (i.e. Type A behaviour pattern - TABP) precipitated by stressful or challenging situations has been linked to the development of CAD (Friedman & Rosenman, 1959). TABP, a cluster of cognitive, emotional, and behavioral characteristics (see Table II-4), is reflected in "extremes of competitive achievement-striving, hostility, aggressiveness, and time urgency" (Suls, 1990, p.259). Cognitive characteristics will be focused on in this discussion.

Table II-4

Characteristics of the Type A Behaviour Pattern

Hostility	Speech and motor characteristics
Time urgency	Excessively rapid body movements
Impatience	Tense facial and body musculature
Aggressiveness	Explosive conversational speech
Ambition	Hand or teeth clenching
Competitiveness	
Setting excessive performance standards	
Hard driving behaviour	

(Goldstein & Niaura, 1992, p. 136).

Among cognitive characteristics associated with TABP the potential for hostility - defined as the predisposition to respond to a broad range of frustrating situations with anger and irritation - has been reported as a significant predictor of subsequent CAD (Barefoot, Dodge, Peterson, Dahlstrom, & Williams, 1989; Dembroski, MacDougall, Williams, Haney, & Blumenthal, 1985; Dembroski, MacDougall, Costa, & Grandits, 1989; Koskenvuo et al., 1988; Matthews, Glass, Rosenman, & Bortner, 1977; Williams, Barefoot, & Shekelle, 1985). The potential for hostility reflects an interpersonal style seen in argumentative responses, challenging remarks, and rudeness or condescension, rather than an intrapsychic affect characterized by feelings of resentment, annoyance, or rage (Costa, McCrae, & Dembroski, 1989; Dembroski & Costa, 1987; Dembroski & Costa, 1988). Although some individuals with TABP exhibit both the interpersonal and affective dimensions, these dimensions are independent personality dimensions and standing on the one

dimension does not strongly predict standing on the other dimension (Costa, et al., 1989).

Of interest, is the degree of coronary occlusion that has been positively correlated with the interpersonal style but negatively correlated with the affective responses (Siegman, 1989; Siegman, Dembroski, & Ringel, 1987). In attempting to understand how hostility-prone behaviours increase the risk of developing CAD, various authors have proposed that people characterized as high in the hostility subcomponent, associated with TABP, hold a set of implicit personal beliefs acquired as a function of early socialization and perhaps biological temperament (Friedman & Rosenman, 1959; Price, 1982). The common thread running through these beliefs is a deep-seated uncertainty about the self (Suls, 1990). It is this uncertainty that drives the Type A action-behaviour complex (Gastorf, Suls, & Sanders, 1980; Suls, Becker, & Mullen, 1981) providing an individual with an avenue for finding and marking their standing as a person.

Whereas uncertainty is the basis of Type A beliefs and behaviour, it has been suggested that denial is the essential element that confers coronary risk when it co-occurs with Type A behaviours (Suls, 1990). In the absence of denial, strong tendencies toward competition, achievement, and hostility do not incur increased coronary risk (Suls, 1990). How denial influences individual

proneness to the development of CAD is thought to be through blocking awareness of subjective perceptions, so that an individual overexerts him- or herself in the face of a challenge.

The resulting physiological hyperactivity may exacerbate the atherosclerotic process involved in the development of CAD. As well, the use of denial may also lead an individual to engage in certain behaviours, such as poor health practices, overeating, the consumption of high levels of alcohol, and the seeking out of stressful situations, all of which have been implicated as precursors of myocardial infarction and sudden cardiac death (e.g., Myers & Dewar, 1975).

Cognitive Appraisal Differences Across Like Events

Given common types of life events appraised as stressful, why one person feels sad, another anxious, and yet a third denies the impact of an event may be important information in terms of the onset of a specific disease or disorder. If an individual, for example appraises that a loss has occurred or their domain has been devalued as a result of expecting a loss, he or she may accept the loss and feel sad as a result. If however, an individual regards him-or herself as still intact, but appraises an event with concern for future safety, that individual may be more threatened and demonstrate anxiety as a result. Finally, if an individual denies angry or hostile feelings in the

face of a stressful event, he or she may through aggressive, competitive actions seek to gain accomplishment or mastery over the effects of the event.

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CHAPTER III

The Development and Application of a Semi-Structured Interview for Assessing Life Events and their Subjective Meaning in Individuals Who Subsequently Develop a Disease and/or a Disorder

There are two main methods of assessment available in life event research: (1) the standard checklist, and (2) the semi-structured interview. The 'Schedule of Recent Experience' (SRE) by Holmes and Rahe (1967) serves to illustrate the checklist approach, while the London 'Life Event and Difficulty Schedule' (LEDS) (Brown, 1974) is used as an example for the semi-structured interview technique. The two techniques are briefly described along with methodological considerations associated with each.

The SRE, nearly always employed as a self-rating instrument, is a 42-item checklist of life changes with predetermined weighted scores. Checklist items and scores are derived from the 'Social Readjustment Rating Scale' (SRRS) developed by Holmes & Rahe (1967). The SRRS lists common life changes along with their weighted scores called 'Life Change Units' (LCUs). The LCUs were obtained by asking samples of the general population to rate the amount of 'readjustment' required by the average person to cope with a specific life change. Mean values for each life change were than calculated. Once an individual completes the SRE checklist a quantitative measure, usually

consisting of the sum of stress values assigned to each life event, is calculated for the person. For illustrative purposes the first and the last items of the list are presented in Table III-1 along with their LCUs.

Table III-1

First and Last Items on the Social Readjustment Rating Scale and Their Related Life Change Units

Rank	Life Change	LCU
1	Death of spouse	100
2	Divorce	73
.		
41	Vacation	12
42	Minor violation of the law	11

(Holmes & Rahe, 1967, p. 216).

Methodologically, the SRE although widely used owing to its simplicity, availability, and economy has been criticized. The main criticism centres on what is seen as an oversimplification of life events, thought to be more complex than a unidimensional total score might indicate (Brown, 1974; Katschnig, 1986; Paykel, 1983; Rabkin & Struening, 1976; Schroeder & Costa, 1984). Doubts have also been raised about the checklist's validity, retest and interrater reliability (Miller, 1988; Parry, Shapiro, & Davies, 1988; Tennant, Smith, Bebbington, & Hurry, 1979). Additionally, the written instructions accompanying the SRE are limited, nonspecific, and have not been pretested for effectiveness in guiding subjects in the completion of the checklist (Miller, 1988).

In contrast the London LEDS developed by Brown (1974) consists of a lengthy protocol for eliciting information on life events and the subject's social background. An extensive glossary of definitions and elaborate scoring rules also accompany the LEDS. During the London LEDS interview, all relevant information on life events concerning an individual subject is gathered by an interviewer. The data includes not only what the identified life event is but also the specific social context in which the event occurred. A team of raters then assess each event for the degree of 'threat' associated with the event for that individual. To accomplish this task, each rater initially assesses the amount of stress involved for the subject under study on a four-point scale. Each threat rating for a life event using the LEDS methodology depends not only on the type of life event, but on the context in which a person finds themself when the life event occurs. The individual raters assessment of stress is followed by a pooling of rater judgments. The goal in pooling rater judgments is to develop a consensus, called a 'contextual threat rating' for each event experienced by a subject. In order to keep the threat rating as objective as possible, the raters have no information about a subject's psychiatric state or emotional reaction.

Extensive methodological information has evolved using the LEDS interview procedure. The majority of

investigations support the reliability of the instrument over at least a one-year retrospective time frame. Interrater reliability of life event dimensions and their contextual ratings also rests on firm psychometric grounds (Katschnig, 1986; Monroe, 1990; Parry et al., 1988; Tennant et al., 1979). Controversy exists, however, in terms of the validity of the instrument. This controversy centres on two separate issues. Firstly, concerns are voiced regarding the adequacy of the system for assessing dimensions of life stress (Finlay-Jones, 1981; Katschnig, 1986; Monroe & Peterman, 1988; Oei & Zwart, 1986; Zimmerman, 1983; Zimmerman, Pfohl, & Stangl, 1986)). Secondly, while there is agreement that the LEDS methodology predicts psychiatric problems in general (Bebbington, 1986; Brown & Harris, 1986), there is disagreement about the nature of the outcome predicted. The viewpoints differ with respect to whether threat ratings relate more to clinical depression or to minor psychological disorders (Bebbington, 1986; Tennant, Bebbington, & Hurry, 1981). Finally, the LEDS interview procedure has been criticized for the extensive training required by interviewers, complicated rating procedures, and lengthy time a subject is involved in the actual interview.

