Chapter 2.

Work Stress and Coping Research:

Challenges and Advances

2.1 Foreword

Several literature reviewers have argued, that stress and coping research is difficult to organize because of the following causes: It is *diverse* (Endler & Parker, 1990; Parker & Endler, 1996); there is an *unclear differentiation* between *coping style* (which is a context-free construct) and *coping behavior* (which is a context-dependent construct) (Dewe, Cox, & Ferguson, 1993); there are unresolved problems regarding *coping measures* (Cartwright & Cooper, 1996; Gottlieb, 1997; Schwarzer & Schwarzer, 1996); and there are relatively few studies which specifically addressed employee's efforts to cope with stress at work (Schwartz & Stone, 1993).

Therefore, before unfolding the status of *work-related stress* and *coping research*, which is the main purpose of this Chapter, it will help first to describe the most influential theoretical perspectives, which have guided this field over the last thirty years. After this, in Section 2.3, I describe some facts and data of my own literature search, which was undertaken to observe annual entries registered in the PsycLIT and PysINDEXplus databases during the last three decades. In Sections 2.4 and 2.5, I organize and discuss the most relevant research challenges and advances during the 1970s, the 1980s, the 1990s and the turn of the century. In Section 2.6, preventive stress management is considered, as a field through which work stress and coping research might be implemented. Chapter 2 ends with a summary and an outlook regarding main challenges, advances and applications.

Table 1 gives a *thematic classification* which will also help to classify studies into one of the "big-four thematic axes" of research development, namely influential *theoretical perspectives* in *work stress* and *coping* research; *measurement* issues and *coping instrument* development; model testing research, in which develop and test of *causes*, *mediating processes*, and *consequences of work stress* are of relevance; and *stress management/reduction* research.

PERSPECTIVES ON WORK STRESS AND COPING	MODEL TESTING AND MODEL DEVELOPMENT	ASSESMENT AND COPING SCALE DEVELOPMENT	COPING THROUGH PREVENTIVE STRESS MANAGEMENT
Relevant theories: 1. Transactional Theory of stress (Lazarus, 1995). 2. Job Demand-Control Theory (Karasek & Theorell, 1990) 3. Person-Environment (fit/misfit) Theory (Caplan, 1983). 4. Cybernetic Theory of Stress (Edwards, 1992). 5. Proactive Theories of Stress and Coping (Aspinwall,1997; Schwarzer, 2000). 6. Conservation of Resources Theory (Hobfoll, 1998). 7. Behavioral Self-Regulation Theory (Carver & Scheier, 1998). 8. Social-Cognitive Theory (Bandura, 1997). 9. Attribution Theory of Motivation and Emotions (Weiner, 1986; 1987). 10. Salutogenic Health-Theory (Antonovsky, 1990). 11. Psychoanalytical Ego Defense Theory (Cramer, 2000).	Variables and Constructs: Causal antecedents: -Organizational Demands. -Personality Resources. -Social Resources (social support & networks). Mediating Processes: -Appraisals. -Coping process (proactive, preventive, emotion-focused, problem-focused, support seeking). Immediate Consequences: -Psychological distress (depression, psychosomatic symptoms). -Positive and negative affect. -Well-being. Long-Term Consequences: -Quality of life. -Health outcomes (mental, physical, behavioral). -Burnout. -Job-related outcomes (job satisfaction, performance, absenteeism, turnover).	Relevant topics: -Conceptual issues vs. stress and coping construct assessment. -Divergent measurement models of stress and coping. -Issues on instrument reliability and validation. -The problem of subjective vs. objective assessment. -Coping style vs. coping behavior assessment. -Construct universality vs. universal measurement procedures. -Cross-sectional vs. longitudinal and prospective assessment.	Relevant topics: Preventive Stress Management. Organization-focused strategies: -Modifying job and physical demands. -Modifying role and interpersonal demands (relationships) at Work. Individual-focused strategies: -Managing and coping with stressors (stressor directed-primary prevention). -Modifying responses to inevitable demands (response directed-secondary prevention). - Therapeutic treatment strategies (symptom directed-tertiary prevention). Stress Management Intervention Research: -Interventions Effectiveness. -Model testing research. -Model applications. -Innovative approaches (proactive models, conservation of resources model)

Table 1. Classification of the "big-four thematic axes" in work stress and coping research.

2.2   Background

Work stress and coping research has been influenced by a mosaic of theories that trace back to the 1970s and the 1960s. As Table 1 illustrates, eleven theoretical approaches are listed as influential frameworks: (1) transactional approach on stress and emotions; (2) job demand-control stress model; (3) the person-environment (fit or misfit) stress model; (4) the cybernetic approach of stress; (5) proactive theories on stress and coping; (6) conservation of resources approach; (7) behavioral self-regulation model; (8) social cognitive theory; (9) attribution theory of motivation and emotion; (10) salutogenic model; (11) psychoanalytical-oriented approaches.

(1) *Transactional approach* on stress and coping corresponds to the well-known research tradition of Lazarus (1991b; 1995), which is a broadly accepted and frequently used framework into the work stress research. Essentially, a *transaction* between the person and his/her work environment is stressful *only* when it is evaluated by the employee as *harm,* *threat,* or *challenge* to that employee's well-being. The constructs used for this evaluation process are primary and secondary *appraisal.* That is, *stress* experience depends on *subjective judgements*, which establish a balance between *environmental demands*, *constraints*, and *resources* and the capability of individuals to cope with demands. C*oping* "consists of cognitive and behavioral efforts to manage specific external and internal demands (and conflicts between them) that are appraised as taxing or exceeding the resources of the person" (Lazarus, 1991b, p. 112). Coping efforts comprise two broad dimensions, namely *problem-focused coping* (action-centered forms of coping), and *emotion-focused or cognitive coping strategies* (involving mainly thinking rather than acting to change the person-environment relationship).

While transactional stress viewpoint has been widely used in work stress research domain, several reviewers have drawn our attention to the following difficulties: First, there is some concern in the organizational literature about the dichotomy of coping (emotion- vs. problem-focused), for the reason that further sub-dimensions of these categories have been found (Hepburn, Loughlin, & Barling, 1997, p. 352). Second, it has been argued that certain work conditions have profound effects on employees, or might adversely affect the well-being of most workers, irrespective of appraisal processes (Brief & George, 1995; Harris, 1995).

In spite of mentioned unresolved issues, transactional approach is being used by work stress researchers in a diversity of topics such as: The role played by the *meaning* of work in the experience of stress (Locke & Taylor, 1991); the role played by *appraisal process* in coping with stress at work (Dewe, 1991; 1992a; 1992b); relationships between coping process and the *adjustment to organizational change* (Callan, Terry, & Schweitzer, 1994); job-related coping across *multiple stressors* and samples (Smith, 1995); *coping effectiveness* and *well-being* (Patterson, 1999); *temporal stability* of workplace stress and coping among female managers (Long & Schutz, 1995); *gender differences* in coping (McDonald & Korabik, 1991); *mediating role of coping* in the work stressors-employee interaction (Harris, 1991); point/counterpoints regarding *usefulness of transactional approach* in work settings (Lazarus, 1991c; 1995; Harris, 1995; Barone, 1995). Presented research examples are discussed in subsequent sections and details of transactional model are explained in Chapter3.

(2) The *job demand-control* (JDC) model, also known as the *job strain model* (JSM) was developed by R. A. Karasek in the late 1970s (Karasek, 1979); see also Karasek (1989), and Karasek and Theorell (1990). In the last 20 years, this model has been applied to numerous studies, which have elicited theoretical and methodological criticism due to empirical inconsistencies (van der Doef & Maes, 1999). This model has often failed to demonstrate the predicted interaction effect of high job demands and low job control on measures of strain (de-Rijk, Le-Blance, Schaufeli, & de-Jonge, 1998). Anyway, the JDC focuses on two dimensions of the work environment: job demands and job control (see Figure 1). The first refers to work load, and it has been operationalized as time pressure and role conflict. Job control (also called decision latitude) includes two components: skill discretion and decision authority. Psychological strain arises from the combination of (a) the demands of a particular work situation, and (b) the decision latitude available to the individual to face those demands. Stress is transformed into the "energy of action" in virtue of the moderating effect of decision latitude or discretion that an individual has.
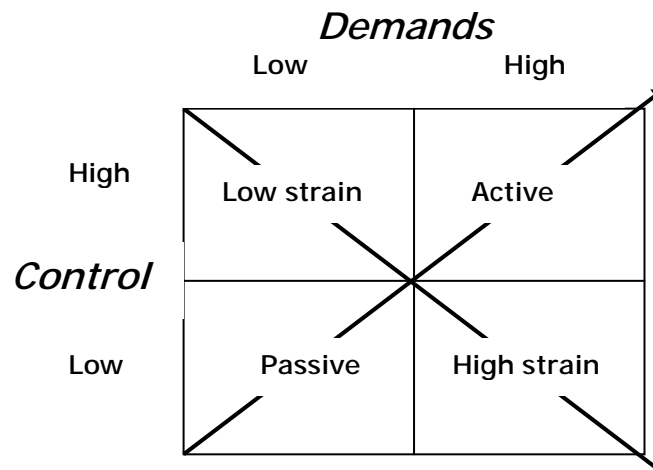
Demands

Low   High

Figure 1. The Job-Demand-Control Model (Adapted from Karasek, 1979). Source: van der Doef & Stan Maes (1999). The Job-Demand-Control(-Support) Model and psychological well-being: a review of 20 years of empirical research. Work & Stress, 1999, 13 (2), 87-114.

Recent study examples based on Karasek's model have been conducted by addressing the following issues: work stress, coping resources and heavy drinking (Kjaerheim, Haldorsen, Andersen, Mykletun, & Aasland, 1997); relationships between sense of coherence construct of Antonovsky (1990) and Karasek's conceptions on work-related demands (Rich, 1997); moderating effect of active coping on the interaction between job demands and job control (de-Rijk et al., 1998); lack of empirical support for the JDC model hypotheses (Tyler & Cushway, 1998); JDC, absence behavior, and employee's health (Smulders & Nijhuis, 1999).

(3) The *person-environment (fit or misfit) model* (PEFM) defines psychosocial stress in terms of fit (needs-supplies fit/abilities-demands fit and objective vs. subjective fit) between the person and the environment (Caplan, 1983). The model (see Figure 2) sustains that *stress* refers to *any characteristic* of the *job environment*, which poses threat to the individual. Two types of stress may threaten the person: either *demands*, which he/she may not be able to meet, or insufficient *supplies* to meet his/her needs. The extent to which the person's skills and abilities match the demands and requirements of the job, represents one kind of fit and the extend, to which the person's needs are supplied in the job environment, is another kind of fit. Three kinds of strains are conceived to be function of misfit or threaten to individual well-being: a) *psychological strains* (e.g., anxiety); b) *physiological strains* (e.g., high cholesterol); and c) *behavioral symptoms of strain* (e.g., smoking).
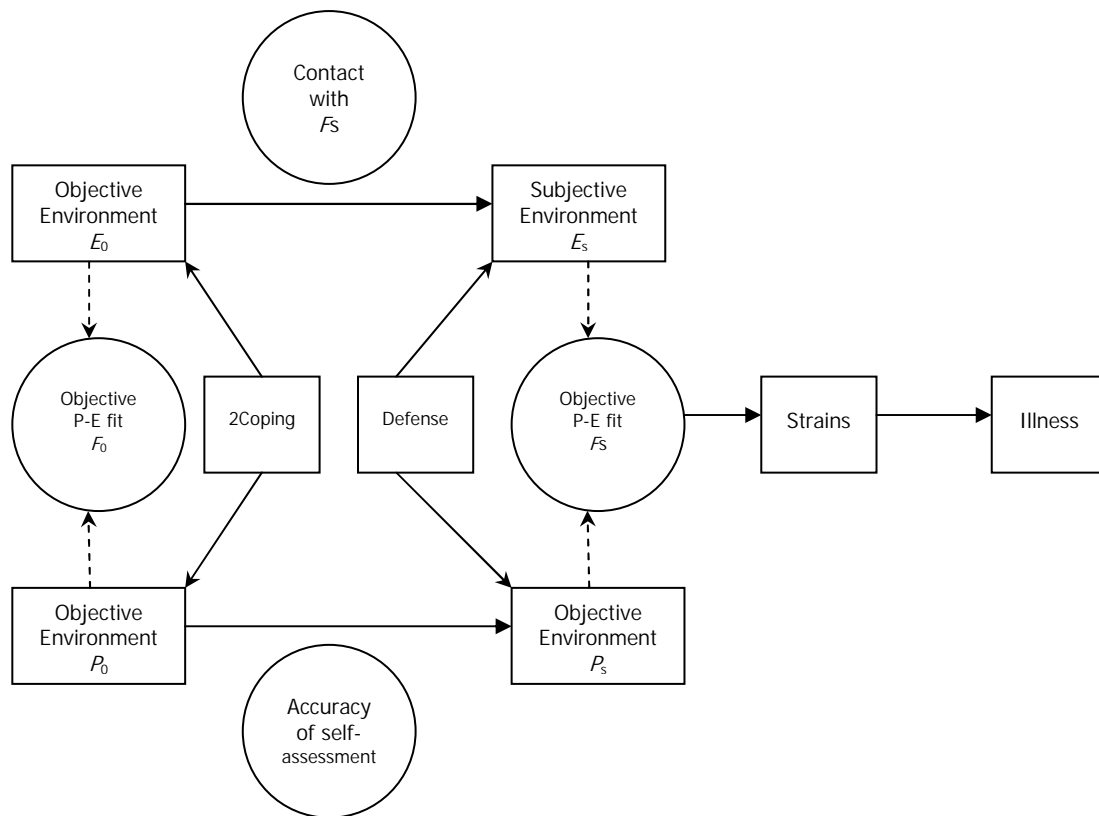
Figure 2.   The Person-Environment Fit (or Misfit) Model. Source: Caplan, R. D. (1983). Person-Environment Fit: Past, Present, and Future. In C. Cooper (Ed.), Stress Research (pp. 35-78). New York: Wiley.

Person-environment fit model has been mainly criticized by Lazarus (1995), because it excludes the role played in coping process by appraisal and subjective meaningful of work-related interactions. Early descriptions of the PEFM can be observed in French, Rogers, and Cobb (1974); Caplan, Cobb, French, Van Harrison, and Pinneau (1975); Caplan (1983). In the last decade, PEFM principles have been used: in the comprehension of stress and coping in health professionals (Sutherland & Cooper, 1990); to test Hispanic employee's adaptation to work stress (Keita & Hurrell, 1994); to evaluate stress in teachers (Pithers & Soden, 1999).

(4) The *cybernetic theory of stress* (CTS) views stress as a discrepancy between the employee's perceived state and desired state, that produces the experience of stress (psychological damage and deteriorating physical well-being) (Edwards, 1992). In principle, stress activates coping, which is defined as efforts to ameliorate the harmful impacts of stress. The stress and coping system process is viewed as a dynamic system of interrelated negative feedback loops; changes in the magnitude of one discrepancy influence the magnitude and/or the importance of others. Thus, coping is conceived as attempts to reduce or eliminate the negative effects of stress on well-being produced by discrepancies. Edwards and Baglioni (1993) have identified five coping forms, namely attempts to bring the situation into conjunction with desires, adjust desires to meet the situation (e.g., accommodation), reduce

the importance associated with discrepancy (e.g., devaluation), improve well-being directly (e.g., symptoms reduction) and direct attention away from the situation (e.g., avoidance). However, those coping dimensions have presented problems regarding construct validation and reliability of scales (Edwards & Baglioni, 1993). For early descriptions, see Edwards (1988).

(5) *Proactive theories* on stress and coping are relative new in the work stress research domain. Schwarzer (2000; 2001) has developed a new theoretical approach on coping, which is based on time-related stress appraisal and perceived certainty of critical events or demands. He differentiates four coping mechanism, namely reactive coping, preventive coping, anticipatory coping and proactive coping. Coping-related emotions such as a threat that is near in the future (e.g., increased workload) are assumed to be associated with anticipatory coping. In contrast, reactive coping is conceived to be linked to harm or loss experiences which are in the past (e.g., failing a job interview, having an accident at work). Preventive coping has the function to deal with uncertain threats in the distant future (e.g., retirement), while proactive coping involves future challenges that are seen as self promoting (e.g., self improvement through education). In the proactive coping approach, introduced by Schwarzer (2000; 2001), the time and the certainty play an important role (see also Schwarzer & Taubert, 2002). This model will be further developed and explained at the end of Chapter 3.