In comparing the standard checklist approach with the semi-structured interview, there is growing consensus by life event researchers that the most reliable and valid

method of collecting life event information is the semi-structured interview (Cooke, 1985; Katschnig, 1986; Paykel, 1983; Wittchen, Essau, Hecht, Teder, & Pfister, 1989; Yager, Grant, Sweetwood, & Gerst, 1981). At present, however, semi-structured interview formats do not include techniques for assessing or evaluating the cognitive appraisals relative to how an individual evaluates the impact of a life event for their well-being. To gather cognitive appraisal information on emotionally significant life events in the year prior to the onset of a disease or disorder, a new methodology, called the MESLE (Measuring Emotionally Significant Life Events) was developed for use in this study. This methodological approach involves not only a semi-structured interview but also content analysis of the taped interview. Table III-2 outlines the steps associated with each phase of the MESLE methodology.

Table III-2

A Summary of the Methodological Approach for Assessing Emotionally Significant Life Events

Phase I. The Semi-Structured Tape Recorded Interview

- Step 1. Determination of the Date of Onset of a Disease or Disorder
- Step 2. Identification of Salient Life Events in the Year Prior to the Onset of a Disease or Disorder
- Step 3. Elicitation of Appraisals Associated with Salient Life Events

Phase II. Content Analysis of Transcribed Interview

- Step 1. Identification of Life Events
- Step 2. Identification of Life Event Appraisals
- Step 3. Scoring of Life Event Appraisals Using Lazarus' Three Categories of Stressful Cognitive Appraisal

Each phase of the new methodological approach is outlined, followed by the steps involved in each phase.

Phase 1: The MESLE Semi-Structured Tape Recorded Interview

The first component of the initial phase of the MESLE methodology is a three step, semi-structured tape recorded interview. In step one, the interviewer determines the onset date of the disease or disorder. In step two, the salient life events experienced by an individual in the year preceding the onset of the disease or disorder are identified. The focus of step three is based on the appraisal an individual had for each event at the time it occurred. Each step of the semi-structured interview is outlined.

Phase 1. Step 1

Step one of the semi-structured interview identifies the beginning date of a disease or disorder. Criteria are chosen that differentiate the disease or disorder from signs and symptoms that do not indicate a fully developed disease or disorder entity. For example, where the identification of psychiatric diagnoses are important, the DSM-III-R (American Psychiatric Association, 1987) has been lauded as an empirically sound, inter-rater reliable diagnostic system (Aronson, 1987). Utilizing the criteria set out for a disorder within the DSM-III-R (American Psychiatric Association, 1987), screening tools that reflect these criteria can be identified and used in establishing the onset of the disorder (Fava & Kellner, 1989). The identification of a physical disease would follow a similar approach. Symptom complexes that have been accepted as signifying that a disease may exist would first be identified. Medical and/or diagnostic reports commonly utilized to verify the existence of the disease process would then be selected. Following this identification process, the onset date of the disease or disorder is recorded onto a time line established for a subject.

Phase 1. Step 2

Step two of the interview procedure involves identification of emotionally significant life events experienced by the person in the year prior to the onset of

a specific disease or disorder. Research on reliability measures related to the reporting of life events have generally recommended an assessment period of a year or less be utilized between an interview date and life event exploration. It is suggested that a decrease in the number of reported life events occurs as the period of time increases between occurrence and assessment of those events (Wittchen et al., 1989).

The interviewer, in this step, uses open ended questions to focus the subject in the collection of information. Memory aids such as significant dates and specific time intervals are also used to provide contextual cues reported to enhance temporal recall of subjective life events (Sobell, L., Toneatto, Sobell, M., Schuller, R., & Maxwell, M., 1990). Questions similar to the following examples can be used by an interviewer to identify life events of emotional significance to an individual.

1) In the year prior to the onset of this disease process, were there any events that occurred that were emotionally significant for you? These may have been either positive or negative, affecting your physical or personal self or those around you.

2) For this part of the interview I want to talk about what was happening in your life during the time frame we spoke of earlier. This may not be true for you, but people often describe events in their life that were emotionally significant prior to a disease or disorder. Does this tap in on anything you recall happening?

Phase 1. Step 3

In step three, the interviewer explores how the individual appraised each life event identified at the time of its occurrence. Questions similar to the following examples can be used by the interviewer.

1) So these events were happening and were clearly significant for you. Help me understand how?

2) So there you are, you had these symptoms associated with this disorder and one thing we're interested in exploring is the meaning of this episode for you. For some individuals these symptoms bring into focus the meaning of their life, for others the possibility of death. Other individuals do not want to think about it. What about you?

The time required to complete the three steps outlined in Phase 1 of the MESLE methodology will vary depending on: (1) the number of life events the individual reports, and (2) how articulate the person is in sharing their appraisal of each event. Each interview is tape recorded and transcribed at a later date. The transcript later serves as a basis for analysis of life event information.

Phase II: Content Analysis of the Transcribed MESLE Interview

The second component of the MESLE methodology involves a three step, content analysis procedure. In step one, researchers identify life events occurring in the year prior to the onset of a disease or a disorder. In step two, the appraisal an individual had for an event is identified. The focus of step three is on scoring the appraisals individuals

recalled for stressful life events into one of three primary appraisal categories outlined in Lazarus' cognitive model of stress and coping (Lazarus, 1966). Each step of the content analysis phase is outlined following an overview of Lazarus' model.

Lazarus' model of stress and coping with stressful life events

Within Lazarus' model, a reciprocal relationship between a person and the environment is seen to be mediated by two processes: (1) cognitive appraisal, and (2) coping. Cognitive appraisal is largely evaluative in nature and involves placing an event in one of a series of categories related to its significance for a person's well-being or to the coping resources and options a person has available (Lazarus & Folkman, 1984). Coping, the second mediating process in Lazarus' model refers to a person's cognitive and behavioral efforts to manage demands resulting from an event. Two kinds of cognitive appraisal are identified in Lazarus' model: primary appraisal and secondary appraisal. Primary cognitive appraisal serves as the basis for step 3 of the content analysis phase of the MESLE methodology. The essential difference between primary and secondary appraisal is in the content of the appraisal itself. In primary appraisal, the person evaluates the significance of an event for his or her well-being, answering the question, "Am I in trouble or being benefited, now or in the future, and in

what way?" (Lazarus & Folkman, 1984, p.31). In secondary appraisal, the person evaluates both: (1) what, if anything, can be done about the stressful event to overcome or to prevent harm, or to improve his or her prospects for benefit, as well as, (2) various coping options available.

Phase II. Step 1

In step one of the content analysis phase of life event information, analysis of each interview transcript is independently carried out by the researchers involved. Life events occurring in a one year time span prior to the onset of a disease or disorder are identified. Following the identification of life events, interrater reliability is determined for life event identification using the following formula: (number of agreements) / (number of agreements + disagreements) (Polit & Hungler, 1987, p. 321).

Phase II. Step 2

In step two of the content analysis phase, quotes reflecting the appraisal an individual had for an emotionally significant life event are identified by each researcher. The quotes are then recorded below the event. Following the completion of this task, interrater reliability is again determined using the formula cited earlier.

Phase II. Step 3

Finally, in step three of Phase II each appraisal is categorized based on a coding system developed around the

concept of primary appraisal. In primary appraisal, five different appraisal forms that represent evaluative judgements about an event may be made. These five forms involve judgements by an individual that an event is either: (1) irrelevant to one's well-being, (2) forecasts a positive outcome, (3) has already produced harm or involved a loss, (4) threatens future harm or loss, or (5) presents a challenge. The latter three appraisals (harm/loss, threat, and challenge appraisals) form the basis of the categorization system developed: (1) harm or loss has actually occurred to an individual or their personal domain (Loss); (2) harm or loss is anticipated but has not yet taken place (Threat); and/or (3) gain or mastery is anticipated as a result of the event (Challenge). Following the categorization of life event appraisals the final interrater reliability is calculated using the formula specified earlier.