Aspinwall and Taylor (1997), on their side, analyzed the processes through which people anticipate or detect potential stressors and act in advance to prevent them or to mute their impact (proactive coping). In a conceptual framework derived from research on social cognition, social interaction, and stress and coping, they developed five stages in proactive coping, namely resource accumulation, recognition of potential stressors, initial appraisal, preliminary coping efforts, and elicitation and use of feedback concerning initial efforts. A difference I found between the two proactive models mentioned, is that, Aspinwall and Taylor (1997) describe proactive coping in terms of a series of stages through which the individual "must" pass. Schwarzer (2000) seems to define coping constructs in terms of the method or foci (target of coping effort), approach which is, in some manner, congruent with Lazarus' transactional model of stress. Proactive construct has received very little attention, probably because it is a new field in work stress research domain. Isolated examples were found in the literature, for example, proactive coping in HIV+ gay men (Nicholson & Long, 1990); proactive coping scale development (Greenglass, Schwarzer, & Taubert, 1999; Zea, Reisen, & Tyler, 1996); proactive coping with an anticipated academic stressor (Raffety, Smith, &

Ptacek, 1997); theoretical model for proactive coping (Aspinwall, 1997). Proactive theories on stress and coping are also covered in Chapter 3.

(6) *Conservation of resources theory* is a further new tendency in work-related stress and coping research that was developed at the end of the 1990s (Hobfoll, 1998). In this perspective, "stress occurs when (1) resources are threatened with loss, (2) resources are actually lost, or (3) there is failure to adequately gain resources following significant resources investment." (Hobfoll, 1998, p. 55). In contrast to transactional approach of stress, the core of the stress dynamic is not the appraisal process that takes origin from person-environment interaction; but a threat or lost of one or more of the following resources: object resources, condition resources, personal resources, and energy resources. Thus, coping is redefined as result of a socio-cultural dynamic, in which the rules of change and interchange of resources are determinant. This *strategic approach* identifies nine types of human coping, namely assertive action, avoidance, seeking social support, cautious action, social joining, instinctive action, aggressive action, antisocial action, and indirect action, which are part of a relatively complex *multi-axial model of coping* that consists of three behavioral axes: (1) the active-passive axis, (2) the prosocial vs. antisocial axis, and the (3) direct vs. indirect axis. *Conservation of resources theory* is practically unknown into work stress research, and my own literature research has yielded a unique study that was conducted by Freedy and Hobfoll (1994). This research example appeared to be quite similar to stress management interventions aiming at an increase of employee's coping resources. The creative difference I found was the use of a stress inoculation treatment in combination with a dual resources intervention designed to enhance social support and mastery resources. Study findings revealed a significant reduction in psychological distress for the group that received the dual resource intervention. In my opinion, this study represents a good example that closes the gap between work stress and coping theory and clinical interventions in work settings.

(7) The *theoretical based approach to coping* is represented by the work of Carver and Scheier (1998); Carver, Scheier, and Weintraub (1989), who have used two theoretical models as guidelines to develop their ideas, namely the *transactional model of stress* and the model of *behavioral self-regulation. Discrepancy reduction of goal pursuit* and *negative feedback loops* are central concepts for this cybernetic control-based model. In principle, a *hierarchical organization* of *goal pursuit* organizes goal oriented behaviors, which are regulated, at a middle level ('Do-Goals'), with actions pertaining to a higher hierarchical level ('Be-Goals') that are normally postponed until the person understands the situation and becomes self-aware, thus discrepancies between 'Do-Goals' and 'Be-Goals are resolved by choosing lower

level goals or behaviors. (Carver & Scheier, 1998). Alternatively Gollwitzer, Delius, and Oettingen (2000, p. 205) sustain that people do not necessarily have to move to lower level goals when trying to close the goal discrepancies, because:

> When it comes to 'Be-goals' that specify a desired identity (such as being good parent, an excellent scientist, or a very religious person) there are many different, alternative ways to indicate to oneself and others that one possesses the aspired identity. If one has failed to attain an indicator or has discovered that an indicator is out of reach (e.g., important discoveries for a scientist), one can compensate by striving for alternative indicators (e.g., supervising students). People who have set themselves self-defining goals and still feel committed to attain them readily respond to experience of falling short with such compensatory efforts.

With regard to *coping process*, Carver et al. (1989) disapprove the established dichotomy between emotion-focused and problem-focused, because it is too simple and it doesn't rescue the complexity of problem-focused strategies that normally involve several and distinct processes such as planning, taking direct action, seeking assistance. This is also the case of emotion-focused coping, which entails several responses like positive reinterpretation of events, seeking out of social support, denial and so on. This approach has been called theoretical, because it states *a priori* what kinds of coping are likely to be effective. Additionally, it pertains to research tradition on *personal resources*, in which variables such as self-efficacy, *dispositional optimism*, hardiness, mastery, and neuroticism are of relevance. Some empirical evidence has been shown for the assumption that individuals with *higher optimism* are more likely to use *problem-focused coping* (Strutton & Lumpkin, 1992; Scheier, Weintraub, & Carver, 1986). Conversely, Fry (1995) has found that optimism was associated with the use of religious coping strategies (a form of emotion-focused coping) in female executives confronting work stress. In any case, dispositional optimism might be considered as a relatively new construct in the work stress research domain. Previous research examples are discussed in subsequent sections, and details of the model of *behavioral self-regulation* are covered in Chapter 3.

(8) Bandura's *social-cognitive theory* (Bandura, 1986, 1997) uses *self-efficacy* construct as a central ingredient. In this theory, initiation of coping behaviors, coping efforts, and coping permanency in the face of difficulties are assumed to be determined by *self-efficacy* (Schwarzer, 1992b). Conceptually, the difference between self-efficacy and both self-esteem and outcomes expectancies is, that perceived self-efficacy is concerned with judgements of personal capability ("I can do that work"), whereas self-esteem is concerned with judgements of self-worth ("I am proud of myself"). On its side, outcomes expectancies are causal beliefs about the relationship between actions and outcomes ("If I stop smoking, I'll

reduce my risks of getting a respiratory disease"). *Self-efficacy beliefs* are constructed from four principal sources of information: enactive mastery experiences that serve as indicator of capability; vicarious experience that modifies efficacy beliefs through the comparison with achievements of others; verbal persuasion -from oneself and the others- that one posses certain capabilities; and personal physiological and affective states from which people judge whether or not they are capable, strength, and vulnerable to dysfunctions (Bandura, 1997). In the context of occupational stress and dysfunction, it has been found that perceived self-efficacy to fulfill occupational demands also affects the level of stress and the physical health of employees. Those who have low sense of self-efficacy, experience higher levels of sleep disturbances, heavy drinking, anxiety, and health problems. Additionally, certain organizational conditions such as poor prospects for occupational advancement, heavy workloads and so on, can undermine employee's beliefs in their occupational abilities, thus exacerbate a low sense of coping efficacy (Bandura, 1997). More study examples are explained in subsequent sections, and *self-efficacy theory* is covered in Chapter 3.

(9) Weiner's attribution theory of motivation and emotions (Weiner, 1979, 1982, 1986, 1987) has been also applied to work stress research in conjunction with Lazarus' transactional model of stress (Perrewe & Zellars, 1999). Essentially, Weiner's model proposes that "causal ascriptions" play a key role in motivational and emotional human process. The perceived causes of success and failure are analyzed along three dimensions: locus (whether or not the cause of the outcome is perceived to be located within the individual such as ability or effort, or outside the individual such as the task or luck); stability (the individual's perception that the cause will continue over time); and controllability (whether a cause is under the volitional control of an individual). The perceived stability of the causes affects the expectancies of the individual and the magnitude of emotions and thereby direct motivated behavior. Perrewe and Zellars (1999) have developed a "transactional attributional model of the organizational stress process", in which primary appraisal is conceived to be predictor of the search for the causes of felt stress (internal and external); these causes, on their side, are indirect predictors of coping through the direct effect of affective response (emotion) on secondary appraisal coping choices. Points and counterpoints on the work of Perrewe and Zellars (1999) have been published by Frese and Zape (1999), and also by Schaubroeck (1999). With respect to research examples, I have found a unique study that emphasizes the role played by causal attributions in coping with work-related stress (Chwalisz, Altmaier, & Russell, 1992), which is discussed in subsequent sections.

(10) The *salutogenic model* of Antonovsky (1990), which is based on the concept of sense of coherence (SOC), is an additional influential perspective. SOC is defined as follows: "A global orientation that express the extent to which one has a pervasive enduring thought dynamic feeling of confidence that (1) the stimuli deriving from one's internal and external environments in the course of living are structured, predictable and explicable; (2) the resources are available to one to meet the demands posed by these stimuli; and (3) these demands are challenges worthy of investment and engagement." (Antonovsky, 1987, p. 19). This approach gave a new meaning to health, in the sense that illness and health are not conceived as a dichotomy, rather as continuum in which a person is not ill or healthy at a point in time, but more or less healthy or ill. SOC model has been investigated by several studies in the context of stress at work, for example, Rich (1997); Baker, North, and Smith (1997); Ryland and Greenfeld (1991); a scale development study example was realized by Schumacher, Wilz, Gunzelmann, and Braehler, (1999). Preceding examples are commented in subsequent sections.

(11) *Ego defense approach* has been rejected by academic psychology for a considerable period of time. Nevertheless, it seems that *defense mechanism* and subjective defensive processes are being discussed across the broad field of psychology (Cramer, 2000). The concept of defense mechanism in psychology began with Sigmund Freud's early papers at the end of the 1890s, and it was expanded by the work of A. Freud (1936; 1946) on *The Ego and the Mechanism of Defense.* The main difference between coping process and defense mechanism is that coping is conceived to be used as a conscious, intentional process, whereas defenses are assumed to be unconscious as well as non-intentional mechanism. (Cramer, 2000). Lazarus (2000, p. 671) admits the relevance of defense approach as follows: "I have long been convinced that research on stress, coping, and the emotions must address unconscious processes and ego defenses. There is a growing conviction that a large proportion of human appraisals occur without self-awareness of the factors that influence the emotion process." In work settings, there is very few research on defense mechanism; Yerkes (1993), for example, conducted a study in which several psychological defenses (e.g., group identification) were used by medical personnel, aboard a ship in a war zone, to adapt themselves to separation from loved ones, lack of personal privacy, and the unplanned nature of the deployment. A second study realized by Janik (1992) has encountered that public safety workers use "cognitive defenses" to cope with traumatic experiences.

2.3   Literature Search: Facts and Data

The term *coping* first appeared in Psychological Abstracts in 1967 and there has been an exponential growth of interest in the concept since that time (Coyne & Racioppo, 2000). These authors conducted a PsycLIT literature search that yielded close to **23,000** references to *coping* from 1967 to 1998. In a similar study, Hobfoll, Schwarzer, and Chon (1998) carried out a search of scientific literature under the key words *stress* and *coping* in the PsycLIT database from 1984 to 1998. This literature search yielded over **29,000** research articles on *psychological stress* and *coping*.

From a more conservative perspective, I have used *work-, job-, occupational-stress* and *coping* as search criteria to identify articles in the PsycLIT and the PSYNDEXplus databases from 1967 to July 2000. The main interest was to confirm whether or not a pattern of growth was present in the work stress and coping research domain. In fact, my own literature search generated **1,310** records and it did present a growing pattern in cumulative number of publications (see Figure 3). Nevertheless, if I compare my findings with those obtained by Coyne and Racioppo (2000), and by Hobfoll et al. (1998), it can be concluded that very few attention has been devoted to the role played by coping process in the experience of work-related stress. For example, the 1,310 records that I have found represent only 5.69% of 21,000 references to *stress*, and only 4.52% of 29,000 references to *stress* and *coping*. In other words, despite of the enormous volume of occupational stress research that has been carried over the last three decades (see Beehr, 1998, p. 839), relatively few studies have specifically addressed employee's efforts to cope with the stresses and strains of the workplace, which may be appraised and coped differently than general life stress (Lazarus, 1995; Cartwright & Cooper, 1996).

Three hypothetical reasons could explain these facts and data: First, work stress research has been traditionally conducted by organizational and industrial psychologists (I/O) who are mainly interested on environmental factors, instead on personality variables or mediating aspects such as appraisal and coping; second, *stress* and *coping* research has had theoretical and methodological complexities, which might generate lack of credibility concerning its organizational applicability. Third, *stress* and *coping* research has been the core of permanent debates and recurrent conflicts regarding its measurement, which are still unsolved. A divergence exists, for example, whether coping should be measured as a *process* or as a personality *style*. These topics will be discussed in subsequent sections.

Figure 3 offers an overview of my own literature search from 1969 to 1999. In the graphic, it can be seen that less than 10 articles per year were published in the 1970s, whereas a sustained increment in the number of entries is observed from 1980 to 1999, especially in 1995, year in which PsycLIT records grew up to 100.
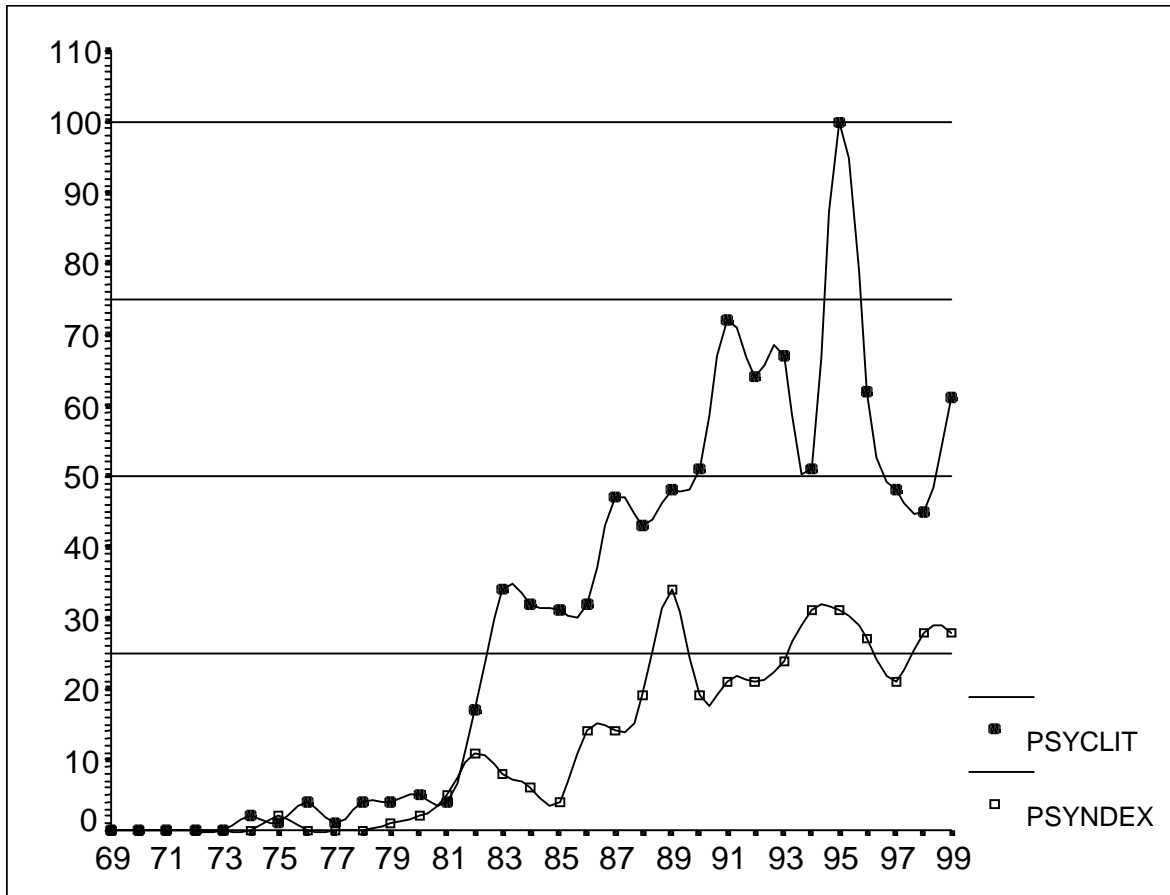

Figure 3.   Annual Entries Under "Work Stress", "Job Stress", "Occupational Stress" and Coping" in the PSYCLIT and the PSYNDEX databases from 1969 to 1999.

With regard to the language in which study results were published, w*ork stress* and *coping* research has been edited in a variety of languages such as Chinese, Danish, Dutch, English, Finish, French, German, Italian, Japanese, Norwegian, Polish, Portuguese, Spanish and Swedish.