Application of the MESLE Methodology

Sample

The MESLE methodology was piloted on a group of nineteen subjects, with a diagnosis of chest pain, with or without Coronary Artery Disease (CAD), Panic Disorder (PD), and/or Major Depressive Episode (MDE), who had consented to participate in a larger Chest Pain Project. The group consisted of eleven females age 44 to 73 (mean age 58.2)

and eight males age 44 to 64 (mean age 55.5). Thirteen subjects were married, one widowed, and four divorced, with one living in a common-law relationship. Subjects came from a diversity of educational backgrounds: university graduates (2), college graduates (3), high school graduates with post-secondary courses (3), high school graduates (3), and six (6) who had completed some secondary education. Data on education was missing for two of the subjects. There was a diversity in the occupations of the subjects: retired (5), janitor (2), housewife (1), trades (4), farmer (1), clerical worker (3), supervisor/manager (3).

Subject Access and Informed Consent Procedure

Subjects in this study were initially contacted via an access letter. The subjects had participated in a previous research project (Cardiac Catheterization Project), and at that time had given permission for access to occur in a subsequent research project. The information contained in the letter introduced the overall research project and outlined both the time commitment and information focus of the study. This enabled the subject to consider participating before a verbal request for consent was extended. The access letter was followed up one week later via telephone, enquiring whether subjects wished to participate in the study.

An interview time and site were established for subjects agreeing to participate in the study. All

interviews were conducted in person due to the subjective information sought and the use of memory aids to facilitate recall. Those present during the interview were limited to the interviewee and the interviewer when possible. Limiting those present helped focus the individual on events that were emotionally significant for them, as well as on how they appraised the impact of those events at the time. To limit those involved in the interview, alternate sites outside the subject's home in a community health unit or hospital were made available. Health care sites were utilized in some instances to ensure the security needs of the interviewer.

Procedure

The application of the MESLE methodology involved the training of nurse researchers to conduct: (1) the semi-structured interviews, and (2) the content analysis phase. Each of these preparatory training activities is reviewed prior to describing the initial application of the steps involved in each phase of the methodology.

Interviewer training. The first training component associated with the MESLE methodology involved the training of researchers in the interview procedure. During a one week period, four Registered Nurses were trained in the three steps of phase one of the MESLE methodology. All researchers were initially familiarized with the three disease and disorders of MDE, PD, and CAD. This involved

differentiation between symptoms that may be associated with each disease or disorder and criteria that indicated a disease or disorder entity may be diagnosed. Assessment techniques that were to be utilized for diagnosis of each disease or disorder were also reviewed, with the associated tools used in the diagnosis of MDE and PD trialed in mock interview situations. Additional components of the mock interview situations involved identifying salient life events that had occurred in the year prior to a disease or disorder onset, as well as the appraisal an individual recalled for these events.

Following these mock interview sessions, each interviewer conducted one pilot interview with a subject who had chest pain. The pilot interviews exposed three problems related to eliciting information on the emotional significance of an event to an individual. Firstly, there was a need to focus subjects so that they were able to differentiate between the meaning of an event and the cause of an event. Secondly, in some instances the meaning of an event had changed for an individual over time, and the original meaning of the event had to be differentiated from the present meaning. In other instances, the meaning of an event identified by a subject was of a general nature (e.g. 'stressful') and direct questions were required for specific exploration related to that events impact on the person. Discussion about strategies to overcome these problems

provided direction for the interviewers prior to commencing the data collection phase of the present research project. Ongoing weekly case conferences were an additional forum, during the data collection phase, for the interviewers to share strategies and, for development of interviewer expertise in relation to eliciting information about life events and their meaning.

Content analysis training. The second training component associated with the MESLE methodology involved the training of researchers for the content analysis phase of the transcribed interview. In this phase, two researchers who had also been interviewers, reviewed not only life event literature but also Lazarus' cognitive model of stress and coping (Lazarus & Folkman, 1984). Conferences with a nurse having expertise in cognitive theory were associated with the literature reviews. These conferences provided a forum for the researchers to clarify definitions and theoretical concepts related to both life events and primary cognitive appraisal.

Following these initial training steps the methodology was applied with the subjects described earlier. Each step of the application for both Phase I and Phase II is described in detail.

Phase 1. Step 1. In each interview the onset dates for the following three disease or disorders were identified: (1) Major Depressive Episode (MDE), (2) Panic Disorder (PD),

and (3) Coronary Artery Disease (CAD). The presence or absence of MDE and PD were established through the use of screening tools (the Panic Attack Questionnaire - PAQ, the Beck Depression Inventory - BDI, and the Structured Clinical Interview for DSM-III: Major Depressive Episode - SCID). If either MDE or PD were present, or there was a history of a subject having experienced either disorder in the past, the date of onset for each was established through history taking. The onset dates of MDE and/or PD were then recorded onto a time line established for each subject. The presence or absence of CAD was established based on reports from coronary angiography investigations carried out within the previous year. The first chest pain episode experienced by the subject was utilized as the onset date of CAD and recorded on a subject's time line.

Phase 1. Step 2. The initial dating of the onset of a disease or disorder was followed by an exploration for emotionally significant life events in the year prior to the onset of each disease or disorder identified. Open ended questions were utilized to focus the subject on events that could: (1) be positive or negative in nature; (2) involve the subject or others; or (3) effect the subject's physical self or their way of thinking or viewing the world. To help date an event, significant occasions such as common holidays and specific time intervals, were utilized. Salient life events identified by a subject as well as their onset dates

were then recorded onto the individual subject's time line.

Phase 1. Step 3. After life events were identified and recorded, the interviewer refocused the subject on each life event they had identified, one by one. Open ended questions were used to probe the subject's appraisal of each event at the time it occurred.

Phase II. Step 1. Following each interview the tape recording was transcribed by one of two researchers who were also interviewers. Each interview transcript was then independently analyzed by the two researchers. In step one of the analysis, information was extracted on life events occurring in a one year time span prior to the onset of MDE, PD, and/or chest pain. Each life event identified by a subject was written down. Following independent identification of life events, the two researchers obtained an inter-rater reliability of 100% for the identification of life events.

Phase II. Step 2. In step two of the analysis phase, quotes reflecting the appraisal of each event by the individual were identified and written below the event. Table III-3 displays examples of specific life events and the appraisal an individual had for that event.

Table III-3

Examples of Content Extracted from the Transcribed Interviews for Life Events and Their Appraisals

Subject #8	
Event:	Father extremely ill previous September.
Appraisal	My father lives in Ontario and I haven't seen him in the past year. I expected he would be a vegetable.
Subject #3	
Event:	Had a go around with some co-workers in October where there was a good possibility I could have lost my job.
Appraisal:	Seemed so unfair. I waited a lot of years to get a job where I had the benefits I got there.
Subject #6	
Event:	Bank foreclosing on subject.
Appraisal:	I had done so much work to build up the farm. I was being asked to turn my back on my whole life's work. I couldn't give my sons a chance.

Following independent identification of appraisals associated with life events, inter-rater reliability was calculated using the formula detailed earlier. The inter-rater reliability obtained for 52 appraisals on 17 subjects was 76%.

Phase II. Step 3. In step three, of the content analysis phase, the two researchers categorized each life event into one of three categories: (1) irrelevant; (2) benign-positive; or (3) stressful. Events appraised as having no gain or loss for an individual's well-being were categorized as irrelevant; while those seen as preserving or enhancing well-being were categorized as benign-positive. Events were classified as stressful if they involved either:

(1) an actual harm or loss (Loss); (2) an anticipated harm or loss (Threat); and/or (3) an anticipated gain or mastery (Challenge) for the individual. The inter-rater reliability obtained for categorizing 47 stress appraisals was 97.5%.

Findings

The MESLE as a methodological approach to the collection of information on life events and the primary appraisals an individual recalled for those events provided a number of findings. In this instance the findings will be presented as follows: (1) number of life events, (2) types of life events, and (3) appraisal of life events identified by subjects.

Number of Life Events

Table III-4 outlines the number of life events identified by the 19 subjects, as well as the diagnostic categories the subjects belonged to.

Table III-4

Number of Life Events Reported by Subjects with Chest Pain With or Without Coronary Artery Disease (CAD+/CAD-), Panic Disorder (PD+/PD-), and/or Depression (MDE+/MDE-).

Subject	Diagnostic Category	Number of Life Events Per Subject
1	CAD+/PD+/MDE+	3
2	CAD+/PD+/MDE+	3
3	CAD+/PD-/MDE+	2
4	CAD+/PD-/MDE+	6
5	CAD+/PD-/MDE+	3
6	CAD+/PD-/MDE+	3
7	CAD-/PD+/MDE+	7
8	CAD-/PD+/MDE+	7
9	CAD-/PD-/MDE+	4
10	CAD-/PD+/MDE+	6
11	CAD+/PD-/MDE-	1
12	CAD+/PD-/MDE-	1
13	CAD+/PD-/MDE-	3
14	CAD-/PD-/MDE+	3
15	CAD+/PD-/MDE-	8
16	CAD+/PD-/MDE-	3
17	CAD-/PD-/MDE-	3
18	CAD-/PD-/MDE-	2
19	CAD+/PD-/MDE-	1

As can be seen from Table III-4 a total of 69 life events were identified for 19 subjects with a diagnosis of chest pain, with or without CAD, PD, and/or MDE. The number of life events recalled by subjects ranged from one to eight. The most frequent number of life events recalled was three, with 14 of the 19 subjects recalling three or more events.

Types of Life Events

The 69 life events identified cross a number of life event categories including work, family, financial, and personal illness. Table III-5 lists examples of the types of events subjects reported for these life event categories.

Table III-5

Examples of Life Event Categories and Types of Life Events Subjects Reported in each Category.

Event Category Reported	Types of Life Events Subjects
Family	Death of daughter Worry about cousins health
Financial	Bank foreclosure Financially teetering Bankruptcy
Work	Promotion at work Fighting with co-workers Upheaval at work/working overtime
Illness (Self)	Spinal injury (Scaffold fall) Stroke

Appraisal of Life Events

Although the 19 subjects identified 69 life events, appraisal data was obtained for 17 subjects on 52 events (75.4%). No appraisal data was obtained for two subjects who were poor informants. For the remaining 17 subjects, each reported between one and eight life events.

Of the 52 life events where appraisals were obtained, five appraisals were categorized as benign-positive (9.6%), while 47 appraisals were categorized as stressful (90.4%), in terms of a subject having identified that: (1) a harm or loss had occurred (Loss), (2) a harm or loss was anticipated (Threat), and/or (3) a gain or mastery was anticipated (Challenge) as a result of the event. Table III-6 displays stress appraisals subjects reported.

Table III-6
Primary Cognitive Appraisals (Loss, Threat, Challenge) of Stressful Life Events Reported by Subjects with Chest Pain, with or without Depression (MDE+/MDE-), Panic Disorder (PD+/PD-), and/or Coronary Artery Disease (CAD+/CAD-)

Subject	Event 1	Event 2	Event 3	Event 4	Event 5	Event 6
1	Loss	Threat	----	----	----	----
2	Loss	Threat	Challenge	----	----	----
3	Threat& Challenge	Loss& Threat	----	----	----	----
4	Loss& Threat	Loss	Loss	Threat	----	----
5	Loss	Threat& Challenge	----	----	----	----
6	Loss	Loss	Loss	----	----	----
7	Loss& Threat	Loss& Threat	Loss	Threat	Threat	----
8	Loss& Threat	Threat	Loss	Threat	Loss& Threat	
9	Loss& Threat	Threat	----	----	----	----
10	Loss& Threat	Loss	Loss	----	----	----
11	Loss	----	----	----	----	----
12	Threat& Challenge	----	----	----	----	----
13	Threat& Challenge	Loss	Challenge	----	----	----
14	Challenge	----	----	----	----	----
15	Challenge	Challenge	Challenge	Challenge	----	----
16	Threat& Challenge	Threat	Challenge	----	----	----
17	Challenge	Challenge	Threat& Challenge	--------		----

Findings identified from Table III-6 include: (1) all three types of primary appraisal outlined in Lazarus' model (Lazarus & Folkman, 1984) were reported, (2) dual appraisals were reported for some events, and (3) consistency in appraisals were evident for some individuals. Each of these findings is presented in turn.

Lazarus and Folkman (1984) postulate that stress appraisals of events may take one of three forms: (1) a harm or loss appraisal, (2) a threat appraisal, or (3) a challenge appraisal. The findings in this study support this theoretical model. For example, an appraisal involving harm or loss was identified where an individual considered damage had already been sustained as a result of an event. An example of a harm or loss appraisal reported included the loss of a significant relationship through death. In contrast, in this study an appraisal involving threat was identified where harm or loss was anticipated by an individual. An example of a threat appraisal reported was a father being diagnosed with cancer with the potential threat that he may die prematurely. Finally, an appraisal involving challenge was identified when an individual made a judgement that the demands of an encounter could either be met, or there existed the potential for personal gain or growth as a result of the encounter. An example of a challenge appraisal reported was maintaining mortgage payments on four houses during an economic recession with

the belief that economic conditions would improve.

Besides all three types of primary appraisal being evident eleven of the seventeen subjects also reported dual appraisals occurring for some life events. When dual appraisals were evident they involved either an actual loss appraisal along with a threat appraisal or a challenge appraisal in combination with a threat appraisal. There were no simultaneous appraisals involving an actual loss appraisal in combination with a challenge appraisal.

The findings on dual appraisals for life events are consistent with previous research, as well as theoretical propositions. For example, field studies that have focused on the stress of a complex event such as serious illness or injury, have suggested that loss and threat appraisals occur in an alternating fashion or concurrently (Hamburg, D., Hamburg, B., & DeGoza, 1953; Visotsky, Hamburg, Goss, & Lebovits, 1961). Similar to the concurrent occurrence of loss and threat appraisals, Lazarus and Folkman (1984) have also postulated that an individual can appraise an event as both challenging and threatening, and furthermore that an individual can shift their appraisal between threat and challenge as an encounter unfolds.

Finally, some individuals reported appraising events in a consistent manner. For example Subject 6 appraised all three life events as losses. These events included: a lost election, the death of a daughter, and a bank foreclosure.

In contrast, Subject 15 appraised all four life events as challenging. These events included: losing janitorial jobs, keeping up mortgage payments on four houses during an economic recession, buying a house for a child, and work strain related to long hours.

Summary of Findings

Life event and appraisal data obtained from seventeen subjects can be summarized as follows. Firstly, all subjects recalled experiencing significant life events in the year prior to the onset of MDE, PD, and/or CAD. In fact, the majority of subjects experienced three or more events having emotional significance for them during that time frame. The ability to recall salient life events was seen despite variable time frames, ranging from one year to forty-five years, between the date of onset of a disease or disorder and the interview date.

Secondly, subjects recalled their appraisal of an event overall. Almost all events were stressful for the subjects at the time and involved actual harm or loss, threat, and/or challenge. Subjects also reported the occurrence of dual appraisals for some events. These appraisals involved one of two appraisal combinations: (1) an actual loss appraisal and a threat appraisal, or (2) a threat appraisal and a challenge appraisal.

Finally, some individuals showed evidence of

consistency in appraisals across a number of life events. These appraisals included loss and challenge appraisals only. There were no subjects who recalled consistent threat appraisals across life events.

Discussion

Within this methodology there are two phases: (1) the semi-structured, tape recorded interview, and (2) content analysis of the interview. The strengths and limitations of each step within both phases are considered in this discussion.

Phase 1. Step 1. Determination of the Date of Onset of a Disease or Disorder

Any relationship between a life event and a specific disease or disorder may be obscured if accurate dating of the onset or occurrence of either one of these variables is omitted or poorly done (Kessler & Wethington, 1991). To establish the onset date of MDE, PD, and CAD associated with step 1, validated operational criteria were utilized to differentiate the presence of each disease or disorder from symptoms or symptom complexes that did not qualify in meeting diagnostic guidelines for the disease or disorder. The strengths and weaknesses of the assessment techniques utilized to reflect the criteria of a fully developed disease or disorder entity are discussed each in turn.

The presence or history of MDE was established using a

two-stage procedure. The first stage involved screening all subjects using a standardized self-report inventory (the Beck Depression Inventory - BDI). The second stage involved conducting a structured interview with all subjects using the Structured Clinical Interview for DSM-III: Major Depressive Episode (SCID). The depth of the interview depended on whether or not a subject's score on the BDI suggested the presence of MDE. The ease of establishing not only a diagnosis of MDE but its date of onset is discussed in terms of each instrument.

The BDI is one of the most widely used and thoroughly validated measures of depression (May, Urquhart, & Tarran, 1969; Miller & Seligman, 1973; Rehm, 1977; Weckowicz, Muir & Cropley, 1967). Subjects easily completed this self-report inventory and interviewers reported ease at scoring subjects answers. Dependent on the score associated with the completion of the BDI, interviewers used one of two routes for conducting the structured interview. If a subject's score on the BDI suggested they were experiencing a depressive syndrome (MDE), the interviewer proceeded with the full structured interview. If however, a subject's score on the BDI suggested they were not currently depressed, the interviewer utilized the component of the structured interview related to previous depressions experienced.