2.4   Historical Overview

2.4.1   Research Developments in the 1970s

One of the earlier contributions to the study of "*work stress*" and "*coping*" registered in the PsycLIT database literature was a research conducted by Jennings, Rose, and Kreuz (1974). This research evaluated the related *military performance* during and after officer candidate school (OCS), in 69 American candidates that were studied early in training, just prior to graduation, and after 6 months on duty as officers. OCS attempted to place an individual under physical and psychological stress akin to that found in combat. Candidates who successfully completed training under these conditions were commissioned second lieutenants. A ranking of academic military sciences was performed approximately every four weeks. The areas were: (a) punctually in completion of work; (b) completeness of the work; (c) quality of the work; (d) speed of learning skills; and (e) budgeting and organizing time. In the context of a psychiatrist interview, five categories were evaluated: (a) performance and functional impairment; (b) anxiety, emotional response, arousal; (c) threat to self-esteem; (d) impulsivity; and (e) global stress. The "stress reaction scale" evaluated coping, which was a semiprojective test of reactions to seven specific stress situations encountered in OCS. The candidate was asked to put himself into a situation, numerically rate his emotion reaction, and predict the outcome of the situation. Two judges for coping failure, solution inadequacy, and unfavorability of the predicted outcomes scored the answers. Additional paper and pencil tests were applied, namely, the Marlowe-Crowne social desirability scale, the Buss-Dirkey test of aggression, an anxiety scale, and the 16 personality factors test. After this testing session, candidates rated each week for the level of stress. Main findings showed significant mean differences in "failure to cope" between week 3 (high stress period) and week 22 (low stress period). That is, the "coping failure score of the stress reaction scale" showed a negative relation to OCS rank, but only after the men had an opportunity to learn how to "cope" within the system. "In summary, candidates who succeeded at OCS tended to be forthright, socially bold individuals who adopted active coping styles. They expressed relatively few problems due to stress, but may have adopted some alien attitudes in order to succeed." (Jennings et al., 1974, p. 503).

From the previous study it was observed, that coping was conceived to be the answers given to a semiprojective test of stress reactions to seven specific situations. Second, while

changes in "coping patterns" from week 3 to week 22 were registered, the study concluded that there was an "aggressive coping style" that attained better standings. Third, the study used a correlational methodology to evaluate associations between performance scores and four group of psychological variables.

Two years after Rose and Kreuz's contribution, a similar study was conducted. Cooper and Green (1976) published an article entitled "coping with occupational stress among royal air force personnel on isolated island bases". These authors assessed relationships between performance, supervisory skills, personal skills, and personality traits and demographic characteristics in a sample of 64 royal air force personnel. They found that performance was predicted by a number of personality factors and certain demographics variables during a period of relative isolation and confinement. A closer look at this work, lead me to corroborate that "coping" was conceived as job performance ratings in four aspects: (a) trade ability or task performance; (b) supervisory ability; (c) personal qualities; and (d) conduct defined as number of changes a man has had during the period being assessed. Additionally, the study used a correlational approach to evaluate associations between demographic factors, 16 PF and those groups of variables that were assumed to evaluate "coping".

In another study, Anderson (1976) evaluated relationships between stress, coping behaviors, and performance in a sample of 93 own-managers of small businesses damaged by hurricane Agnes in June 1972. Structured interviews were conducted approximately 8 months following the onset of the disaster. It was hypothesized that (a) perceived stress and performance display an inverted-U relationship, and (b) emotional coping mechanisms increase under higher stress. Results revealed that two type of coping behaviors (emotional and problem oriented) have changed depending on the level of perceived stress, especially for those subjects perceiving moderate and high levels of stress. The mean number of both types of coping mechanism increased substantially for the higher levels of perceived stress, as could be expected. The major conclusion of the study was that owner-managers of organizations, who perceived high stress, exhibited substantially different coping patterns than managers perceiving either moderate or low stress levels.

My general opinion about Anderson's study is that he showed to be less descriptive and more theoretical oriented in comparison with Jennings et al. (1974) and Cooper and Green (1976). First, he aimed to give empirical support to Yerkes-Dodson law in the context of working organizations, through the use of both Spearman rank-order correlations as well as linear and nonlinear regressions to test the significance of curvilinear relationships. Second, he has evaluated two coping mechanisms based on the already-classical categorization of

Kahn (see also Kahn, Wolfe, Queen, Snoek, & Rosenthal, 1964), namely, coping responses that are aimed to deal with the objective situation (class I), and coping mechanisms oriented to manage emotional reactions to the stimulus (class II). Although Anderson showed an advance in coping conceptions, coping was assessed as the number of class I mechanisms added to class II, and no reference was given in the article regarding any specific scale or instrument to evaluate coping. Rather, instances of each class of coping mechanism were noted during interviews with emphasis placed on the critical incidents data.

In a more refined study entitled "the structure of coping", Pearlin and Schooler (1978) evaluated the efficacy of coping behaviors representing three functions in 2300 urban subjects, namely: a) eliminating or modifying conditions giving rise to problems; b) perceptually controlling the meaning of experience in a manner that neutralizes its problematic character; and c) keeping the emotional consequences of problems within manageable bounds. A more detailed examination of this work allowed me to conclude that there was a serious effort to study coping with occupational life in the late 1970s. First, they used their own working definition of coping, regarding to the multiple roles that people typically play as they act as parents, "jobholders" and "bread winners", husbands and wives. Second, they did fundamental distinctions between social resources, psychological resources, and specific coping responses, which are key variables in conducting stress and coping research. Third, they examined a number of coping patterns within several role areas that were then, factor analyzed and scored to provide reliable measures of coping. They developed 6 subfactors for marital coping, 5 subfactors for parental coping, 4 subfactors for household economics, and 4 subfactors for occupational coping, namely, substitution of rewards, positive comparison, optimistic action, and selective ignoring. Fourth, with regard to their function, three general coping strategies were developed considering earlier Lazarus' approach (Lazarus, 1966; Lazarus, Averill, & Opton, 1974), namely, (a) responses that changed the situation out of which strainful experience arise; (b) responses that control the meaning of the strainful experience after it occurs but before the emergence of stress; and (c) responses that function more for the control of stress itself after it has emerged. Fifth, at the methodological level, principal component analyses with varimax rotations were used to generate a factorial structure for coping construct. Regression analyses were employed to determine whether or not coping responses were more important than coping resources in moderating the relationship between strains and stress. Findings demonstrated that in marriage, coping responses were more important in blocking stress than were coping resources. In dealing with problems of household finances, coping resources showed a greater effect in comparison with

coping response. In parenting, the advantages of both coping responses and coping resources almost disappeared. In occupation, coping resources were more helpful in blocking stress than coping responses. Nevertheless, while Pearlin and Schooler's contribution established an important advance both at the theoretical and at the methodological level, work stress-coping relationships were still assessed without considering a longitudinal or prospective research style, that allowed researchers to predict, based on repeated measures, later events from measures obtained earlier. Within-subjects and prospective research would come into view until the following decades.

In the late 1970s, because there was still little research directly related with "job stress-employee health", Beehr and Newman (1978) have practically begged for researchers to use their model and their proposed variables to conduct studies (Beehr, 1998, p. 843). Seven job stress-employee health research domains were proposed by these authors: 1) An environmental facet, which should include the study of job demands and task characteristics, role demand or expectations, organizational characteristics and conditions, organizational external demands and conditions; 2) a personal facet that should contain the study of psychological condition or personality traits and behavioral characteristics, as well as the study of physical condition, life stage characteristics and demographics; 3) a process facet, in which psychological processes and physical should be study; 4) a human consequences facet, that is, the study of psychological health consequences as well as behavioral consequences; 5) an organizational consequences facet; 6) an adaptive response facet that should comprehend research on adaptive response by the individual, adaptive response by the organization, and adaptive response by third parties; and 7) the time facet, which should contemplate time as an important variable among facets 1 to 6 (see Figure 4).
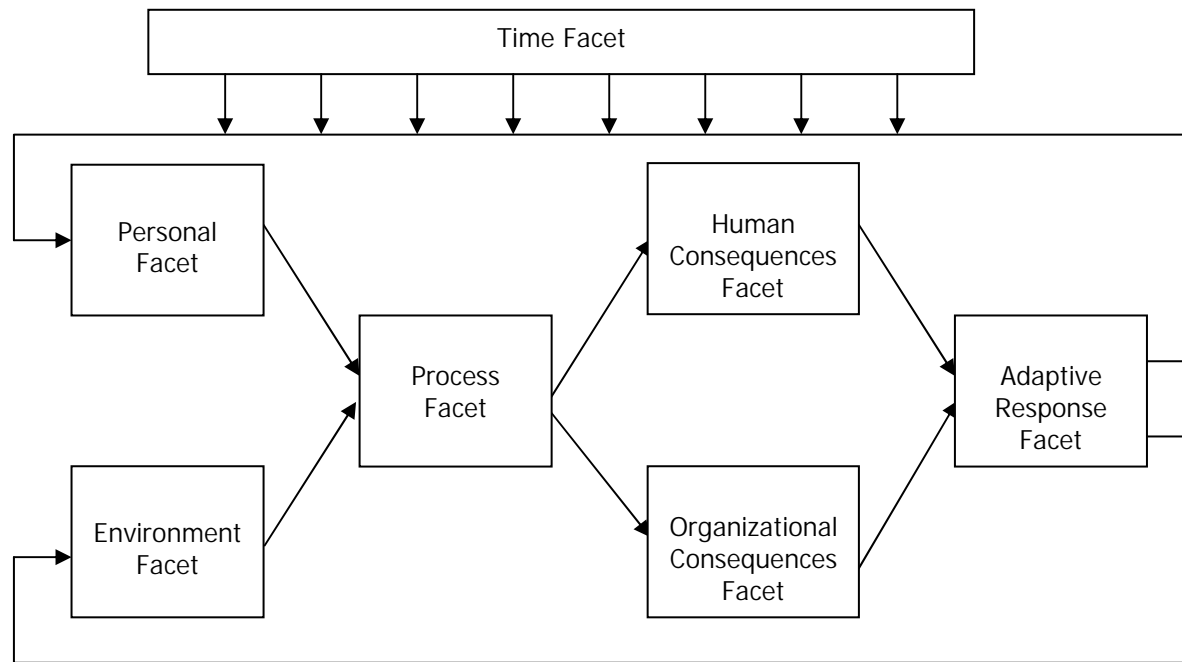
Figure 4. The Beehr-Newman Metamodel of Occupational Stress. Source: Beehr & Newman (1978). Job stress, Employee Health, and Organizational Effectiveness: A facet analysis, model and literature review. Personnel Psychology , 31, p. 676.

To briefly conclude with the "history" of the earlier stage on work stress and coping research, I like to signalize some final remarks:

1.- The study of stress and coping in working environments and working subjects began in the 1970s under the influence of the following theoretical models: (a) the *Person-Environment Fit/Misfit Theory* (Caplan et al., 1975; French et al., 1974); (b) the *Transactional Theory of Stress* (Folkman, Schaefer, & Lazarus, 1979; Lazarus, 1966; Lazarus et. al., 1974; Lazarus & Launier, 1978); and the *General Adaptation Syndrome Theory* of Hans Selye (1950, 1974, 1975). Nevertheless, coping in working environments/subjects had a variety of conceptual meanings, being commonly used interchangeably with concepts such as stress reaction or performance ratings.

2.- At the methodological level, the earlier stage on work stress and coping research could be described by its modesty and simplicity. On the one hand, there was a global tendency to conduct correlational studies, and with counted exceptions, regression models or factorial strategies were used. Due to lack of instruments to measure coping, some studies used unstructured interviews or semiprojective tests to evaluate what they have considered to call "coping". In addition, personality factors as measured by the 16 PF test of Cattell, Eber, and Tatsuoka (1970) as well as demographics were normally used to calculate correlations. With regard to research design, cross-sectional studies were the norm and it was found no longitudinal or prospective study.

2.4.2   Research Developments in the 1980s

Whereas the 1970s was a stage of "trial and error" in work stress and coping research, the 1980s can be conceived as the époque for "growth and development", particularly stimulated by the creation of questionnaires designed to evaluate coping behaviors (e.g., the Ways of Coping Questionnaire; WQQ; Folkman & Lazarus, 1988).

In general terms, research tendencies in the 1980s can be divided into the following categories:

(1) Cross-sectional versus longitudinal research (e.g., Casas, Furlong, & Castillo, 1980; Kobasa, 1982; Menaghan & Merves, 1984; Newton & Keenan, 1985; Shinn, Rosario, Morch, & Chestnut, 1984); (2) coping scale development in the work stress research (e.g., Folkman & Lazarus, 1988; Latack, 1986; Lawrence, 1984; Osipow & Spokane, 1984; Seidman & Zager, 1986); and (3) coping styles versus coping behavior research (e.g., Brody, 1988; Defares, Brandjes, Nass, & Van-der-Ploeg, 1984; Ilfeld, 1980; Kirmeyer, 1988; Larsson, Kempe, & Starrin, 1988; Manzi, 1986; Long, 1988; Long & Gessaroli, 1989).

2.4.2.1 Cross-sectional versus Longitudinal Research

In the early 1980s, although relational nature of stress was broadly accepted, stimulus-response conception of stress was still present in research on coping with job stress. For example, Casas et al. (1980) evaluated mechanisms used to cope with job stressors in 78 university and college ethnic minority counselors. Coping was conceived as the availability of self-help networks, and sources of stress were conceived to be the stimulus that mobilized the search of network support. This cross-sectional study used distribution of frequencies, cross tabulations and ranking scores to associate variables of interest. Some findings sustained that "subjects with inadequate self-help networks indicated they were experiencing more on-the-job stress, perceived the university as less supportive of their role as a "minority" counselor, and identified more conflict of role definition between themselves and their supervisors than subjects with adequate self-help networks." (Casas et al., 1980, p. 365).

In a further cross-sectional study, Kobasa (1982) showed more theoretical and methodological refinement regarding to coping with job stress in comparison with Casas et al. (1980). She operationalized and assessed life events, personality resources, coping resources,

strain and illness to evaluate a "stress resistance model" in 157 general practice lawyers. The study used the schedule of recent life events and the social readjustment rating, and no correlation was found between reports of diagnosable illness and stressful life event levels. However, there was a significant relationship between stress experience and complaints of strain symptoms, which was mediated by two stress-resistance resources. Personality characteristic of alienation as opposed to commitment and the use of regressive coping techniques was significantly related to stress levels. Degree of strain reported was not affected by social support and exercise. Although this study did not include appraisal process as determinant of coping, it has clearly defined the mediating role played by "coping resources" in the relationship between life events and personality, and strain and illness. That is, variable operationalization was coherent with measurements, and analyses (correlations, hierarchical stepwise regression) were coherent with research model. The weakness of the study is that it didn't rescue the dimension of temporality.

On their side, Newton and Keenan (1985) proposed a model in which both situational and individual characteristics predict coping options when confronting a stressful incident at work. Coping was categorized into five higher-order classes based on stress incidents recorded resulting from a content analysis, and as indicated from original reports. With the help of frequency analyses, crosstabulations, and breakdowns they generated a 15-category set of coping methods. Also, analysis of variance was used to explore relationships between individual dimensions, situational aspects and stress appraisal variables. Analyses indicated that all 3 predictor groups (stress appraisal, individual, and environmental characteristics) were important in relation to the coping behavior reported. Results supported model proposal that stress appraisal, individual, and environmental characteristics were relevant in relation to the coping behavior reported. Some evidence suggested that coping responses were related to both particular individual characteristics and to environmental context. Although this research can be criticized for its methodological simplicity and cross-sectional approach, it can be considered as an early effort to empirically comprehend the contextual and individual nature of coping.

Parallel to the study of relationships between personality, environmental factors, coping resources, strain and illness, a flourishing construct received growing attention from researchers in the 1980s, namely, burnout syndrome and its links to job stress, strain and coping (e.g., Enzmann & Kleiber, 1989; Kleiber, 1989; Quattrochi Tubin, Jones & Breedlove, 1982; Shinn et al., 1984). These studies were also associated to stress management initiatives

that aimed to increase/improve coping skills to deal with employee's burnout (e.g., Forman, 1983; Glicken, 1983; Murphy, 1983; 1984; Riccio, 1983; Sparks, 1983).

Specifically, Shinn et al. (1984) conducted a cross-sectional study to link the burnout syndrome to job stress, strain and coping process. They investigated the effects of coping on psychological strain and burnout produced by job stress in 141 human service workers. They were interested on group coping (social support) and on coping strategies initiated by agencies, because there was empirical evidence suggesting that individual coping responses do not alleviate strain produced by job stress. Findings revealed that group coping were related to low levels of strain, whereas individual strategies had little effect. In addition, no sex differences were identified as well as no moderating (interaction) effect of stress and coping on strain. A closer look at this work permitted me to understand, that Shinn and her colleagues were more meticulous regarding the study of coping. First, they divided coping into two categories, namely, individual coping (emotion focused and problem focused) and group coping (social support from workers). Second, they evaluated buffering-effect of coping vs. main-effect. Third, they were concerned about sex differences in coping process. Furthermore, reliable instruments were used to assess constructs, and hierarchical multiple regression analysis was used to predict strain from job stress and coping.

Lack of studies with panel designs and sophisticated approaches, was a generalized characteristic of research on coping with job stress in the 1980s. However, the studies of Brenner, Soerbom, and Wallius (1985); Menaghan and Merves (1984) represented an exception to that norm.

Menaghan and Merves (1984) have introduced a new analytic model to conduct research on work stress and coping as well as new methodological approach, that is, the study of coping over time, the use of LISREL (structural equation model) to generate Barlet's factor weights which could be used to assign factor scores, and the use of panel with regression analyses to evaluate the impact of situational context and initial occupational problems on specific occupational coping efforts over time, namely, direct action, optimistic comparisons, selective ignoring, and restricted expectations. Data were obtained from 2 waves of interviews with a metropolitan sample of 1,106 adults conducted in 1972 and 1976. Findings revealed that higher levels of initial problems were significantly related to the use of two coping efforts, namely, selective ignoring and restriction of expectations. A lesser use of optimistic comparisons was related to more problems, and only direct action efforts were independent of level of problems. In sum, it was found that coping efforts varied by the level of problems and by the situational context.

Brenner et al. (1985) represented a supplementary example of methodological refinement in the 1980s, because they used structural equation modeling to evaluate changes in coping over time. This study developed a LISREL model of the teacher stress process in a sample of 63 teachers. LISREL analysis revealed that model fitted well with data. Findings revealed that when students' relations and perceptions were a source of stress for teachers, then several stress reactions were produced as a consequence. An additional interesting finding revealed that those teachers, who perceived students as stressors at the middle of the first term, have then reported higher indicators of somatic and mental health impairment as well as generalized strain. A valuable conclusion of this study was that the major part of successful coping seemed to take place during the 1st half of the school year; on the contrary, in the 2nd half only minor changes were observed.

Due to its value and to conclude with point (1), I would like to reproduce an interesting argument that explains some of the reasons why more and more researchers began to conduct longitudinal instead of cross-sectional studies in the 1980s:

> Yet the conceptual ordering of problems→ coping → distress simplifies and 'freezes' the dynamic of these variables over time. When all three sets of concepts are measured simultaneously on cross-sectional surveys, the appropriate causal model may be arguable. For example, if one has used coping efforts to respond to earlier problems, and those efforts effectively reduces distress, that reduction in distress itself might feedback to make subsequent use of coping efforts less necessary. And if earlier coping efforts effectively reduce problems, the measured problem level at any particular time point is both responsive to earlier coping and a determinant of present coping. In that case, controlling for present problem level in assessing the impact of coping may underestimate the long-term effectiveness of coping. By using measures from two time points, it is possible to improve the situation somewhat, because it is the possible to asses the effect of initial coping choices on subsequent problems levels. Across time, earlier problem level and earlier distress are also to affect later problems. Thus, we can assess the extent to which initial coping efforts may directly influence later problems levels, or affect them indirectly through their impact on earlier occupational distress. In turn, experienced distress and later occupational problems may themselves shape differing coping strategies at later time points. These altered strategies may influence later distress. Exploring changes in coping over time and consequent changes in distress is an important future task for coping research, […]. (Menaghan & Merves, 1984, p. 410-411).

2.4.2.2 Coping Scale Development in the Work Stress Research

In the 1980s, there was an increment not only in number of scales to measure coping, but also in diversity of conceptions regarding how coping should be defined (see Schwarzer & Schwarzer, 1996).

The most popular coping scale of this decade was, without doubt, the Ways of Coping Questionnaire (WCQ) developed by Folkman and Lazarus (1988). While this scale was designed as a global measure of coping for specific situations, it became popular into the *occupational stress* domain, by studying coping stages of *college examination* (Folkman &

Lazarus, 1985). Basically, eight coping scales were used to evaluate changes, namely, problem-focused coping, wishful thinking, distancing, seeking social support, emphasizing the positive, self-blame, tension reduction, and self-isolation. The most important characteristic of the WCQ is that coping focuses on change and process, as opposed on structure and stable factors such as personality traits. These two conceptions would also influence further scale development.

Osipow and Spokane (1984), for example, presented reliability and validity of three measures: (a) the occupational environment scales, which assess areas such as role overload, role ambiguity, and responsibility; (b) the personal strain questionnaire, which is designed to measure vocational, psychological, interpersonal, and physical strains; and (c) the personal resources questionnaire, which measures cognitive, social support, recreational, and *self-care coping strategies*. On their side, Seidman and Zager (1986) developed a 21-item scale to assess burnout among public school teachers. Data of validity are presented, based on results of factor analyses from 365 teachers in which 4 factors emerged: (a) career satisfaction; (b) perceived administrative support; (c) *coping with job-related stress*, and (d) attitudes towards students. Test reliability, and construct and predictive validity indicated that the scale has a good internal consistency.

Latack (1986) conducted an interesting study in which she presented construct validity evidence for 3 measures of coping behavior related to job stress: control, escape, and symptom management. Data were collected from 109 managers and professionals in medium-sized manufacturing firm and in an osteopathic hospital. The relevance of this contribution was her serious effort to develop coping measures for job stress, through the integration of three different conceptual frameworks: (a) problem-focused and emotion-focused coping (Folkman, 1982; Folkman & Lazarus, 1980); (b) action, cognitive reappraisal, and symptom-management (Latack, 1984; Moos & Billings, 1982); and (c) the physiological homeostatic concept of "fight or flight" response of Cannon (1929). Findings and concluding remarks have empirically supported the existence of three broad coping strategies related to job stress: control, escape, and symptom management. Finally, in the last paragraph of her article conclusions, Latack (1986, p. 384) gives an additional idea of the sate of the art of scales development for coping with job stress in that decade:

> If we are to generate research that points toward practical solutions to stress-related problems, careful assessment of coping strategies based on valid measures of coping is needed. Measurement development in this area is proceeding slowly relative to the voluminous of studies dealing with job stress. This article is intended to focus, and, on hopes, to speed the development of valid coping measures.

Further initiatives to develop scales for coping with job stress in the 1980s, can be also found in the German literature. For example, Brengelmann, Henrich, and Olszewski (1987) developed the German SCOPE, which is a 300-item scale to assess stress reactions and coping in individuals and organizations. On his side, Bailer (1989) developed a scale to assess coping with family-related stress and occupational stress. The questionnaire was applied to a sample of 581 subjects. Considering that coping was defined as a personality resource, it can be said that this scale pertains to the trait tradition research on coping.

In sum, in the 1980s, an increment in number and diversity of available coping scales has occurred, however, very few of them were created to measure coping process in working environments, and many of them have shown problems of validation and reliability. English and German scale examples suggest that scale development was influenced by both trait-oriented and context-oriented coping approaches.

2.4.2.3 Coping Styles versus Coping Behaviors Research

In the 1980s, a growing number of work stress researchers conducted studies from two "debating" perspectives, namely, studies that conceptualized coping as a personality trait (e.g., Defares et al., 1984; Ilfeld, 1980; Kirmeyer, 1988) and studies that conceptualized coping as a context/situation specific phenomenon (e.g., Brody, 1988; Larsson et al., 1988; Manzi, 1986).

The main difference between those "debating" perspectives consisted in the way in which respondents were asked to fill out coping questionnaires. Carver et al. (1989, p. 270) described the difference as follows: "When assessing a dispositional coping style, the items are framed in terms of what the person *usually* does when under stress. When assessing situational responses, the items are framed in terms of what the person did (or is doing currently) in *a specific coping episode* or during a *specific period of time* (in a manner analogous to the way in which the Ways of Coping scale is typically administered)." Some research examples are included as follows.

Ilfeld (1980) evaluated *coping styles* used to manage stress in the social roles of marriage, parenting, finances, and work in a sample of 2,299 Chicago adults. While factor analyses developed three major patterns of coping (taking direct action, rationalization avoidance of the stressor, and acceptance of the stressful situation without attempting alteration), subjects did not consistently make use of one coping style across all role areas, but rather employed a repertoire of coping responses. This research evaluated coping styles, but –

contradictory- it found evidence in favor of context-specific coping. In a similar research, Defares et al. (1984) have empirically evaluated the role played by sex differences in *coping styles* of 102 male and 65 female workers in child guidance centers. The study aimed to give support to the person-environment fit model for organizational setting. Results showed that women were more vulnerable in coping with negative life events, and men presented a tendency to use active cognitive coping more than women. On the contrary, social support in seeking solutions for their problems was used to a greater extent by women. In a more refined study, Kirmeyer (1988) predicted appraised overload and coping from type A behavior pattern and tenure in a sample of 72 police radio dispatchers. Path analyses revealed that type A had a direct effect on coping as well as an indirect effect through appraisal. In addition, she found an objective environment effect on subject's appraisal of overload and coping actions. In sum, empirical evidence was given that supported the fact that subjective appraisal of overload is determined by both objective events and personal dispositions.

On the other hand, Manzi (1986) evaluated cognitive appraisal and coping in 20 teenagers (aged 15-28) within the context of the Lazarus' transactional model. The WCCL was completed for three stressful work situations that subjects experienced within a period of three months. Results generally supported the Lazarus model in the context of teenage employment. Larsson et al. (1988) used stepwise regression analyses to predict appraisal and coping process in acute, time-limited stressful situations in 54 Swedish police officers. Findings suggested that police officers perceived considerably more challenge than threat in the situations and they appraised these kinds of situations as solvable. The coping strategies use by police officers differed in several respects from ordinary people in everyday life situations. The cognitive coping strategy of the police officers was summed up as "keep your mind on the task-avoid thinking about other things". In addition, despite the tendency for coping aimed at immediate instrumental efficiency, it was remarked that both problem- and emotion-focused coping were used in virtually all episodes.

Brody (1988) conducted a more sophisticated and detailed study regarding work stress and coping from a transactional perspective. She developed three path models, namely, path model for system-oriented coping, path model for problem focused coping, and path model for emotion-focused coping. Data were collected from 670 steelworkers (aged 19-68). Her results have indicated that Lazarus' model was also useful in understanding responses to collective risk of exposure to health hazards in industry. The study is valuable because it goes beyond earlier research by including primary and secondary appraisal and reappraisal in a single statistical model. Results also supported Lazarus' emphasis on cognitions as the key to

individual differences in response to stress. "Variation in coping choice may come from each stage of the appraisal process: from differences in assessments of threat or resources for dealing with threat, or in the weighing of threats against resources." (Brody, 1988, p. 657).

Although a complete citation of the whole literature is beyond this chapter, my own literature review of the 1980s allowed me to observe two theoretical tendencies: (a) work stress research on *coping styles* was normally matched with person-environment fit (or misfit) theoretical framework (French et al., 1974; Caplan et al., 1975; Caplan, 1983); (b) on the contrary, studies on work stress and coping as a process, were mainly based on transactional theory of stress (Folkman, 1984; Folkman et al., 1979; Lazarus, 1966; Lazarus & Folkman, 1984; Lazarus et al., 1974; Lazarus & Launier, 1978).

To conclude with analysis of challenges and advances of the 1980s, I would like to cite two critical articles that were published in the late 1980s, namely Dewe (1989), and Newton (1989).

Dewe (1989) has drawn our attention to four dilemmas and contradictions that were faced in the field of occupational stress and coping. The first problem he comments was the lack of agreement when defining stress, that is, the existence of studies that have conceived stress from a stimulus-response perspective, and on the other hand, those studies that emphasize the transactional nature of stress and the role of appraisal and coping (Lazarus & Folkman, 1984).

Dewe (1989, p. 994) adds:

> Yet, while accepting such definitions at the theoretical level, at the empirical level occupational stress continues to be defined in terms of person-environment fit [*approach represented by French, Rodger and Cob, 1974*] or as 'a perceived dynamic state involving uncertainty about something important' [*approach represented by Schuler,* 1982] and thus the appraisal process becomes theoretically separated from the coping process. Research thus becomes directed more toward the stimulus-response interaction and away from the individual-level processes of coping and adaptation.

The second problem, he has commented, concerns to the measurement of stressors. Basically, the author mentioned the need to develop new items and scales to investigate demands that workers themselves perceive as stressful, the meaning attributed to such demands, and the temporal nature of the experience, instead of using traditionally-measured sources of stress such as role conflict or role ambiguity.

Third, while most researchers agreed, that how individuals cope with work stress, is an area that must be examined, in the 1980s, despite this conviction, coping received a less than a complete treatment in occupational stress research. Finally, he argued that quantitative

methods to study occupational stress have been a consensual norm, whereas alternative (qualitative) methods have been ignored.

Newton (1989), in a similar way, commented that a lack of conceptual and operational clarity in four concepts in occupational stress research (stress, strain, coping behavior, coping style) has led to confusion in both the conduction and the interpretation of occupational stress and coping research. With regard to stress, the problem arises when authors define stress as an external stimulus (e.g., job demands), or as a response (e.g., affective/attitudinal response), or as the appraisal of demands (e.g., frequency and intensity of demands). A limitation of most occupational stress is a lack of attention to appraisal process, or attention to acute stress, or stress deriving from particular stressful episodes or incidents at work. In this sense, Folkman and Lazarus (1980, 1985) have argued that the study of chronic demand concepts, such as role conflict or ambiguity, may be largely inappropriate to understand acute stress. With regard to strain, three measures of strain have been optionally used by occupational stress researchers: (a) the state anxiety scale of Spielberger, Gorsuch, and Lushene (1970); or (b) attitudes like job satisfaction as measured by job descriptive index (Smith, Kendall, & Hulin, 1969); or (c) the general health questionnaire (Goldberg, 1978). The problems that Newton (1989) observed were a *semantic overlap* between questionnaire measures of stress and coping, and a research bias arising from *defensive mechanisms, negative feelings and repression* of respondents that may distort answers.

Relating to coping behavior, he noted two main problems that must be handled by researchers: first, the relationship between effectiveness of coping behaviors which come in to play when someone is having problems, and effectiveness of coping behaviors which come into play when someone is approaching a routine, rather than problematic interactions. Second, there is a need to clearly differentiate between coping behaviors (behaviors actually exhibited in dealing with a specific event) and coping styles (any pattern which can be distinguished in an individual's coping over time). This distinction has not been, however, generally applied with the result that researchers who are often intending to measure coping behaviors, may be measuring something that "matches" with coping style.

Concerning coping styles, the point was, on his mind, to clearly understand that (a) people may have a tendency to cope in a certain way over time, and that (b) this coping style may result either because the person tends to appraise events in a certain way, (e.g., they have a tendency to avoid rather than approach), and (c) that the pattern may be conditioned/socialized by particular environments, or even by largely a product of existence in a certain type of environment, for example, a very high-demand environment.

Newton (1989, p. 455) synthesized 1980s' coping styles research tendencies as follows:

> The focus-to-date has largely been on three coping style factors as potential moderators of job demand-strain relationships: The Type-A behavior pattern (TABP; Caplan & Jones, 1975; Keenan & Macbain, 1979; Ivancevich, Matteson & Preston, 1982), locus of control or internability-externability (I-E; Keenan & Macbain, 1979; Abdel-Halim, 1980; Batlis, 1980), and hardiness (Maddi & Kobasa, 1984). A common theme in these constructs is the concept of control, being relevant to TABP and hardiness (Glass, 1977; Kobasa, 1982; Chesney & Roseman, 1983) and central to I-E (Rotter, 1966, 1975), as well as being common to a number of stress theories (Karasek, 1979, Fisher, 1984).

In the last part of his article, Newton (1989) also commented the need for "fresh research" employing more qualitative approaches to investigate stress and coping, rather than relying only on existing quantitative methods.

2.5   The Status of Work Stress and Coping Research

2.5.1   Coping Measurement Dilemmas

Several careful reviewers have recently highlighted the problems associated with both theoretical issues and coping instruments development, as a central challenge in conducting work stress and coping research.