The SCID, in turn, was developed to allow lay

interviewers or clinicians to make psychiatric diagnosis according to DSM-III criteria. The interviewers reported that the diagnostic rules asscciated with the SCID were sufficiently precise to allow them to identify if a syndrome of MDE was or had been present.

Once the presence or history of MDE was established the interviewer through history taking guided each subject in identifying when symptoms associated with a depression had started, moving the subject gradually along until a constellation of symptoms that met the DSM-III-R criteria for MDE were identified. For MDE, this involved focusing subjects on an approximate date when they had sufficient symptoms over the same two-week period to warrant a diagnosis of MDE.

A history of PD was established for each subject using results from a questionnaire (Panic Attack Questionnaire - PAQ) completed by each subject as part of a previous research study (Cardiac Catheterization Project). To determine the development of PD in subjects who had not previously been diagnosed with the disorder in the earlier study, as well as the continuation or reoccurrence of PD in subjects previously diagnosed with the disorder, all subjects were reassessed for PD. The PAQ DSM-III-R version was used in this screening process.

The PAQ DSM-III-R version, is a modification of the original panic attack questionnaire, revised to include the

new criteria for panic outlined in the DSM-III-R (American Psychiatric Association, 1987). Measures of reliability and validity were available for the original tool. The author is unaware of similar investigations that may have been undertaken to validate the revised tool. It is possible, due to the few changes that were made in the revised tool, that duplicate measures of reliability and validity were not deemed necessary. For the purpose of this study, reliability and validity measures from the original tool were referred to and assumed to reflect the revised tool, as the risk inherent in this assumption was deemed to be acceptable.

Based on overall measures of reliability and validity the PAQ is reported to be a valid screening device (Margraf & Ehlers, 1988). Harrison's study of nonclinical panickers using the original PAQ to diagnose panic disorder revealed 24 cases of panic attack. Follow-up of these subjects using a structured interview revealed 22/24 (91%) of the subjects met DSM-III criteria for panic attacks (cited in Norton, Dorward, & Cox, 1986). Other studies that compared the original PAQ to a structured clinical interview of DSM-III criteria for panic attacks, reported overall rates of agreement of 65%-74% between the two instruments. Somewhat lower than the findings of Harrison, the authors reported that the PAQ identified milder variants of panic which they were not including in the interview (Margraf & Ehlers,

1988). The test-retest reliability on the original PAQ was greater than .65 for all information except information about unexpected panic attacks, panic attacks in social situations and whether an individual experienced most panic attack symptoms within 10 minutes. The administration of the PAQ involved having subjects describe their panic attacks (including number, frequency, duration, precipitants, and outcomes), and rate the severity of symptoms experienced during a panic attack. Subjects were diagnosed with PD if, on the basis of information provided in the PAQ, the individual fulfilled DSM-III-R criteria for PD. Overall, the concept of panic attack had to be reviewed with subjects to ensure that they were able to differentiate panic symptoms from generalized anxiety or transient apprehension. In particular, the symptoms of depersonalization and derealization had to be clarified. As well, for individuals who had experienced chest pain, careful and lengthy exploration was necessary to differentiate a chest pain episode associated with CAD from chest pain associated with a panic attack. Once the presence or history of PD was established, the interviewer had to guide each subject in identifying when symptoms sufficient to diagnosis PD had first been experienced. This involved focusing subjects on an approximate date when they had experienced either four panic attacks within a four week period, or one or more panic attacks followed by a period of

at least a month of persistent fear of having another panic attack.

Finally, a diagnosis of CAD was established for each subject using reports from coronary angiography studies done within the previous year. A decision was made that it was unlikely that subjects with chest pain and no angiographic evidence of CAD would have developed CAD within the year based on previous research with patients where those with normal coronary arteries showed no progression of CAD on repeat coronary angiography (Marchandise, Bourassa, Chaitman, & Lesperance, 1978). To establish the onset date of CAD, the first chest pain episode experienced by a subject was identified. Chest pain has been acknowledged as the classical symptom of CAD (Appels, Hoppener, & Mulder, 1987; Light et al., 1991). Among other symptoms also associated with the onset of CAD, chest pain stands out as more dramatic, and was chosen because subjects would be more likely to recall this response. All subjects were able to recall their first chest pain episode when questioned. This supports the information clinicians with extensive clinical experience with CAD patients have shared, i.e. these patients show remarkable ability to vividly recall their first chest pain episode (B. Anderson, & M. Schaumberger, personal communication, June, 1991).

Phase 1. Step 2. Identification of Salient Life Events in the Year Prior to a Disease or Disorder

All individuals were able to identify salient life events in the year prior to the onset of MDE, PD, and CAD. The semi-structured interview format may have been responsible for eliciting this information on life events despite lengthy time periods between the disease or disorder onset and the interview date. Research has shown that open-ended interviews do overcome reliability problems related to recall and failure to report life events (Kessler & Wethington, 1991; Wittchen et al., 1989).

In addition to the above advantage, respondents could also date life event occurrences with good consistency. Since events occurring in a specified target interval are assumed to play an etiological role in the manifestation of various illnesses, the accurate dating of events was critical (Sobell et al., 1990). The use of specific memory aids (e.g. time line, temporal anchors) may also have played a role in satisfactory temporal recall. Previous studies have reported memory aids support dating accuracy (Avison & Turner, 1988; Loftus & Marburger, 1983; Monroe, 1986; Paykel, 1983; Sobell, L., et al., 1990). In addition, memory aids were neither time consuming nor labor intensive to use in the interview.

Finally, subjects were able to recall life events preceding the onset of MDE, PD, or CAD over lengthy time

frames. Previous investigators have suggested that recall for life events drops markedly when assessment periods are greater than one year from the date of an interview (Wittchen et al., 1989). There is little empirical evidence however suggesting that accuracy of recall for life events does drop off after a year. The findings from this study would suggest that recall for salient life events does not fall off, despite lengthy time periods between the occurrence of a disease or disorder and a subsequent interview date. This finding is in keeping with other investigators who have suggested that the severity of an event will help determine whether it will be remembered by an individual (Paykel, 1983).

Despite these advantages, the semi-structured interview format could be enhanced by developing interview strategies that facilitate the recall of positive as well as negative life events in the year prior to the onset of a disease or a disorder. Although the researchers were interested in both types of life events, subjects primarily identified negative events. Recent research has attested to the importance of positive events in off-setting or neutralizing the impact of negative life events (Brown, Adler, & Bifulco, 1988; Grand, Grosclaude, Bocquet, Pous, & Albarede, 1988), or in providing hope that there might be a new way forward for an individual (Brown et al., 1988).

Phase 1. Step 3. Elicitation of Appraisals Associated with Salient Life Events

Almost all individuals recalled their appraisal for life events that were emotionally significant for them and that had occurred in the year prior to the onset of MDE, PD, or CAD. The semi-structured interview format may have facilitated the collection of this subjective appraisal information on life events. Specifically, the open ended nature of the interview allowed the interviewer to collect richer and more sensitive types of information on the meaning an event had for a person. This information could later be used to assess the potential determinants of the stressfulness of a life event for an individual.

Despite this advantage, the interview procedure was lengthy to conduct because of this step. The information necessary to analyze appraisal processes had to be collected by the interviewer for each life event identified. In addition, interviewers had to be able to recognize and deal with common problems in collecting appraisal information. For example, some subjects were unable to initially differentiate between the cause of an event and the appraisal of the events impact on their well-being. This required refocusing and exploration skills on the part of the interviewer to elicit this information. A second problem involved the need to explore general statements made by a subject (e.g. 'stressful') to determine more specific

appraisals they had had for an event.

Phase II. Step 1

The two researchers involved in the content analysis phase of the transcribed interview concurred on all life events the subjects had identified. This data suggests the MESLE methodology can be used to identify life events retrospectively that have strong emotional significance for an individual.