O'Driscoll and Cooper (1994), for example, have drawn our attention to several problems and limitations that are inherent in concepts and methods of work-related stress and coping assessment: (a) the distinction between coping styles and coping behavior; (b) the specificity of coping responses; (c) deductive vs. inductive approaches to measure coping; (d) general stress vs. specific stressors; and (e) predetermined vs. elicited stressors. Regarding methodological problems with existing coping measures, these authors remarked the problems of internal reliability (e.g., with the Ways of Coping Questionnaire); construct validation (difficulties of confirming factor structures of coping measures); convergent and discriminant validity (overlap between some modes of coping which should be empirically distinct, and lack of relationship between similarly-named coping dimensions); and predictive validity (failures of coping scales to predict important individual outcomes). Gottlieb (1997), on his side, underlines the problems arising from: (a) efforts to categorize chronic stress vs. acute stress episodes; (b) the challenge of assessing coping and determining the focus of coping; (c) the problem of temporality in measuring coping.

In coherence with described arguments, Schwarzer and Schwarzer (1996) pointed out that measurement of coping is complicated because there are confusions regarding c*oping conception* (cognitive coping vs. cognitive appraisal) as well as difficulties concerning: *coping s*t*ability* (the pattern similarity of inter-individual differences at multiple points in time); *coping generality* (assumed consistency of coping across different situations); and *dimensionality of coping* (grouping coping strategies according to their purpose, meaning, or functional value). Schwarzer and Schwarzer (1996) aggregate four unresolved measurement-related issues as follows: (a) There is a controversy between rational or deductive vs. empirical or inductive coping scale development approaches (that is, based on theoretical assumptions vs. starting with observations); (b) there are two different ways of assessing coping, either dispositional (the trait-oriented approach) or episodic (the situational approach). The former evaluates coping in terms of *how a person does usually cope with stress (coping patterns)*; the latter assesses coping in terms of *how a person did cope with stress arising from specific transactions (coping strategies)*; (c) there are two ways of assessing events, namely assessment of real-life events (asking respondents to recall a past situation experienced as being stressful) vs. hypothetical scenarios (asking respondents to imaging a possible future situation); (d) there are two additional relevant issues, namely, the issue of multidimensionality, which assumes the existence of a determined number of factorial coping dimensions (e.g., problem-focused, emotion-focused, etc.); and the logic of the hierarchy, which presumes the existence of factors of higher level of abstraction (e.g., avoidance coping), as well as "sub-levels" of abstraction that are proximal to the coping responses (e.g., "I hoped a miracle would happen").

2.5.2   Improvement Process of Existing Coping Measures

In the 1990s, coping scale development may be fundamentally distinguished for its concern towards improvement in the psychometric properties of existing coping instruments.

While the '*Ways of Coping Checklist*" (WCCL) had a significant impact on work stress and coping research in the 1980s, new scales with more satisfactory properties were used until the 1990s. Selected examples of them are: the *Multidimensional Coping Inventory* (MCI) (Endler & Parker, 1990a, 1990b); the *Coping Strategies Indicator* (CSI) (Amirkhan, 1990); the *Brief COPE* (Carver, 2000) that takes origin from the *COPE scale* (Carver et al., 1989); revised versions of the *Coping Scale of the Occupational Stress Inventory* (Cope-OSI)

(e.g., Kahn & Cooper, 1991; Swan, Renault-de-Moraes, & Cooper, 1993); a group of instruments that have been specifically developed by Latack and her colleagues to evaluate *Coping with Involuntary Job Loss* (CIJL) (Kinicki & Latack, 1990), and the already described *Coping with Job Stress Scale* (CJS) developed in the second half the 1980s by Latack (1986). With regard to new tendencies in coping scale development, it is important to mention the *Proactive Coping Inventory* (PCI) of Greenglass, Schwarzer, and Taubert (1999), and the *Strategic Approach to Coping Scale* (SACS) developed by Hobfoll (1998) which are both promising instruments to conduct research at the level of working individuals and organizations.

Parkes (1994) assures that the MCI has shown an improvement in reliability and validity in comparison with earlier scales, and it correlates with both personality measures and subscales of the WCCL. The CSI is largely based on the WCCL, but it is considerable shorter and better suited to field research. The Brief COPE, and particularly the original COPE scale might be considered as an improvement of early coping measures, because most of its 13 subscales were found to have satisfactory psychometric properties, and validity for its structure has been provided (Schwarzer & Schwarzer, 1996).

Similarly, the occupational stress inventory (OSI), which includes a coping scale (Cope-OSI), has been object of further examinations. This instrument was assessed in its construct validity by Kahn and Cooper (1991), especially for the mental health OSI scale and the OSI coping scale. Results indicate that the reliability coefficients of all scales were of acceptable levels, and the coping scale showed good discriminant validity. In Brazilian workers, the OSI has shown good construct validity (Swan et al., 1993). However, Davis (1996) re-analyzed the OSI, and his results revealed unacceptable reliability levels as well as problems of structure. McElfatrick, Carson, Annett, Cooper, Holloway, and Kuipers (2000) have compared reliability and validity of the OSI and the PsychNurse Methods of Coping Scale. Results demonstrated that PsychNurse Scale had higher item total correlations, better inter-factor correlations, higher internal consistency, and better predictive and item discriminative validity. Further studies on validity of the OSI have been conducted by Robertson, Cooper, and Williams (1990); Cooper and Williams (1991); Lyne, Barrett, Williams, and Coaley (2000); Evers, Frese, and Cooper (2000).

Latack and her colleagues (see references above) have developed reliable specific coping questionnaires that seem to be most appropriate to measure coping with job-related stress. However, these groups of instruments have the disadvantage that we cannot conduct comparative studies across different stressful interactions, and we cannot evaluate whether

coping strategies are stable or not, for example, by comparing the strategies used when confront job-related stressors, and those that might be elicited when confronting a hurricane or a cataract surgery. Conversely, one of the most powerful characteristics of generic coping measures (e.g., the Brief COPE) is that they allow us to evaluate coping across a wide range of stressful transactions. Additional details of the Brief COPE are covered in Chapter 4.

On the other hand, there are three scales that some authors would not recommend to evaluate job-related stressors, namely the well known *WCCL*, the *Cybernetic Coping Scale* (CCS), and the *German Scale for Subjective Job Analysis.* Edwards and Baglioni (1993) have recently evaluated construct validity and reliability of the WCCL and CCS, and their study has shown moderate support for the construct validity of the CCS and little support for the construct validity of the WCCL. In coherence with this result, Schwarzer and Schwarzer (1996, p. 114-115) mentioned that a central difficulty with the WCCL (a situational-oriented coping measure) is the number of extracted factors that change from sample to sample or from stressor to stressor. Another scale that presents serious difficulties is the *German Scale for Subjective Job Analysis*. Weis, Kaiser, and Hagemann (1990) evaluated validity and reliability of this scale (Fragebogen zur subjektiven Arbeitsanalyse (SAA)), and study findings did not support the a priori scale structure and results concerning scale reliability were only modest.

In the area of *proactive coping* scale development, recent research efforts have been conducted to provide reliable instruments. A representative example of this is the *Proactive Coping Inventory* (PCI) that was originally developed by Greenglass (1998) as a preliminary version at the York University of Ontario, Canada. The PCI consists of 18 subscales, describing various dimensions of behavior and cognition that are important for proactive coping, and it has been object of further analyses by Greenglass et al. (1999). Similar promising initiatives have been conducted by Zea et al. (1996) who have developed a cross-culturally reliable and condensed measure for proactive coping: *The Brief Behavioral Attributes of Psychosocial Competence Scale (BAPC-C),* which has shown test-retest reliability over a 6-week period of 0.86. Work stress researchers have used neither the *PCI* nor the *BAPC-C* in the context of coping with stress at work. More details of the PCI are explained in Chapter 4.

A further innovative coping scale, that is practically unknown in work stress research, is the SACS (Hobfoll, 1998). This scale is based on the "*paradigm of threat and resources loss"* and –in my opinion- it offers an interesting option to comprehend "Mobbing-related behaviors", "job loss", "unemployment", "downsizing", and "extreme job-related situations" such as military-related stressors. Exhaustive details of the SACS are given in a recent book

written by Hobfoll (1998): *Stress, Culture, and Community. The Psychology and Philosophy of Stress.*

2.5.3   Diversification Process of Coping Behaviors Research

In the work stress research tradition, it is very difficult to say there is a unique transactional (or context-oriented) viewpoint on coping. Rather, Lazarus' stress model has been broadly used to design and develop a diversity of studies that could be arbitrarily sub-classified regarding their emphasis on: (1) evaluation or assessment of relevant hypothesis of Lazarus' coping model; (2) research on appraisal processes; (3) coping effectiveness investigation; and (4) gender-role perspective.

(1) Brief and George (1995); Harris (1995); and Barone (1995) have critically analyzed both strengths and weakness of Lazarus' approach in organizational settings. Basically, they conclude that transactional approach has the advantage of understanding individual employee patterns in stress response over time, and across situations. However, they draw our attention to the "risk" of downgrading the "intrinsically harmful" character of some organizational stressors which might be beyond appraisal process.

Anyway, that is an open-ended discussion which has been object of further conceptual evaluations. For instance, Locke and Taylor (1991), in coherence with Lazarus, sustain that work stress is a problem of certain values that people give to their job (e.g., material, a sense of purpose, enhancement of one's self concept). Here, stress is beyond environmental forces in the workplace, because it is mainly produced when the work environment conflicts with the individual's attainment of these values. In consistency with this position, Dewe et al. (1993) evaluated 17 recent papers focused on coping with work and work-related problems. They have found that four topics are relevant for future research, namely, the measurement of the *meaning* individuals give to events, b) the distinction between occupationally specific or more general measures, c) the use of multi-item scales to capture a particular type of coping, and as most important, d) the need to distinguish between coping styles and coping behaviors. Further research examples on *emotion-, problem-focused coping strategies, and avoidance coping* have been conducted in work settings by Florio, Donnelly, and Zevon (1998); Goodman (1997); Shine (1997); Terry and Callan (1997).

(2) A relevant aspect in transactional-oriented research is the role played by *appraisal process* in coping process. For example, Dewe (1992a) has explored the appraisal process,

specially, the role of meaning, importance, control and coping in work stress. Stress and coping data were gathered from a sample of 73 employees of a company conducting a restructuring process. In general, results have given support to relevance of primary and secondary appraisal as determinants of stress experience. The following studies are representative examples for empirical evidence on transactional assumptions regarding appraisal process and coping with job-related stress: Cassidy and Burnside (1996); Dewe (1991; 1992b); Compas and Orosan (1993); Gadzella, Ginther, Tomcala, and Bryant (1991); Heaney (1993); Shine (1997).

(3) With reference to *effectiveness of coping*, Bowman and Stern (1995) investigated coping strategies in a sample of 187 medical center nurses confronting 2 stressful occupational episodes that varied in perceived controllability. Effectiveness of coping was assessed regarding three dimensions: job affect, psychological adjustment, and perceived coping effectiveness. Three-stage hierarchical multiple regression analyses were used to determine the extent to which nine predictor variables (demographics, occupational stress, perceived controllability and coping) explained variance in each of three dependent variables (general health questionnaire, positive and negative affect, perceived coping effectiveness). With respect to effectiveness, results supported the hypothesis that the use of problem-focused coping, was "*very effective*" in the context of episodes that were under extensive control of individuals. In terms of outcome measures, positive affect was linked to problem-focused strategies, whereas negative affect was strongly associated with avoidance. Further study examples on effectiveness of coping have emphasized: employee's efforts to cope with economic distress (Rook, Dooley, & Catalano, 1991); coping effectiveness and burnout among school administrators (Gmelch & Chan, 1995); effectiveness of problem- and emotion-focused coping in moderating stress-outcomes among teachers (Bhagat, Allie, & Ford, 1995); police officer-related stress and coping effectiveness (Patterson, 1999).

(4) In the field of *gender-role perspective*, Long, Kahn, and Schutz (1992) represent an interesting example of methodological refinement. These authors developed a model of managerial women's stress with LISREL, in which the following variables were included: a) three causal antecedent constructs (demographics, sex role attitudes, and agentic traits), b) four mediating constructs (environment, appraisals, engagement coping, and disengagement coping), and c) three outcomes (work performance, distress, and satisfaction). Their main findings supported Lazarus' theory of psychological stress, in the sense that appraisal of work stress and coping efforts are central to the experience of daily hassles and psychosomatic health among women in nontraditional careers. Additional studies examples on gender-role

(or gender differences) perspective are represented by Christie and Shultz (1998); Greenglass, Burke, and Ondrack (1990); Long and Schutz (1995); Long (1998); Ogus, Greenglass, and Burke (1990); Piotrkowski (1998); Wofford, Daly, and Juban (1999).

2.5.4   Flourishing and Expansion of Coping Styles Research

A controversial aspect of trait-oriented approach is whether coping should be considered as context-independent or not. Schwarzer and Schwarzer (1996, p. 108), for example, sustain that:

> A further difficulty that makes stability a crucial issue is that people usually go through stages when managing taxing demand. For example, someone confronted with surgery has to proceed from the preparation stage to the confrontation stage, and then to the recovery stage. A coping strategy that was adaptive in the first stage may not be so in the second, and a completely different approach might be practical in the third.

Additionally, Lazarus (1995, p. 4) has argued that:

> It is too simplistic to carry over from medicine, clinical psychology, and personality psychology an emphasis on psychopathology or dysfunction, and to make the assumption that, as a result of personality traits, some people usually or always function badly whereas others usually or always function well. Although this assumption may have some probabilistic validity, sound workers not only experience stress at work, but they may also cope badly with certain stressful encounters; and vice versa, unsound workers sometimes function well. In effect, even when there is, in general, a good stable fit between the work and person, stress can still be generated in particular encounters such as being evaluated, failure to be promoted or receive a raise in pay, dealing with difficult co-workers, and other difficulties to which all of us are subject in our working lives. A worker might deal very well with one work encounter yet experience major stress in other encounters.

With regard to this controversial topic, I would like to assume a personal posture. Although there is evidence indicating situational specificity in coping response (e.g., Wethington & Kessler, 1991), there is also evidence suggesting that personality accounts for variability in coping (e.g., Bolger, 1990).

My personal viewpoint is: *If we deny the powerful effects of the context in coping, we take the risk of downgrading the role of appraisal process as determinant of coping. Conversely, when downgrading the role of personality traits in coping, we take the risk of denying the biographical development of individuals, from which personality and a good repertory of behavioral patterns take origin.*

Recent contributions of *developmental psychology*, especially regarding the constitution of *self-system* (Pulkkinen, 2000) and *evolutionary psychology* (Keller, 2000) have

drawn our attention to the interplay between culture and biology, the question of continuity and plasticity, and the sequence of developmental tasks in human development.

Keller (2000, p. 238), for example, sustains:

> Since individuals have to solve their developmental tasks by partitioning the different fitness components across life span, life trajectories are supposed to form coherent responses to environmental demands, thus expressing structural continuity. […] In any case, evolutionary theorizing adds a new dimension of development by asking: Why and how could this behavior and development possibly contribute to the fitness of this particular person?

In this context, Lazarus (1991b) has attributed to personality the role of *antecedent variable* that serves as *moderator* of the person's relationship to the environment by influencing *appraisal* and *coping*, and perhaps, mitigating the damaging effects of *stress*. This author refers to *beliefs* about oneself and the world, such as *self-efficacy* (Bandura, 1997), *hardiness* (Orr & Westman, 1990), *sense of coherence* (Antonovsky, 1990), *optimism* (Scheier & Carver, 1987), *constructive thinking* (Epstein & Meier, 1989), "*learned resourcefulness*" or *beliefs about self-control* (Rosenbaum, 1990).