Phase II. Step 2

Accurate identification of an individuals appraisal of a life event is necessary in order to proceed with the scoring of the appraisal in Step 3. The two researchers involved in the content analysis faced several sources of disagreement during this identification process. Firstly, there were instances where one researcher identified an appraisal quote for a life event, and the second researcher did not identify the appraisal quote. When this occurred, the researcher who conducted the interview or transcribed the tape could more readily identify an appraisal quote. These problems may signify that the more familiar a rater is with the transcribed interview, the easier it is for them to identify appraisal quotes associated with life events. A second source of disagreement, relative to the identification of appraisal quotes, relates to one researcher identifying an appraisal quote that was rather general in nature for an event, while the second researcher

identified an appraisal quote that was more specific to that event's impact. In order to limit this type of appraisal problem, agreement on what level of appraisal quote will be chosen, given several levels should occur prior to the content analysis phase. It is suggested that if given more than one appraisal quote per life event, the more specific quote should be used as it is the more likely quote to reflect specific appraisal information needed for scoring in step 3.

Phase II. Step 3

Once appraisal quotes were identified, the two researchers were able to use the coding system of loss, threat, and challenge developed for scoring life event appraisals. Where there was disagreement in the scoring of an appraisal this usually involved a dual appraisal situation where both challenge and threat appraisals co-existed. Given that challenge and threat appraisals have been theoretically identified as having the potential to simultaneously occur (Lazarus & Folkman, 1984) it may prove beneficial for those involved in the content analysis to review any appraisal involving challenge to see if a threat appraisal also co-exists.

Although the content analysis phase facilitated the identification of appraisal information, the process was complicated and lengthy if the number of life events reported was substantial. An initial factor that

complicated this phase was the training procedure required for raters. This training procedure involved reviewing and understanding Lazarus' conceptual model of stress and coping (Lazarus & Folkman, 1984). Both raters were not conversant with this model prior to the content analysis phase and the review required discussion and clarification with a nurse conversant with the model to ensure satisfactory comprehension. Additional factors adding to the length of the content analysis phase included transcription of each tape prior to a rating session, as well as reading of the transcript, first for life event identification, then for appraisal information related to each event. Finally, a joint meeting of the raters was required where concurrence on life events and appraisals were determined before the appraisals could be scored into one of three stress appraisal categories. In defense of the analysis procedure however, complex phenomenon such as subjective appraisal processes that may influence how an individual responds to life events should not be oversimplified in the measuring process.

There is one other consideration future researchers should note prior to using the MESLE methodology. The design of the methodology does not allow for an examination of coping resource appraisals for stressful life events. A complete picture of cognitive appraisal (Lazarus and Folkman, 1984) is therefore not available. The reciprocal

interaction between appraisals involving what an individual considered the impact of a life event to be and what they believe they could have done about the event cannot be analyzed. An incomplete picture of the influence of cognitive appraisal on disease or disorder onset may result.

Implications

In Chapter IV implications of the findings related to primary cognitive appraisal will be considered in detail. These implications relate to the suggestion that some individuals demonstrate a predisposition in their appraisals of certain types of stressful life events. These appraisal differences, in turn, may influence whether or not the individual subsequently develops MDE, PD, or CAD. What will be considered in this chapter is how investigators might increase their effectiveness in identifying stable appraisal patterns individuals have for emotionally significant life events.

Two primary methodological differences emerge when earlier studies on cognitive appraisal stability versus variability are reviewed. The first methodological difference relates to: (1) the level of abstraction at which primary appraisals were assessed, while the second methodological difference relates to: (2) the type of life event examined by the investigators. The implications

related to each of these methodological differences in terms of identifying consistency in appraisals will be discussed each in turn.

Level of abstraction at which primary appraisal was assessed

One questionnaire that has been used to examine primary appraisal was developed by Lazarus and colleagues in their research on the relationship between appraisal, coping, health status, and psychological symptoms, (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). This questionnaire described six different stakes people might have in a specific encounter. The questionnaire consisted of thirteen items tapping physical, psychological, social, financial, and occupational stakes selected to reflect the six general stakes. Of these thirteen items, five related to stakes concerning self-esteem, and four related to stakes concerning a loved one, while four items reflected separate individual stakes. Using the questionnaire, more variability than stability was seen in how an individual appraised life events for their well-being. This variability in appraisals may have resulted from: (1) instrument unreliability related to the four single items used in the questionnaire, as well as (2) appraising an encounter at a relatively micro level of abstraction in terms of focusing on specific stakes that may have occurred as a result of a stressful encounter.

Findings from using the MESLE methodology suggest more

stable than variable appraisals for certain types of life events. This finding may be a result of a more macro analytic approach in assessing how an individual appraised a life event. By using the concepts of loss, threat, and challenge appraisals instead of specific stakes, information on stable differences in the primary appraisals individuals recalled for emotionally significant life events may also have become more readily apparent.

Type of life event used in assessing primary appraisal

The second major difference in methodological approaches in gathering data on life events and their primary appraisals relates to the type of life event that primary appraisal information was gathered on. Lazarus and colleagues in the study described above (Folkman et al., 1986) utilized the most stressful life event an individual had encountered during the week previous to completing the questionnaire. The MESLE methodology, in turn, assessed for emotionally significant life events over a period of a year prior to the onset of a specific disease or disorder. By focusing on emotionally significant life events over a longer period of time, the MESLE methodology may have uniquely captured or tapped in on life events where consistency in primary appraisals would be more readily displayed. Other researchers have indirectly addressed the importance of focusing on salient life events to gain access to stable appraisal patterns individuals are thought to

have. For example, Riskind and Rholes (1984) suggested that depression prone individuals differ from other persons by having negativistic thinking patterns, but that these negative thinking patterns may be latent and less cognitively accessible than neutral or even positive thinking patterns. Several investigators in the field of memory retrieval have also reported that the saliency of an element affects its availability in memory (Prory & Kriss, 1977; Taylor & Fiske, 1975). The MESLE, by focusing on emotionally significant life events may have facilitated accessibility to otherwise latent cognitive schemas.

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CHAPTER IV

Emotionally Significant Life Events and Primary Cognitive Appraisals of those Events Preceding the Onset of Panic Disorder, Depression and Coronary Artery Disease

There is general agreement that an association exists between the presence of stressful life events and the onset of a variety of disease and disorders in individuals (Day, 1989; Faravelli, Pallanti, Frassine, Guerrini, & Albanesi, 1987; Fava, Perini, Santonastaso, & Fornasa, 1980; Roy-Byrne, Geraci, & Uhde, 1986; Strober, 1983; Theorell, 1974). Numbers and types of life events have been identified as contributory factors, increasing the likelihood of developing a specific disease or disorder. A direct relationship between numbers and types of life events, and the onset of a disease or disorder is weak however, and the majority of individuals who experience stressful life events do not become ill following the occurrence of such events (Brown & Harris, 1978; Hammen, 1988; Magni et al., 1983; Roy-Byrne et al., 1986). To aid in predicting who may develop a disease or disorder, the variability seen in individual response to stressful life events has lead to the consideration of moderator variables by life event researchers (Brown & Harris, 1978; Dohrenwend, B.S. & Dohrenwend, B.P.; 1984; Johnson, Hall, & Theorell, 1989; Lazarus, 1966). Moderator variables, by rendering an

individual susceptible to an event, are hypothesized to increase the likelihood of that individual developing a disease or disorder. The interrelationship between an event, a moderator variable, and the onset of a specific disease or disorder although theoretically acknowledged as important, has not been studied however to any extent at the empirical level.

The purpose of Chapter IV is to examine the possible link between a specific event, one cognitive moderator variable (primary cognitive appraisal), and the onset of a specific disease or disorder in a subject. This examination involves comparing: (1) actual life events that occurred in the year prior to the development of three specific disease or disorders (depression - MDE, Panic Disorder - PD, and coronary artery disease - CAD) in a group of subjects, and (2) the primary appraisals a subject recalled for each event.

Literature would suggest that certain individuals predisposed to distorting incoming stimuli in a negative manner, when confronted by an event perceived as a loss, are more apt to develop MDE, whereas other individuals who are predisposed to fixating on the concept of danger, when confronted by an event appraised as threatening in nature, are more likely to develop an anxiety disorder (Beck, 1976). Finally, certain individuals with a deep seated uncertainty about themselves, when confronted by an event perceived as a

challenge, are more likely to deny the impact of the event, and through aggressive, competitive actions attempt some gain or mastery over the event or it effects (Suls, 1990).

Method

Sample

The sample utilized in examining and comparing life events and their associated appraisals with the subsequent onset of either MDE, PD, or CAD consisted of a subset of the original nineteen subjects who participated in the trial of the MESLE methodology. Eight of the nineteen subjects formed this subset. The eight subjects, based on the presence or absence of PD (PD+/PD-), CAD (CAD+/CAD-), and a history of depression (MDE+/MDE-) were categorized into one of eight possible subject groups (see Table IV-1).

Table IV-1

Possible Subject Groups Utilized to Examine Life Events, and Their Related Appraisals in Terms of the Onset of Depression (MDE+/MDE-), Panic Disorder (PD+/PD-), and Coronary Artery Disease (CAD+/CAD-)

Presence or Absence of Disease/Disorder	MDE+ History	MDE- History
CAD+/PD+	S2	-----
CAD+/PD-	S13,S6	S15, S16, S17
CAD-/PD+	S8	-----
CAD-/PD-	S7	-----

As can be seen in Table IV-1, in three of the eight possible subject groups, three cells have no subjects (CAD+/PD+/MDE-; CAD-/PD+/MDE-; and CAD-/PD-/MDE-).

Subjects without a history of depression included one

female (S15, age 69), and two males (S17, age 57, and S16, age 64). Subjects with a history of depression included three females (S4, age 45, S2, age 65, and S13, age 69), and two males (S8, age 44 and S6, age 64). Three of the eight subjects were married, one widowed, and three divorced, with one living in a common-law relationship. The eight subjects came from a diversity of educational backgrounds: university graduate (1), college graduate (2), high school graduate with post-secondary courses (2), high school graduate (1), and two (2) who had completed some secondary education. There was also a diversity in the occupations of the eight subjects: retired (2), janitor (1), trades (2), farmer (1), clerical worker (1), and supervisor/manager (1).

Subject Selection

The procedure to access subjects and obtain informed consent is outlined in Chapter III of the thesis. Of the original nineteen subjects who participated in the trial of the MESLE methodology (Chapter III), eight subjects qualified for this substudy. Inclusion criteria guiding the selection process included: (1) the absence of current depression, (2) three or more life events, where primary appraisal data was reported, and (3) the presence of at least one of the three disease or disorders of MDE, PD, or CAD. Subjects with current depression were not considered in this study, since research findings suggest that current depression alters cognitive appraisal patterns (Folkman &

Lazarus, 1986; Lewinsohn, Steinmetz, Larson, & Franklin, 1981). Any potential alteration in cognitive appraisal may have interfered with subjects accurately recalling previous appraisals they had for life events. Secondly, to examine and compare for appraisal patterns that may be associated with certain types of life event, as well as the onset of MDE, PD, and CAD a minimum number of events suggestive of a pattern was necessary. The minimum number selected was three. This allowed for the potential display of one or all three types of primary cognitive appraisal outlined in Lazarus' model of stress and coping (Lazarus, 1966), as well as a sufficient number of event/appraisal combinations to suggest whether or not a stable appraisal pattern might exist for any one individual. Finally, because the focus of the examination was on comparing life events and appraisal in terms of the specific disease and disorders of MDE, PD, and CAD, those subjects who had chest pain only were excluded.

Procedure

The MESLE methodology was used in collecting and analyzing life event and cognitive appraisal information for the three disease and disorders of MDE, PD, and CAD. The procedure related to this methodology is described in detail in Chapter III.

Findings

The findings of this pilot study can be categorized as follows: (1) numbers and types of life events a subject experienced prior to the onset of MDE, PD, and/or CAD, and (2) types of appraisals subjects recalled for each event. A summary of the data related to this information is presented in Table IV-2.

Table IV-2
Life Events Preceding the Onset of Depression (MDE), Panic Disorder (PD), and Coronary Artery Disease (CAD), and the Appraisal a Subject had for each Event (Loss - L, Threat -T, Challenge - C).

Subject	Event:Appraisal Prior to PD	Event:Appraisal Prior to MDE	Event:Appraisal Prior to CAD
S2	worry re: cousins health: T	Divorce:L	Child's move:C
S13	-----	Child died:L/T	Own move:L Brother died:L
S6	-----	Lost election:L Child died:L	Bankruptcy:L
S15	-----	-----	Losing jobs:C Mortgages:C New house: C Working long hours:C
S16	-----	-----	Ringing in ears:T/C Blurred vision:T Increased work demands:C
S17	-----	-----	Increased work demands:C Job Computer-ized: C son's wedding: T/C
S8	Dad ill:L/T Wife ill:T Working on call:T	Turned 40:L/T Quit job: L	-----
S4	-----	Children abducted:L Dad diagnosed with cancer:T Dad died: L Abused by husband: L/T	-----

Numbers and Types of Life Events

As can be seen in Table IV-2, the five subjects with a history of MDE reported a total of ten stressful life events in the year preceding the onset of MDE. While events ranged in numbers, all subjects reported at least one event that was clearly an objective loss. The two subjects with PD reported four stressful life events occurring in the year prior to the onset of the disorder. Three of these four events involved the health of a significant other person. Finally, the six subjects with CAD reported a total of fourteen stressful life events, most involving work related demands or changes in the workplace, preceding the onset of CAD.

Types of Life Event Appraisals

The types of life event appraisals reported by subjects were classified as involving either: (1) an actual harm or loss (Loss appraisal), (2) a threatened harm or loss (Threat appraisal), (3) a potential for a gain or mastery (Challenge appraisal), (4) a dual appraisal involving loss and threatened loss (Loss/Threat appraisal), or (5) a dual appraisal involving threatened loss as well as the potential for gain or mastery (Threat/Challenge appraisal). Firstly, appraisals are presented in terms of the onset of MDE, PD, and CAD. Following this, appraisals across subjects where there is greater than one disease or disorder are presented.

Appraisals of life events preceding the onset of MDE, PD, or CAD. Five subjects reported a history of MDE. Prior to the onset of the depression, subjects recalled a varying number of emotionally significant life events occurring. In all instances these events were appraised as involving an actual harm or loss. Three subjects however, also appraised some of these events as involving the threat of a loss, along with an actual loss. One subject (S13) for example, had experienced the death of a child, appraised this death as a loss, but also appraised this death in terms of the potential danger for future children dying. In contrast, another subject on turning age 40 appraised this event as the loss of half of his life, and felt his future was threatened in that there was limited time to accomplish certain goals. Finally, the third subject who recalled a dual loss/threat appraisal reported being abused by her common-in-law husband. She appraised this abuse as the loss of a caring relationship, but also felt threatened for her personal safety.

Two subjects reported PD. Prior to the onset of the PD, one of the subjects reported one stressful life event, involving the health of a cousin and had appraised this event as involving a threatened loss. For this subject, the cousin had been a significant confidant and support system since early years. When the cousin was diagnosed with cancer, the subject thought there was potential for the

cousin's premature death. In contrast, the second subject reported three stressful life events, two involving the health of significant others but appraised one of these events as a threat and the second event as involving both a threat and a loss. Where this subject had appraised the health event as a threat only, the subject's wife had been experiencing chronic back problems, the outcome of which was uncertain. This contrasted with the second health related event appraised as involving both threat and loss. In this instance, the subject's father had experienced a stroke, and the subject thought he would not be able to interact with his father again in the usual manner, appraising this as a loss of a relationship. At the same time, this subject also thought there was the potential for his father to die as a result of the stroke before he could see him, and appraised this as threatening his ability to say good-bye.

Finally, six subjects were diagnosed as having CAD. Prior to the onset of the first chest pain episode, four of the six subjects who had never experienced a depression, recalled appraising life events as primarily challenging. While one of these four subjects (S2) recalled only one emotionally significant life event occurring that involved a child's move, three of the subjects (S15, S16, S17) experienced between three and four life events each. Except for a son's wedding, nine of the ten events reported by these three subjects directly or indirectly involved work.

Two of these three subjects recalled appraising these work related events as challenging. Where one subject (S16) recalled appraising two of the three events reported as involving threat also, these events related to that subjects health status, which indirectly effected his work as a tradesman. Three of the six subjects with CAD had also experienced an MDE earlier in life (S2, S13, S14). One of these subjects (S2) had sought counselling at the time for her depression and recalled appraising the one event prior to her first chest pain episode as challenging. Two of the three subjects (S13, S6) had not sought out professional help during their depression, and recalled appraising later events occurring prior to the first chest pain episode as involving a loss.