Hewitt and Flett (1996), on the other hand, sustain that within the field of personality and coping research, at least three alternative viewpoints or paths are broadly used to conduct investigations, namely the *mediational model*, the *additive model*, and the *interactive model* (see Figure 5).
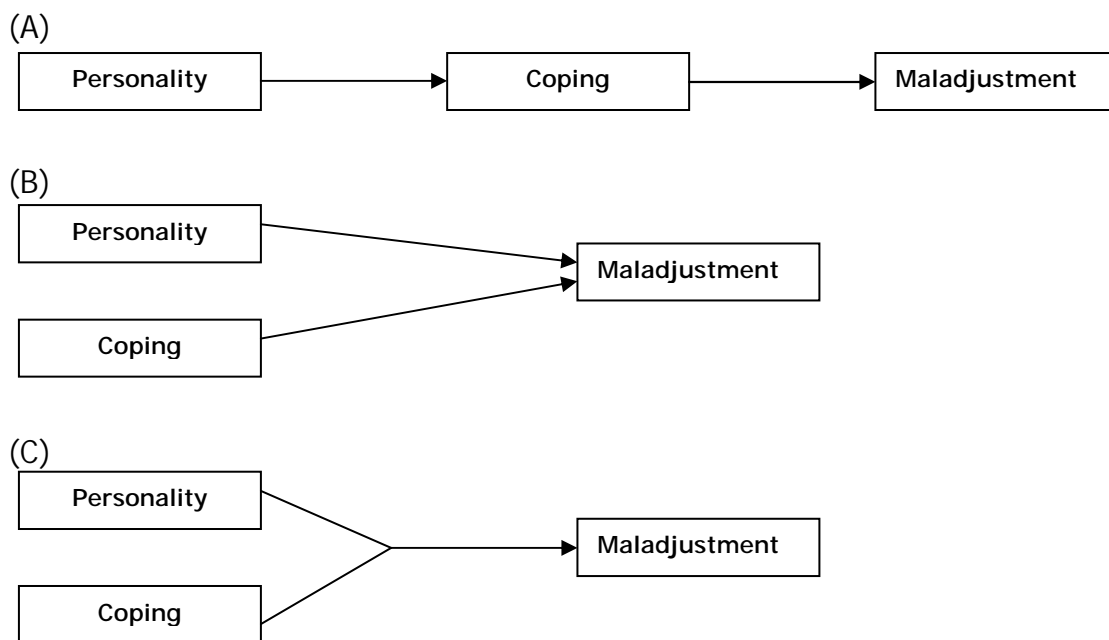

Figure 5: Three Models of Personality, coping, and maladjustment: A mediational model (Top), and additive model (middle), and an interactive model (bottom). Source: Hewitt, P., & Flett, G. D. (1996). Personality Traits and the Coping Process. In M. Zeidner & N. S. Endler (Eds.), Handbook of coping. Theory, research, applications (pp. 411). New York: Wiley.

The *mediational model* (see figure 5A) is similar to Lazarus' conception, because personality traits are assumed to be *antecedent variables* that serve as *moderators* of maladjustment by the influence on coping. In this case, coping is directly *predicted* by personality, but by excluding the role played in coping process by primary and secondary appraisal.

The other two models, define coping as an antecedent variable instead of as a mediating process. In concrete, the *additive model* (see figure 5B) assumes that personality and coping separately contribute to maladjustment, whereas the *interactive model* (see figure 5C) conceives that personality and coping interact to produce or maintain maladjustment.

Based on the three models described before, more and more research work is being conducted to evaluate the moderating role played by personality in coping. Most of the research in this field can be subdivided regarding their interest on: (1) the role played by Type-A, Type-B, Type-C (new topic) behavior pattern and perfectionism in coping; (2) the influence of hardiness, locus of control and sense of coherence on coping; (3) interactions between coping resources such as self-esteem, self-efficacy, dispositional optimism, humor and coping; and (4) the role played by the structure of personality, namely, neuroticism and the big five-factor model dimensions in coping.

(1) The role played by *Type A*, *Type B*, *Type C behavior* pattern and *perfectionism* pattern in coping. During the last two decades, a great deal of sustained work has been carried out by researchers to evaluate *Type A behavior,* which is a personality profile related with "ambitious, hard-driving, competitive, hostile, impatient, and aggressive persons who are more likely to suffer from myocardial infarct than their counterparts, labeled *Type B* individuals." (Schwarzer & Gutiérrez, 2000, p. 455). Sharpley, Dua, Reynolds, and Acosta (1995), for example, have identified that both poor physical and psychological health were predicted by high Type-A behavior scores, ineffective coping, low social support, high job stress, and low cognitive hardiness. In a second study, Burke and Greenglass (1995) demonstrated that Type-A behavior, job stressors and coping responses have been significantly and independently related to levels of psychological burnout.

Parallel to the study of Type-A behavior pattern, a flourishing personality profile is being evaluated, namely *perfectionism.* This construct is defined as a personality pattern that involves a high level of achievement motivation as well as a focus on the attainment of goals in a non impulsive manner (Hewitt & Flett, 1996). Fry (1995) carried out a study in which instrumental coping strategies and self-restructuring or preventive coping orientations were associated with high levels of *perfectionism*, in a sample of 104 female executives. Also, it

was found that the relationship between daily hassles and self-esteem maintenance, emotional exhaustion, and physical illness, was significantly moderated by perfectionism. A second study conducted by Guppy and Weatherstone (1997) found that the need of approval and *success-perfectionism* were related to lower level of well-being, which was associated, on its side, to the use of emotional-focused coping among 274 white collar public sector employees. On the other hand, *Type C* is a personality profile that has been associated with cancer disease and it is argued that development of tumors might be stimulated by a strong need for harmonious social interactions and deficiencies in expressing emotions (Schwarzer & Gutiérrez-Doña, 2000). While there is a growing agreement regarding the significance of evaluating cancer in working people, there is still very few research in relation to this topic. Type A/B/C patterns are further discussed in subsequent sections.

(2) The influence of *hardiness, locus of control* and *sense of coherence* on coping. Parkes (1994) assures that *hardiness* is currently receiving less attention in comparison with the 1980s. This construct was originally defined as a *personal resistance resource* including three components: commitment, personal control, and challenge, which are conceive as "buffer coping resources" that lighten the negative impacts of stress on individuals (Kobasa, Maddi, & Zola, 1983). While Type-A behavior has been related to coronary morbidity, *hardiness* is related only to non cardiovascular physical illness and psychological strain (Cooper & Payne, 1991). A study example supporting the hardiness hypothesis as a stress buffer was conducted by Rush, Schoel and Barnard (1995). These authors found that hardiness had a direct negative impact on stress and a direct positive impact on satisfaction. However, the proposed role of coping strategies as a mediator of the hardiness-stress relationship was not supported. A second study carried out by Rowe (1997) demonstrated that hardiness did not account for a significant amount of the variance in burnout after stress and coping had entered into the regression equations that they calculated.

A well known construct that has received a great deal of attention during the last two decades is *locus of control* (LOC), which mainly involves individual differences in beliefs about control over reinforcement (Hewitt & Flett, 1996). LOC is subdivided into two categories, internal LOC which denotes personal mastery over outcomes, and external LOC which reflects external mastery over outcomes. *Internal LOC* is a central variable for the study of the *hardy personality*, and it has been positively associated with *systolic blood pressure* reactivity and *heart rate reactivity* (Cooper & Payne, 1991). Additionally, Boey (1999) found that more internal in LOC was related to those nurses who adapted to high work

stress with good mental health status; also Hoffi-Hofstetter and Mannheim (1999), indicated that LOC was an important personal coping resource in times of organizational transition.

A further construct that fits closely with LOC and hardiness is *sense of coherence* (SOC) (Cooper & Payne, 1991). As it has been already explained, SOC is a construct developed by Antonovsky (1990) as result of his *salutogenic theory* of health/illness, which is based on the study of health status among women that have survived to concentration camps. In recent times, SOC has been investigated by Rich (1997) in the context of Lazarus' transactional approach of stress. She has written her dissertation thesis to evaluate the role of SOC in the dynamic of occupational stress and distress. One of her interesting working hypothesis was: As SOC increases, use of problem-focused rather than emotion-focused coping responses to deal with occupational stress increases. Another interesting study was carried out by Baker et al. (1997), who have integrated the burnout model of Maslach (1982) and the *salutogenic model* of Antonovsky to evaluate whether a strong SOC reduces the risks of burnout among social workers. Results of correlation analyses and regression coefficients suggested that a strong SOC might be considered as a buffer against the development of burnout.

(3) Interactions between self-esteem, self-efficacy, dispositional optimism, humor and coping strategies. *Self-esteem* is a well known construct that traces back to the 1960s (Rosenberg, 1965). In the 1990s, evidence for significant associations between low self-esteem and avoidance coping strategies with organizational change has been provided (Terry & Callan, 1997); additionally, Thomsen, Soares, Nolan, Dallender, and Arnetz (1999) have found, in a sample of mental health personnel, that self-esteem, and the use of active coping, predicted work-related exhaustion but not feelings of professional fulfillment, which are expanded descriptors of job satisfaction.

Self-efficacy theoretical principles have been applied to organizational functioning by Bandura (1997, p. 422), at the level of "the role of perceived self-efficacy in what people choose as their life's work, how well they prepare for their chosen pursuits, and the level of success they achieve in their everyday work." This author found, for example, that new employees who have a secure sense of self-efficacy cope better with difficulties related to what is expected of them, how to manage their workload, time pressures, and other job-related stressors, in comparison with their coworkers who have lower self-efficacy. On the contrary, "managers with low leadership efficacy are likely to generate a disconcerting work life of illusory control in which work teams are held responsible for their performances but the managers continue to wield actual control by subtle means." Bandura (1997) adds that

effective teamwork requires both versatile technical efficacy and interpersonal efficacy moving the groups forward into a motivated and productive workforce. In the 1990s, more and more studies are being conducted to evaluate the assumption that self-efficacy plays a moderating role in the coping-health outcomes interaction.

Schwarzer (1992a) has recently developed the Health Action Process Approach (HAPA), in which self-efficacy, outcomes expectancies, and threat (as function of severity and vulnerability) are conceived to be the most important predictors of volitional processes (action plans, action control) through the influence on intentions. The HAPA model has not been applied to evaluate the adoption and maintenance of health behaviors in work settings; however, it is a promising field of future research that must be seriously considered both to prevent work-related diseases and to promote employee's health. Concerning recent research examples, self-efficacy has been normally evaluated as an *antecedent personal resource* that moderates the relationship between coping process and health-outcomes, however, there is still relatively few research work of this kind in the occupational stress research domain. Chwalisz et al. (1992) carried out a study that evaluated two models: The first one assumed that self-efficacy mediates the relationship between attributions and coping, whereas the second model postulated that attributions and self-efficacy simultaneously affect coping. Their main finding was that higher self-efficacy in teachers was associated with problem-focused coping, whereas lower self-efficacy was linked to emotion-focused coping. Similar studies on self-efficacy have been carried out by giving attention to: collective efficacy versus self-efficacy in coping responses to work stressors and control (Schaubroeck, Lam, & Xie, 2000); self-efficacy and burnout (Lerkiabundit, 1998); self-efficacy expectations and careers related events (Stumpf, Brief, & Hartman, 1987). More details on self-efficacy are covered in Chapter 3.

A construct that is theoretically-related with *self-efficacy* beliefs is *dispositional optimism* (DO), which has received growing attention over the last two decades. Hewitt and Flett (1996) sustain that optimism-pessimism research (e.g., Scheier et al., 1986; Scheier, Carver & Bridges, 1994) has "supplemented" locus of control and coping literature, because it focuses on the valence of expected outcomes, irrespective of the source of reinforcement. Schwarzer (1994) explains, that in contrast to optimistic explanatory style, dispositional optimism explicitly pertains to expectancies and it reflects a positive outlook on the future (e.g., I'm always optimistic about my future).

There is evidence that dispositional optimism is associated with lower stress and "effective" coping strategies. Riordan, Johnson, and Thomas (1991) found that optimism was

negatively related to stress in a sample of land-based workers, whereas greater feelings of mastery were associated with greater stress. In a second study, Strutton and Lumpkin (1992) provided evidence supporting the idea that problem-focused coping strategies were frequently used by optimistic salespeople, whereas pessimists were more likely to use emotion-focused coping. Furthermore, Mittag and Schwarzer (1993) as well as Schwarzer, Hahn, and Jerusalem (1993) have confirmed the assumption that optimists individuals cope better in terms of instrumental actions, and the beneficial effects of optimism on psychological and physical health. Fry (1995) determined that optimism, together with other trait variables, moderate the relationship between daily hassles and physical illness among female executives. Additional findings of Fry (1995; see table 1, p. 234) revealed that highly optimistic executive women were likely to use the following coping strategies: seeking practical social support, expressiveness, seeking emotional social support, tension reduction, relying on religious beliefs, acceptance, relying on existential meaning; and two coping orientations, namely religious and existential. In recent years, the Life Orientation Test (LOT-R; a scale to evaluate optimism) has been object of further empirical reevaluations (Scheier et al., 1994) to distinguish it from neuroticism, trait-anxiety, and self-esteem, and their main findings revealed that the LOT-R is a valid and reliable measure to assess dispositional optimism.

To briefly mention it, an interesting trait-related construct which has been considered as uniquely human strategy for coping with work stress is *Humor*. Some recent literature has provided evidence regarding the use of humor as a common strategy used to cope with: "extreme" work-related stress (Yerkes, 1993); working with violently "dead bodies" (McCarroll, Ursano, Wright, & Fullerton, 1993); critical incident stress among emergency personnel (Fleming, Balmer, Hall, & Rappe, 1995); and work failures among kitchen employees (Brown & Keegan, 1999). Humor research can be monitored on "Humor: International Journal of Humor Research".

(4) The role played by personality structure, namely, neuroticism and the big five-factor model in coping. While in the UK the neuroticism scale of the Eysenck Personality Inventory (EPI) (Eysenck & Eysenck, 1975) is a standard to evaluate this construct, in the USA the *NEO five-factor inventory* (NEO-FFI; Costa & McCrae, 1985) is the most extensively validated and predominant measure for neuroticism. (Parkes, 1994; O'Brien & DeLongis, 1996). The NEO-FFI consists of big five personality traits, namely *neuroticism* (N), *extraversion* (E), *openness to experience* (O), *agreeableness* (A), and *conscientiousness* (C). Study findings suggest that higher levels of N (a tendency to experience negative affect and to be impulsive) are less related to the use of problem-focused coping, and more linked to

negative appraisals and emotion-focused coping such as escape-avoidance and self blame (Bolger, 1990; O'Brien & DeLongis, 1996; Deary, Blenkin, Agius, Endler, Zealley, & Wood, 1996). Persons with high E (tendency to experience positive emotions and to be warm, gregarious, and assertive) engage in less avoidance and maladaptive emotional-focused coping strategies, which means that they look for more support, they use positive thinking, substitution, and restraint, but less self-blame, and wishful thinking (Hooker, Frazier, & Monahan, 1994). Individuals with high O (tendency to be curious, imaginative, creative, original, psychologically minded, and flexible) are more likely to use humor, positive thinking, perseverance, self-adaptation, emotional expression, in concrete, they might be expected to be effective copers that have frequently positive outcomes. O'Brien and DeLongis (1996) findings revealed that people high on O might be considered as "ideal copers", because they are able to cognitively reframe stressful situations to advantage and to respond sensitively to close others during stressful situations. On the other hand, people high on A (tendency to be good-nature, acquiescent, courteous, helpful, and trusting) were more likely to cope via seeking support, whereas those high on C (tendency to be habitually careful, reliable, hard-working, well-organized, and purposeful) reported higher use of problem-focused coping and low use of emotion-focused coping (O'Brien & DeLongis, 1996).

With regard to the role of situation vs. personality in coping, O'Brien and DeLongis (1996, see table 6, p. 797) demonstrated that situation factors were powerful predictors of the ways in which people cope. These authors examined three types of stressful situations, namely *work stressors*, interpersonal stressors involving close other, and interpersonal stressors involving not close other. Findings revealed that the type of stressful situation, accounted for a significant proportion of the variance in coping response, for seven of the nine evaluated coping strategies; specifically, accounting for 28% of the variance in planful problem solving (problem-focused coping) and 48% of the variance in empathic responding (emotion-focused coping). With respect to personality factors, it was found that the whole five-factor model accounted for a significant proportion of variance in three of the nine evaluated coping forms; particularly, accounting for 12% of the variance in accepting responsibility, 10% of the variance in escape-avoidance, and 6% in the variance of positive reappraisal. Finally, the person X situation interaction has accounted for significant variance in five of the nine forms of coping, that is accounting for 14% of the variance in confronting coping, 9% of the variance in both self-control and distancing, 5% in the variance of planful problem solving, and 4% in empathic responding. Globally, previous research results are supporting the thesis of situational specificity in coping responses, and are consistent with

growing evidence indicating situational response (O'Brien & DeLongis, 1996). Further literature examples on the role played by neuroticism in work stress and coping, have been conducted to evaluate: employee adjustment to organizational change (Terry, Callan, & Sartori, 1996); stress and coping in health professionals (Sutherland & Cooper, 1990); police officers stress, coping and perceived quality of life (Hart, Wearing, & Headey, 1995).

2.6   Research on Social Resources

Schwarzer and Gutiérrez-Doña (2000, p. 458) define *social support* as follows:

> Social support can assist coping and exert beneficial effects on various health outcomes. Social support has been defined in various ways, for example as resources provided by others, as coping assistance, or as an exchange of resources intended to enhance the well-being of the recipient. Several types of social support have been investigated, such as instrumental support (e.g., assist with a problem), tangible support (e.g., donate goods), informational support (e.g., give advice), emotional support (e.g., give reassurance), among others.

A further relevant facet of social resources is *social integration*, which is conceived as the extent to which individuals are integrated in their social networks and how strong and supportive are these social ties, namely family members, friends, coworkers, organizations and so on. There are several theoretical positions regarding those aspects that determine the mobilization and provision of social support. The *Sensitive Interaction System Theory* (SIST), for example, sustains that support activation and provision, depends also on the capability of the support seeker to communicate his/her emotions and needs. These capabilities mobilize an interactive coping response that, at the same time, is predicted by supporter perspective. For example, it is assumed that "disgust emotions" of support seeker, generate an interaction of "escape" from the helper (Barbee, Rowatt, & Cunningham, 1998).

A similar viewpoint conceives that social support is an exchange of resources, in which either the *provider* or the *recipient* perceives a positive intention to enhance well-being of the recipient (Dunkel-Schetter & Skokan, 1990). Here, mobilization of support deals with the perceived causes of a problem, that is, those *recipients* who are being perceived to be not responsible for an event, and are investing efforts to manage the situation are more likely to mobilize and receive support, than those who are being perceived as responsible for their adversity and do nothing to resolve their problems. On the other hand, if the *provider* perceived that the *recipient* was able to control the causes of the problem, then the victim is blamed and the *provider* would display negative emotions (Batson, 1990; Betancourt, 1990).

Schwarzer, Dunkel-Schetter, Weiner, and Woo (1992) carried out a study that provided empirical support to the assumption that the perceived controllability of the cause of the problem appeared to play a role in the determination of help, particularly, they found that the translation of the intention to help into concrete supportive actions was mediated by self-efficacy expectancies (e.g., I am able to help the victim) and outcomes expectancies (e.g., If I help him/her, the situation will improve).

Hoorens and Poortinga (2000) sustain that interactions with others depend also on the social perceptions of actors. These authors argue that the status of the individual into the group determines individuals differential rights and privileges, and thus, solidarity that is translated into mutual linking, higher frequency of contacts, and so on. Patterns of interaction are also controlled by cultural rules, which determine forms of address as well as exchange of compliments.

> If an interaction partner is not a member of one's in-group, it is likely that the actor's opinions and attitudes are more negative than if the other is in a in-group member. In-group favoritism and out-group discrimination have been studied extensively with both small and large groups. At the level of nations, ethnocentrism and stereotyping are the most central foci of interest. […] Research has shown, for example, that intergroup attraction is positively related to cultural similarity and opportunities for contact. (Hoorens & Poortinga, 2000, p. 44).

Hobfoll (1998), in a similar manner, sustains in his "conservation of resources theory" that *resources loss* is more salient than *resource gain*, whereby people place more weight on loss than gain and are more motivated to protect against loss than to obtain gain. Thus, individuals would invest efforts to protect against resources loss, recover from losses, and gain resources. The resulting dynamic is: When people see a pattern of events that is likely to ongoing loss, they map a strategy and act to protect themselves. In work settings, an interesting phenomena that might be considered as a "pattern of events conducting to ongoing support loss" is the "*Mobbing Behavior*", which is defined as an intentional, prolonged and systematic negative attitude against a person at work, through which a destructive relationship of the type aggressor-victim is established. (van Dick, 1999; Leymann, 1993). While this dissertation does not assess *Mobbing Behaviors,* it does study *exchange of resources,* which is a way to determine whether there is a lack of equilibrium at the level work integration process.

Basically, there are two prevalent research models aimed at clarifying the role played by social support in the stress-health relationship, namely the *direct-effect model* (Broadhead, Kaplan, James, Wagner, Schoenbach, Grimson, Heyden, Tiblin, & Gehlbach, 1983) which conceives that social support has a beneficial effect on psychological health, regardless of whether stress is present; and the *buffering model* (Cobb, 1976; Cohen & Wills, 1985) that

presumes that social support is of benefit mostly when an interaction taxes or exceeds employees capabilities, that is, *under stress* only. Despite significant efforts that aimed at clarifying the role of social support in the stress-health relationship, the controversy regarding main vs. buffering models of support is still open and unresolved.

Selected recent research examples are described as follows. Chay (1993) conducted a study to evaluate social support and personality factors as moderators of stress arising from demands in the workplace. Study findings supported the buffering hypothesis*,* in the sense that social support enhanced well-being by moderating the effects of work stressors. On their side, Van Der Pompe and De Heus (1993) evaluated the role played by social support in mitigating effects of work stress and strains among male and female managers. Their main findings revealed that social support had three effects on strains: "(a) indirect effects via work stress for both work and life support; (b) direct (main) effects of work support on job dissatisfaction, depression and perceived health problems, and of life support on depression, but against expectations no direct effect of life support on experienced health problems, and even positively related to job dissatisfaction; (c) buffering effect of life support on experienced health problems." (Van Der Pompe & De Heus, 1993, p. 224). With regard to the role of partner support in coping with job loss, Walsh and Jackson (1995) found that it is relatively easier for men to be proactive, and to assimilate the new demands that are involved in their activity into the family's habitual ways of functioning. With regard to unemployed men and women with non supportive partners, it was found that they strongly use the own personal repertoire of coping strategies, especially when managing problems and planning effective ways of using the resources of the family. Additional selected studies have been conducted on the following topics: the role of support in coping with work stress (Kirkcaldy & Furnham, 1995; Terry, Tonge, & Callan, 1995; Terry, Rawle, & Callan, 1995) effect of social support on burnout (Anderson, 1991; Cianfrini, 1997; Himle, Jayaratne, & Thyness, 1991; Maslanka, 1996; McIntosh, 1991; Sand, 1998; Sand & Miyazaki, 2000); buffering effect on work-related anxiety (Beehr & McGrath, 1992; Dollard & Winefield, 1995); main and buffering effects on nursing-related stress (Boumans & Landeweerd, 1992; Tyler & Cushway, 1995).

2.7   Research on Health Outcomes and Quality of Life

Research on *health outcomes* (HO) and *quality of life* (QoL) has unresolved dilemmas and difficulties regarding several topics:

First, there are problems regarding objective vs. subjective measures of *health status (HS):* HS has been evaluated on the basis of two sources of information, namely "*objective*" *evidence* (e.g., an electroencephalogram) and "*subjective*" *reports* (e.g., the general health survey), which are normally obtained from patient's perspective. Self reports have been criticized for their limitations regarding individuals bias taking origin either from personality disturbances or social desirability.

Second, some authors have assured there is a corollary of disciplines from which health outcomes might be understood, namely clinical psychology, medical psychology, psychosomatic, behavioral medicine, public health, and health psychology, condition that could cause -in some cases- discipline "overlapping" (see more details about this discussion in Schwarzer, 1990, 1997). Other authors argued that there is neither a guiding theory nor an adequate knowledge available to organize findings of health examinations (e.g., Lazarus, 1991b).

Moreover, there are two interpretative health models that aim at explaining the paths through which stress can influence on human health status, namely the *Pathogenic Model of Health* that is concerned with the question of *why people get sick*, and the *Salutogenic Model of Health* that is concerned with the question of *why people stay healthy*. The pathogenic model, is sub-divided into two categories: the *Generality Model of Illness*, and the *Specificity Model of Illness*. While the former assumes that *any stressor* produces major physiological changes that increase the susceptibility to *all illness*, not to specific ones; the latter conceives, on the contrary, that *each illness* is result of a *specific noxious environmental agent*. In work settings, both models have been broadly applied to evaluate the consequences of stress on employee's health status. From the perspective of the specificity viewpoint of health, *cardiovascular diseases* have been largely associated to Type-A behavior pattern, in which specific negative emotions such as recurrent anger and hostility are conceived to increase the risks of specific heart-related illness. On the contrary, the generality perspective on health assumes that *cancer*, for example, is a non specific response of the organism to non specific environmental stressors. Selye (1993, p. 12) has argued: "no matter what pulls on the chain and no matter in which direction, the result is the same- in other words, it is nonspecific."

In addition to contrasting health modeling approaches, there is a large list of terms that have been used interchangeably by occupational health researchers as synonymous of employee's health outcomes. For example, Quality of Life construct is frequently confounded with "quality of well- being", "general well-being", "meaning in life", "life satisfaction", "joy of life", "mental health", "health profile", and even "social integration". Additionally, it has been found that QoL is frequently reduced to one or two indicators and even to a single question. In line with this observation, Fitzpatrick (2000), has argued that a good number of QoL studies have been limited to some aspects of physical functioning or symptoms or observed-based judgements, and they also "neglect" an holistic viewpoint of quality of life. In a similar way, Smith, Avis, and Assmann (1999) have found that several questionnaires originally designed to measure *health status* have been inappropriate used for evaluating *QoL*; specifically, the prestigious Health Utilities Index Mark, the Quality of Well-Being Scale, the HALEX, and the Euro-QOL. The same observation was generalized for those instruments originally designed to evaluate general health perceptions.

As a response to the problems that are inherent to the assessment of QoL and HS, the World Health Organization (WHO) has recently produced a generic quality of life measure (the WHOQOL-100) (Power, Bullinger, Harper, & WHO-QOL, 1999), together with an abbreviated version (the WHOQOL BREF). Both scales are available on the World Wide Web (see Chapter 4 in this dissertation), and non published study has used them as a reliable parameter to evaluate relationships between work stress and QoL. O'Carroll, Smith, Couston, Cossar, and Hayes (2000), for example, carried out a study that aimed at a comparison between the WHOQOL-100 and the WHOQOL BREF in detecting changes in QoL following liver transplantation. While previous study had nothing to do with work-related stress, it did provide valuable information regarding the WHOQOL BREF as an economic alternative. In addition to these results, they also found that: both the WHOQOL-100 and the WHOQOL BREF were highly correlated; their scores improved significantly following surgical interventions; they remained relatively stable following no medical intervention.

In spite of existing difficulties to categorize current research tendencies in work stress and coping, my own literature review allowed me to recognize that attention has been given to the following health outcomes: *Somatic health/illness outcomes* (e.g., Siegrist & Peter, 1994; Peter & Siegrist, 1997); *mental health/illness outcomes* (e.g., Parkes, 1990; Srivastava, 1991); *well-being and psychological distress* (depression and somatic symptom) (e.g., Bhagat, Allie, & Ford, 1991; Long, 1993; Sears, Urizar, & Evans, 2000); *emotions* (e.g., Lazarus, 1991a); *quality of life* (e.g., Hart et al., 1995; Yager & Borus, 1990); and *job-related variables* like *job*

satisfaction, *work performance*, *absenteeism* and *turnover* (e.g., Burke & Greenglass, 2000; Gamsjaeger & Sauer, 1996; Kirkcaldy & Furnham, 1995; Lu, Tseng, & Cooper, 1999; Sanchez & Brock, 1996; Thomsen et al., 1999).

With respect to *somatic* health/illness, there has been an enormous amount of attention devoted to the field of occupational stress and coronary heart disease, both in the English and the German literature of Psychology. In the late 1980s and the 1990s, interesting studies along these lines were undertaken to provide better comprehensive models to conduct research. In Berlin, an interesting work was carried out under the name: "Social-ecology of myocardial infarction. Studies into the pathology of industrial work" (Friczewski, 1988), which presented a psychosocial model to predict myocardial infarction in the context of specific working conditions that might evoke myocardial infarction risk behavior. This study presented valuable information regarding psychodynamics and coping behavior of the infarct patients, as well as data regarding Type-A behavior as a system. More recently, Siegrist and Peter (1994) developed a theoretical model called "effort-reward imbalance at work", which is an attempt to explore work-related factors in explaining cardiovascular risk and disease. These authors offered some evidence supporting the assumption, that "active coping" with the experience of chronic work stress, is more likely to be associated with physical health consequences of sustained autonomic arousal such as hypertension, whereas "passive coping" may predispose individuals to withdrawal behavior such as sickness absence from work. Two additional examples have been conducted regarding the following topics: work stressors, women, and illness (Lippmann, 1993); work stress, occupational health and acute myocardial infarction (Richter, 1994). On the other hand, while research on Type-A behavior and coronary heart disease has been abundant, the same cannot be said of *cancer*, which is a further stress-related illness, and also related to the Type-C behavior. Cooper (1983) has already drawn our attention to the need of evaluating psychosocial factors of cancer among working subjects, but very little attention has been given to his call. The norm has been to investigate coping strategies with the experience of working with cancer patients (e.g., Weis, Koch & Matthey, 1998; Schroeder, Schmutzer, & Schroeder, 2000) rather than studying coping strategies with cancer among working people.

With regard to *mental* health/illness, most of the research in this field has used *The General Health Questionnaire* (GHQ; Goldberg, 1978) as synonymous for mental health status. Parkes (1990) carried out a study to test the hypothesis that relations between work stress and mental health outcomes would be moderated by direct coping (a form of problem-focused coping), whereas suppression (a form of emotion-focused coping) would show an

overall effect on outcome. This author found that high levels of suppression coping were associated with low scores on the GHQ, irrespective of the level of perceived environmental stress. This benign role of suppression (restraint, compromise, and continuing with immediate activities regardless of difficulties), contrasts with the maladaptive function that has been attributed to "selective ignoring" as a strategy for managing job-related stress (Menaghan & Merves, 1984). On the other hand, direct coping showed significant interactive relationships with both work demand and work support in predicting GHQ scores. In this context, the buffering hypothesis was supported in the sense that a capacity for active coping, problem-oriented coping is adaptive when used to manage adverse work circumstances but appears to give few or no benefits when work conditions are favorable. Srivastava (1991) conducted a further study which supported the assumption that "approach coping" contributes to immediate perceived stress, but in the long run reduces tension and anxiety.

Evidence on relationships between *depression* and *somatic symptoms* and the use of emotion-focused coping strategies, rather than problem-focused coping strategies has been provided. Sears et al. (2000) presented evidence supporting the hypothesis that high levels of depression are more likely to be present in those employees who used an emotion-oriented coping strategy to cope with work-related stress. A second study, Long (1993) found that "disengagement coping" was a significant moderator of the relationship between the use of resources at work (power and work support) and the prevalence of psychosomatic symptoms. Similar results were found by Bhagat et al. (1991), who corroborated that problem-focused coping moderated personal life stress to a greater extent in comparison with emotion-focused coping.

With reference to the role played by *emotions* in health status, Lazarus (1991b); Weiner (1987), between others, have developed theoretical frameworks to comprehend the role played by affectivity in somatic health, subjective well being (SWB) and social functioning (including work domains). In the context of those theories, Perrewe and Zellars (1999) developed a comprehensive model, in which affective responses (guilt, shame, anger, and frustration) determine secondary appraisal coping (either problem-focused or emotion-focused), whereas primary appraisal indirectly influence on affective responses through the search for the causes of felt stress (internal or external). Essentially, specific emotions are able to cause specific patterns of physiological disturbances that might, subsequently, produce specific illness. For example, relationships between Type-A behavior pattern, emotions of anger/hostility and heart-related diseases. Second, SWB is assumed to be consequence of appraisal of specific adaptational encounters resulting in particular emotions such as anger,

guilt, happiness, and pride, and refers to the way a person evaluates the significance of what is happening for well-being. Third, emotions aim to promote adaptation of persons across life span. It has been suggested that even negative emotions (e.g., anxiety) do not always impair performance; rather they may actually facilitate it. On the other hand, positive emotions are assumed to be the facilitators *sin equa non* of performance and social functioning.

While empirical evidence has been provided regarding the link between emotions and health, there are still some unclear issues that remain unresolved. Parkes (1990), for example, has shown controversial evidence for the "confounding" role played by negative affectivity (NA) in the work stress-outcome relations. For this reason, she has developed two alternative models, that aimed at an explanation of whether negative affectivity was a source of stress outcome confounding or a measure of stress reactivity. Findings of model 1 (additive model) revealed that the variance in outcomes explained by work environment measures were smaller (.12) when statistically controlling for NA, in comparison with explained variance (.17) when the NA was excluded. However, findings of model 2 (interactive model) revealed that when high-NA individuals perceived high levels of demand, they responded with high levels of affective distress; on the contrary, low-NA persons did not presented that reactivity. A second controversial study conducted by Marco, Neale, Schwartz, Shiffman, and Stone (1999); offered unexpected failures to observe effects of coping on mood changes. When observing time X coping interaction to predict mood variations, none of the ways of coping subscales were related to mood changes. This was a unpredictably counter evidence for the role of coping as mediator of emotional outcomes, in view of the large evidence connecting coping to mental and physical health outcomes in longitudinal and cross-sectional research (e.g., Carver, Pozo, Harris, Noriega, Scheier, Robinson, Ketcham, Moffat, & Clark, 1993).