Appraisals of life events across subjects where there is greater than one disease or disorder. Four subjects have more than one diagnosis involving MDE, PD, and/or CAD. Of these four subjects, one subject (S2) with a diagnoses of MDE, PD, and CAD demonstrated differing appraisals for life events prior to the onset of each disease or disorder. These differing appraisals included a loss appraisal related to a divorce prior to the onset of MDE, a threat appraisal related to worry regarding a cousin's health prior to the onset of PD, and a challenge appraisal related to a child's move prior to the onset of CAD. Historically, this subject had experienced the depression eighteen years prior to the

interview, and had sought professional help in dealing with the depression and the divorce. Fifteen years later, this subject experienced PD, and in the year prior to the interview had been diagnosed with CAD.

Two subjects had CAD and a history of an earlier depression (S13, S6). As described earlier, these subjects not only had appraised the life event occurring in the year prior to the depression as involving a loss, but also appraised the later events occurring in the year prior to their first chest pain episode as involving loss. While one of these events was an objective loss (death of a brother), the remaining two events (bankruptcy, and a personal move) were not as clear in terms of being objective losses.

Finally, one subject had experienced both PD and MDE (S8). For this subject the depression had started at age 40 and continued for two years. At that time the subject had quit his managerial job because of work pressures and poor job performance. At age 41, while still clinically depressed, this subject developed PD. He was working on call as a cook at the time, was worried about finances as his work hours were not guaranteed, and both his wife and his father were experiencing health problems.

Summary and Discussion of Findings

The findings from this pilot study can be summarized as follows. Firstly, subjects reported differing appraisals

for life events prior to the onset of MDE, PD, and CAD. Secondly, these differing appraisals related to specific types of life events that had occurred in the year prior to the onset of each respective disease or disorder. More specifically, prior to the onset of MDE, subjects had experienced life events involving significant objective losses and in all instances had appraised at least one of the life events experienced as a loss. In contrast, prior to the onset of PD subjects had experienced an event involving the health of a significant other person, and recalled appraising these events as threatening in nature. Finally, prior to the onset of CAD, the majority of subjects had experienced work related events, and except for two subjects with a history of depression had primarily appraised these events as challenging in nature.

It is important to view these findings with some caution as the sample was limited, the data retrospective and three of the possible groupings had no subjects in their cell. Where two subject groupings (CAD+/PD-/MDE+ & CAD+/PD-/MDE-) could be compared in terms of appraisals and life events occurring prior to the onset of CAD, those subjects without a history of MDE primarily had experienced work related events. These events in turn had been appraised as challenging except where one subject's health related events could have potentially effected his work. In this instance, the health related events were appraised as involving some

degree of threat by that subject. In contrast, the two subjects with a history of MDE appraised events occurring in the year prior to the onset of their first chest pain episode as involving a loss. While one event clearly was a loss, the remaining two events could potentially have been appraised as threatening or challenging. This may imply that these individuals had developed a depressive schema as a result of the earlier MDE and that events occurring later in life had activated this schema as indirectly seen in loss appraisals. Whether or not this is true is speculation however, as the MESLE methodology enabled the gathering and categorization of primary appraisal information, but did not involve an assessment of whether or not these individuals were distorting the events occurring in the year prior to their first chest pain episode.

Despite this limitation however, this finding could be utilized with individuals experiencing a stressful life event, who are vulnerable to the development of MDE, because of a depressive schema embedded during an earlier loss. By monitoring a person's appraisal of an event for distortion of stimuli, those individuals who may be at high risk for developing a clinical depression may be identified. In these instances, early intervention and treatment may forestall or diminish the full impact of the clinical depression.

As well, if future research focused on the primary

appraisal of challenge, in individuals with and without a history of MDE, additional insight into long-term effects of MDE, may help guide clinicians in specific cognitive restructuring strategies once an individual has recovered from depression. Both theory and research suggest that individuals who are encouraged by their circumstances to feel they have some gain or mastery as a result of an event probably have better morale and quality of functioning than individuals who are threatened or have experienced a loss (Lazarus & Folkman, 1984).

Focusing now on the subject with PD but no CAD, there is no comparison group for this subject. This subject reported appraisals involving threat prior to the onset of PD. This may imply that this individual had developed an anxiety schema that was later activated by specific health related events. Without a detailed assessment for distortion of these events however, this conclusion is speculative. This same individual had also experienced an earlier MDE, but without the comparison subject who had not experienced a depression, the threat appraisal findings may reflect an early appraisal of an event prior to a depressive schema being activated.

Despite this limitation, this finding could be utilized with individuals newly diagnosed with a disease or a disorder, as well as their significant supports. Clinicians focusing on this group of individuals and noting threat

appraisals associated with a health related event could monitor for the development of an anxiety schema that would suggest the person was at high risk for developing an anxiety disorder. This same group of individuals may through the fostering of anticipatory coping strategies be helped to diminish the full impact of an actual loss, if the disease or disorder involves such losses at a later date. This is particularly important where an event initially appraised as threatening is later appraised as a loss and MDE subsequently develops. MDE has been reported to interfere with treatment and rehabilitation of both medical and surgical patients (Blumenthol, williams, Wallace, Williams, & Needles, 1982; Carney et al., 1988). If a diagnosis of a disease or disorder progresses to involve loss, it would be important for maximum recovery that the individual not develop MDE.

Finally, this research undertaking supports certain theoretical propositions that specific types of life events when appraised in a certain manner predispose an individual to developing MDE, PD, or CAD. Whether these same combinations of life event/appraisals also proceed other disease and disorders is unknown. As well, differing combinations of life event types along with associated primary appraisals have not been studied in terms of the onset of other disease or disorders. Further clarification of the relationship between primary appraisal, life event

types, and the onset of various disease or disorders would substantially add to understanding the possible hypothetical connection between a stressor/appraisal/and disease or disorder onset.

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Chapter V

General Discussion and Conclusions

In examining the mediating role primary cognitive appraisal may have played between the occurrence of an emotionally significant life event, and the onset of depression (MDE), panic disorder (PD), and coronary artery disease (CAD), a new methodological approach was developed and utilized with a group of subjects who had chest pain. Findings and implications related to the development and application of the new methodology (Measuring Emotionally Significant Life Events - MESLE) are outlined.

Firstly, all subjects recalled experiencing emotionally significant life events in the year prior to the onset of MDE, PD, and/or CAD. The ability to recall these salient events was seen despite variable time frames, ranging from one year to forty-five years, between the date of onset of a disease or disorder and the interview date.

Secondly, subjects overall recalled their appraisal of an event. Almost all events reported were stressful for the subjects at the time of their occurrence, involving an actual harm or loss, a threatened harm or loss and/or a challenge for a subject in terms of the potential for individual gain or mastery.

Thirdly, when considering types of emotionally significant life events reported as well as their appraisal, it was noted that where life events involved significant

losses subjects appraised these events as involving harm or loss. In turn, where life events involved health, these events were appraised as threatening in nature. Finally, where life events involved work, subjects primarily appraised these events as involving some challenge.

Fourthly, when both types of life events, as well as their appraisals were considered in terms of the onset of MDE, PD, or CAD three findings were noted. Life events preceding MDE not only involved significant objective loss but were appraised as involving harm or loss by a subject also. Life events preceding PD involved the health, but not the death, of someone of significance to a subject and were appraised as threatening in nature by subjects. Life events preceding CAD primarily involved work, with subjects appraising these events as challenging overall.

There are three main implications related to these findings. Firstly, the MESLE methodology may have uniquely facilitated accessing enduring appraisal patterns that an individual uses when confronted with the impact of a stressful life event. This may relate to the more macro analytic approach taken in : (1) assessing appraisals, in terms of the concepts of loss, threat, and challenge, as well as (2) life events that have emotional significance for a person instead of a predetermined selection of events.

Secondly, by using the findings on types of life events, their cognitive appraisals, and the subsequent onset of MDE,

PD, or CAD, clinicians may not only identify individuals who may be vulnerable to a specific disease or disorder onset because of the activation of certain schemata, but may be able to diagnose symptom complexes suggestive of a disease or disorder prior to it becoming a full disease entity. These findings could serve as the basis for developing programs aimed at prevention and early intervention for specific subject groups.

Finally, in terms of future research the stability versus variability of cognitive appraisals individuals display and the relationship this may have to specific event types and certain cognitive schemas is deserving of investigation. As well, if life event types/cognitive appraisals can be identified prior to the onset of other common disease or disorders this would add to understanding the connection between life event stressors, individual cognitive appraisal of those stressors, and the onset of specific disease or disorders.