Despite the fact that QoL has been declared by the WHO as a *universal construct*, there are still very few studies interested on it in the context of working individuals and organizations. Hart et al. (1995), for example, developed three LISREL models that corroborate whether *perceived quality of life* was function of several predictors, namely positive and negative work experiences, organizational rather than operational experiences, and neuroticism and extraversion, which were found to be stronger predictors for the perception of quality of life. In addition to these results, they also provided evidence for the assumption that positive work experiences are function of problem-focused coping, whereas negative work experiences are conceived to be predicted by emotion-focused coping. In a second study carried out by Yager and Borus (1990) it was found that several coping strategies were relevant to increase QoL among psychiatric residency training directors,

namely prioritizing, bridge building, triaging, delegating, and careful scheduling and time management.

Concerning job satisfaction, coping and job-related indicators, the former construct has been a traditional research topic in the work stress and coping research domain during the last thirty years. Since there is a voluminous amount of publications on job satisfaction, I would like to briefly describe a couple of examples in which coping construct was associated to it. In a recent study that was realized by Burke and Greenglass (2000), it was found that lower levels of job-satisfaction and psychosomatic symptoms were negatively related with the use of "escapist coping", which is a form of emotion-focused strategy to deal with work-related stress, whereas "active coping" (a form of problem-focused coping) was negatively linked to the use of "escapist coping". In a similar study conducted by Lu et al. (1999), it was demonstrated that internal control (which has been conceived as a coping resource) is positively related with higher levels of job satisfaction as well as positive mental health outcomes. Conversely, Thomsen et al. (1999) used an expanded conception for job satisfaction, through which two main constructs, were assessed in a sample of 1,051 psychiatrists and mental health nurses in Stockholm, Sweden, namely work-related exhaustion and professional fulfillment. This study has shown evidence for the idea that organizational characteristics (e.g., efficiency, personal development, autonomy, goal quality, work load, leadership, and work climate), rather than individual variables (e.g., gender, professional category, and individual/background characteristics) are better predictors for levels of job satisfaction. Further selected examples on job satisfaction (JS) research have evaluated relationships between: coping, JS, and burnout (Gamsjaeger & Sauer, 1996); coping, organizational commitment, JS, and work tension (Sanchez & Brock, 1996); academic-related stress, coping and JS (Kirkcaldy & Furnham, 1995).

During the last two decades, a great deal of sustained work has been carried out by occupational stress researchers to evaluate work performance, absenteeism, and turnover, nevertheless there are still relatively few studies that assessed the role played by coping in those variables. A recent study along these lines was undertaken by Nelson and Sutton (1990) who have found that the choice of coping technique failed to account for significant variance in distress symptoms, mastery, or performance. Conversely, Hatton, Brown, Caine, and Emerson (1995), developed a study that have shown relationships between potential stressors, coping strategies, perceived work stress and emotional distress, and the negative impact of stress on direct care staff *work performance*, social life, and personal relationships. In addition, there have been other studies which have provided empirical evidence for

relationships between: absenteeism as a coping mechanism (Hackett & Bycio, 1996; Kristensen, 1991); absenteeism and burnout (Iverson, Olekalns, & Erwin, 1998; Pierce & Molloy, 1990); stress, hardiness, job satisfaction, absenteeism, and illness (Neubauer, 1992); coping skills training and turnover (Smoot & Gonzales, 1995).

Finally, I would like to briefly mention the status of burnout syndrome in work stress and coping and research. Parallel to research on psychological well-being, health status and quality of life in working people, a supplementary research tradition has flourished in the last two decades, namely burnout research. This well known construct is defined as a "syndrome of physical and emotional exhaustion involving the development of negative self-concept, negative job attitudes and loss of concern and feeling for clients" (Pines & Maslach, 1978, p. 233). Burnout consists of three factors: emotional exhaustion, depersonalization, and lack of personal accomplishment, which are normally assessed by the popular *Maslach Burnout Inventory* (Maslach & Jackson, 1986). Burnout received a considerable attention from model testing research in which burnout is conceived as function of causal antecedents (personal and social resources) and meditating processes (coping) (e.g., Anderson, 1991; Burke & Greenglass, 1995; Cianfrini, 1997; Freedy & Hobfoll, 1994; Gueritault-Chalvin, Kalichman, & Peterson, 2000; Himle et al., 1991; Hooley, 1997; Lerkiabundit, 1998; Liu, 1997; Maslanka, 1996; McIntosh, 1991; Matheny, Gfroerer, & Harris, 2000; Reid, 1999; Sand, 1998; Sand & Miyazaki, 2000; Westman & Etzion, 1995). Kleiber, Enzmann, and Gusy (1995), for example, investigated the differences between health workers in AIDS and non-AIDS fields regarding stress, degree of burnout, and possible moderators/mediators. Using the Maslach Burnout Inventory, these authors reported that employees who work in cancer care or geriatrics were more burnt than those who worked in AIDS health care. The study offers sticking results that help to clarify the myths of working with AIDS patients, compared to other areas considered to be less demanding.

Additionally, there has been a growing tendency to develop stress management strategies to control and reduce novice effects of burnout on employees. The following section provides examples of them.

2.8   Work Stress and Coping Research Applications

2.8.1   Preventive Stress Management

Preventive Stress management (PSM) is an organizational philosophy and set of principles that employs specific methods for promoting individual and organizational health while preventing individual and organizational distress. PSM is the framework proposed for designing, organizing, implementing, and evaluating *stress management interventions* (SMIs) in organizations. PSM, therefore, refers to a set of basic ideas about how an organization should operate and what approach managers should take toward the demands of organizational life.   Managers and executives in any organization may implement these notions. The specific implementation strategy to a particular organization must consider both organizational and individual methods of preventive stress management. PSM follows a *proactive model of organizational change*, anticipating and averting most crises by shaping events rather than reacting to them (Quick, Quick, Nelson, & Hurrell, 1997).

PSM aims to (a) promote individual and organizational health through efforts directed toward increasing productivity, adaptability and flexibility, and (b) minimize and, when possible, avert individual and organizational distress. Five principles guide these purposes, which are the central elements of PSM philosophy: (a) Individual and organizational health are interdependent; (b) leaders have a responsibility for individual and organizational health; (c) individual and organizational distress are not inevitable; d) each individual and organization reacts uniquely to stress; (e) organizations are ever-changing, dynamic entities.

This PSM is strongly influenced by preventive medicine approach, which develops prevention strategies to address health risks (primary prevention), asymptomatic disorders and disease, behavioral problems (secondary prevention), and symptomatic disorders and disease (tertiary prevention). The major foci in preventive stress management are (a) demands, or stressors; (b) stress responses; and (c) the various forms of distress.

Primary prevention (PP) aims to modify the demands, or stressors, to which people are subject in the work environment. At the organizational level, PP is aimed at controlling the number of stressors and their intensity. At the individual level, PP is intended to help individuals to control the frequency and intensity of the stressors to which they are subjected. The goal is not to eliminate stressors but to optimize the *frequency and intensity of stressors*. In the USA, there is a growing concern regarding the need of stress management interventions (SMIs), both at the individual level and at the organizational and policy level (Murphy,

Hurrell, Sauter, & Keita, 1995). In Germany, for example, the Volkswagen company has implemented primary prevention programs by applying the concept of "*job-related health circles*" (Brandenburg, 1994). In the UK, Bunce and West (1994) proposed what they called "innovative coping response" to manage stress at work, which consists in introducing changes to part of a job or in the way they do it to make it less stressful.

Secondary prevention (SP) aims to change how individuals and organizations respond to the necessary and inevitable demands of work and organizational life. It is directed at controlling the *stress response* itself and includes efforts to optimize the intensity of each stress response and individual experiences. Whereas low-intensity stress responses may provide insufficient impetus for adaptability and growth, high intensity responses may lead to sudden death or other serious individual consequences. Because of individual differences, the optimum intensity for one individual may not be optimum for another. Concerning SP, the following selected research examples are available: management of symptoms of upper-back disorders and coronary heart disease among active workers (Tuomi, Seitsamo, & Huuhtanen, 1999); management of job-related traumatic stress symptoms among emergency caregivers (McCammon & Allison, 1995); ways for behavior therapists to cope with their own occupational stress (Schmelzer & Pfahler, 1991); institutional programs assisting therapists and psychosocial workers in managing stress and reducing burnout (Gusy & Kleiber, 1998; Hooley, 1997; Kleiber & Klimek, 1995; Kleiber & Gusy, 1996); and theoretical-based approaches at the level of secondary prevention, the conservation of resources approach, which has been applied in stress inoculation methods for reduction of burnout (Freedy & Hobfoll, 1994).

Tertiary prevention (TP), which is therapeutic, aims to treat the psychological, behavioral, or medical distress that individuals, groups, and organizations may encounter. TP is concerned with minimizing the organizational costs and the individual discomfort, disability, and death resulting from frank manifestations of too much stress. At the organizational level, this usually takes the form of crisis intervention, whereas at the individual level it often consists of traditional psychological, medical and psychiatric care.

2.8.2 Stress Management Interventions

A concern regarding effectiveness of SMIs is whether they are really useful to reduce adverse effects of job-related stress on employees. In accordance to this need, Kaluza (1997) conducted a study to evaluate the effectiveness of 36 stress management training programs that aimed to improve coping with day-to-day life stressors. Meta-Analysis was applied to 36 controlled evaluation studies (22 randomized and 14 quasi-experimental) to compute mean effect sizes for six categories of outcomes: physical and psychological state, cognitions, type A/trait-anger, coping strategies, subjective perception of stress, physiological variables, as well as short and long term effects. Main findings of Meta-Analysis are described as follows (see Table 2):

First, EI_{within} values show significant SMIs training effects from 1 to 6 month after concluding the treatment. The stronger effect corresponds to physical and psychological state variables (negative mood states and hostility reactions) and the lower to the physiological and subjective stress perception measurements. It can be observed a change from $d_+= 0.54$ (in studies < 6 months) to $d_+=0.82$ (in studies >6 months) in the intervention effect, which means that SMIs effects are both maintained and increased through the time.

Table 2. Meta-Analysis: Intervention Effect d+ and "Fail-Safe N" for dkrit = .20 by results by time category with number of studies greater than 2. Adapted from Kaluza (1997).

Category of Result	Category of Time							
	< 1 Month		>=1<=6 Months				>6 Months	
	EI_{post}		EI_{diff}		EI_{within}		EI_{within}	
	d+(k)	"fail-safe-N"	d+(k)	"fail-safe-N"	d+(k)	"fail-safe-N"	d+(k)	"fail-safe-N"
1:Physical and Psychological State	.38(15)	15	.53(10)	17	.45(9)	11	.82(5)	16
2:Cognitions			.35(6)	5	.48(5)	7		
3:Type A/Anger	.71(4)	11	.80(5)	15				
4:Coping	.36(4)	3			.41(3)	3		
5:Perceived Stress	.02(3)	*	.28(4)	3	.27(3)	1		
6:Physiological Variables	.24(8)	3			.33(3)	3		

*d+ < .20 = not significant

Second, in order to prove the dependence of training effect from training intensity, d+ was calculated both on short training studies (<= 10 hours) and long training studies (>= 10 hours). Results show, respectively, $d_+ = 0.27$ and $d_+ =0.51$, which indicates that intensity of training is a moderator of training effectiveness.

Third, putting all together, it can be concluded that measurement outcome criteria of SMIs has been normally restricted to the assessment of negative mood states, while neglecting

coping behaviors. SMIs appeared to be efficient to improve the psychological and physical state, as well as to reduce Type-A/Anger/Hostility reactions. However, SMIs seem to be less capable in the reduction of physiological variables and the perception of stress.

In coherence with previous arguments, Bunce (1997) sustains that, due to design and methodological limitations in the majority of studies of individual focused stress management interventions, a new generation of research is required. These studies should (a) delineate clearly between interventions of differing technical content; (b) include sessions process measures to help distinguish the degree of outcome variance associated with specific and non-specific factors; (c) focus on the moderators of change enabling greater understanding of the circumstances in which a particular stress management intervention is appropriate; and (d) examine the mediators of change thereby increasing our understanding of the psychological mechanism underpinning outcome change.

2.9   Summary and Outlook

More than three decades of research on work stress and coping are not easy to synthesize, not only because of its theoretical and methodological diversity, but also due to existing difficulties and unresolved issues in coping assessment, disputing theoretical perspectives and construct overlapping, and a preoccupying gap between theoretical model development (relationships between independents and dependent variables) and their potential usability and applicability to working reality at the level of individuals and organizations.

With reference to relationships between independent and dependent variables, we must recognize the fact that work stress and coping research has improved its quality regarding research designs. However, the field of health status and quality of life research presents unresolved difficulties at the level of conceptual overlapping and confusions regarding assessments. Today, the WHOQOL-100 and the WHOQOL-BREF appear to be the solution to those problems, in terms of universal validity and reliability of scales. Additionally, in Latin America, for example, where the work-forces are considerable younger in comparison to Europe and North America (excluding Mexico), several occupational health-related problems should receive more attention in the future, for example, the unexpected growing prevalence of coronary heart diseases among *working adolescents* in Costa Rica (see Pan-American Health Organization [PAHO], 2000). Moreover, working environments are rapidly evolving to the use of computer-mediated work interactions allowing people to perform co-operative tasks from remote working sites; similarly, organizations increasingly find

themselves functioning in rapidly changing internal and external environments that are unpredictable and uncontrollable. An interesting facet to take into consideration is the internationalization of working environments in which people should establish commercial relationships regardless of their cultural background.

Considering those circumstances, work stress and coping research must cope with the challenge of assessing human-computer interactions that tax or exceed employee human resources (e.g., Konradt, Schmook, Wilm, & Hertel, 2000). Second, when dealing with uncertainty and temporality of working demands, this field must confront the challenge of developing best fitted theories and instruments designed to deeply analyze those conditions under which individuals *anticipate* to potential dangers. Here, theories and methods on proactive and preventive coping (Aspinwall & Taylor, 1997; Greenglass, 1998; Schwarzer, 2000) are prospective rich fields of research that must be seriously considered. Third, the challenge of assessing dimensions of personality and coping, regardless of their cultural and linguistic background, is an additional task that work stress research must assume. In this case, research endeavors that assess the universality of psychosocial constructs such as self-efficacy (e.g., Schwarzer, 2000), coping (e.g., Prelow, Tein, Roosa, & Wood, 2000), and quality of life (e.g., Power et al., 1999) are of great significance. Fourth, given the progressive incorporation of women and adolescents to work-forces, more attention should be devoted to health/illness-behavior patterns and work-related diseases among working women and working adolescents (e.g., cancer and cardiovascular diseases).

At the methodological and theoretical level, rather than augmenting differences between alternative models, work stress and coping research should be oriented towards an *integration of complementary constructs* into theoretical models susceptible of further empirical evaluation, replication, and subsequent application to organizational reality in benefit of individual and collective health. Several examples are, however, representative of this need: Carver and Scheier (1998) have used their *Behavioral Self-regulation Approach* and the *Transactional Theory of Stress* (Lazarus, 1991b; 1995) to develop better suited instruments to evaluate coping and optimism. Perrewe and Zellars (1999) proposed a model of coping that contemplates constructs of both *Attribution Theory of Motivation and Emotions* (Weiner, 1979; 1982; 1986; 1987) and *Transactional Model of Stress*, which seems to be a promising field for the comprehension of organizational stress process. In addition, more and more authors are drawing our attention to the need of investigating the role played by *denial* as an adaptive mechanism. In this context, both process-oriented coping approach (e.g., Lazarus, 2000), as well as personality or trait oriented models on coping (e.g., Evers et al., 2000) can

give to *denial* a new theoretical significant place. With regard to new theoretical contributions, *Proactive Theories on Coping* (Aspinwall & Taylor, 1997; Schwarzer, 2000) are potential productive fields of research that must be seriously considered in interaction with other leading theories such as the *Transactional model of Stress*, the *Behavioral Self-regulation Theory,* or the *Social-Cognitive Theory* of Bandura (1986, 1997). A second fertile field of future research is the *Conservation of Resources Theory* (Hobfoll, 1998), which has been creatively integrated in the context of *Stress Inoculation Strategies* to improve employee's capabilities to cope with stress.