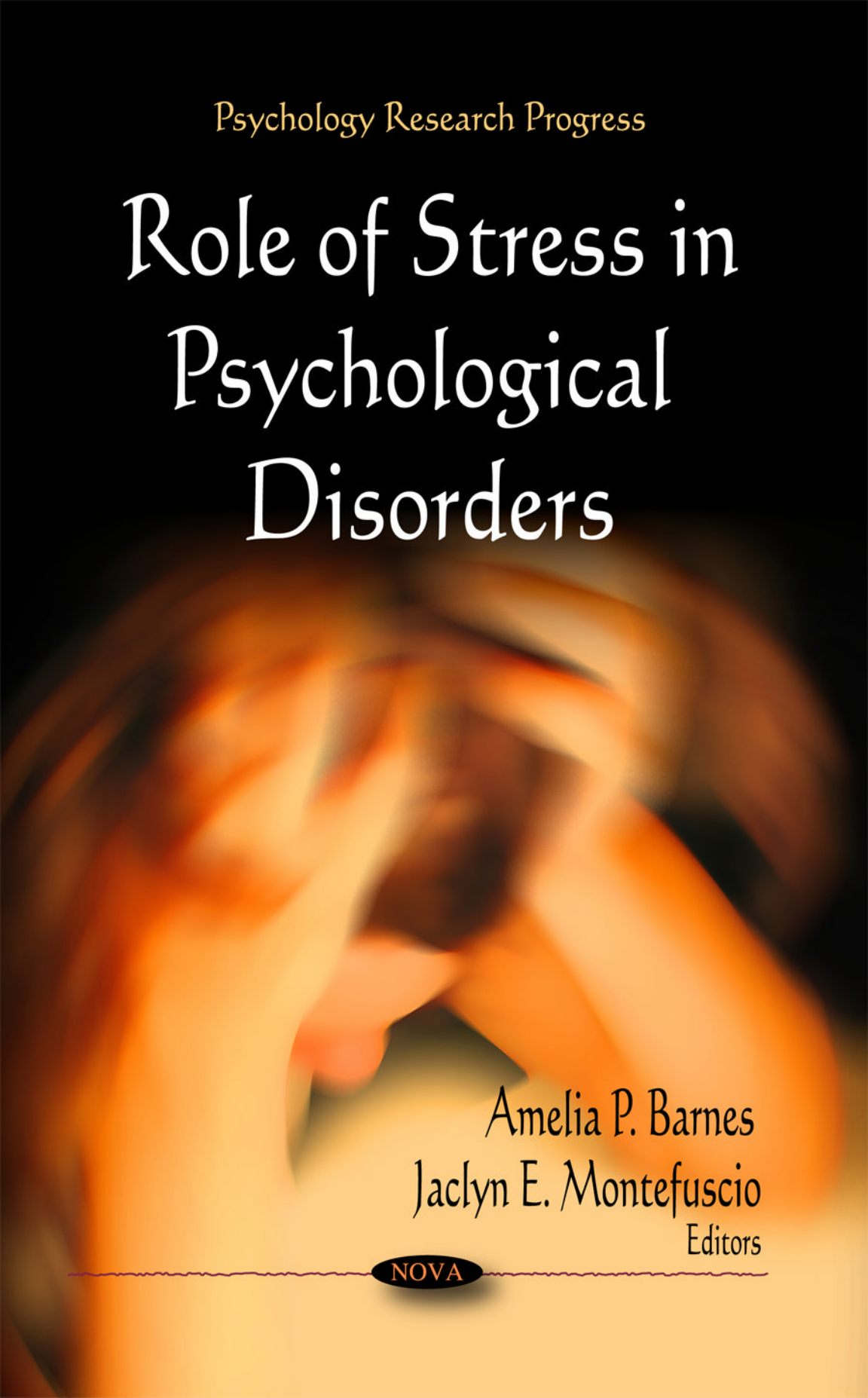
Psychology Research Progress

Role of Stress in Psychological Disorders



Amelia P. Barnes
Jaclyn E. Montefuscio
Editors

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PSYCHOLOGY RESEARCH PROGRESS

ROLE OF STRESS IN PSYCHOLOGICAL DISORDERS

PSYCHOLOGY RESEARCH PROGRESS

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ROLE OF STRESS IN PSYCHOLOGICAL DISORDERS

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AND
JACLYN E. MONTEFUSCIO
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PREFACE

This new book examines the role of stress in psychological disorders. Topics discussed include a review of psychosocial stress and health; family stress and psychological adjustments among welfare and non-welfare immigrants; eating disorders and stress; extending the stressor-strain perspective; role stress in flexible and creative roles and the effects of postpartum depression on the mother-infant relationship and child development.

Chapter 1 - *Background*: Psychosocial stress is one of the most ubiquitous concepts in public health. In the 21st century alone, over 350,000 articles have been indexed in PubMed under the keyword *stress*, with this research accompanied by a profusion of conceptual approaches.

Aims: This paper adds some clarity to this diverse field by reviewing the variety of concepts used in the study of psychosocial stress and health.

Method: A search of the electronic databases identified key articles providing coverage of the range of conceptual approaches to psychosocial stress.

Results: Stress is conceptualised as a stimulus or response. Approaches to studying stressors, the stress process, stress sequelae and the distribution of stressors in society are considered along with emerging directions in the study of stress.

Conclusions: There is a need to psychosocial conceptualise stress clearly in terms of the models adopted, the types of stressors considered, the contextual factors relevant to the stress process, and the aetiological importance of stress sequelae.

Declaration of interest: This work was supported by an Australian National Health and Medical Research Council (NHMRC) Training

Scholarship for Indigenous Health Research (#193321), an NHMRC Population Health Capacity-Building Grant (#236235) and a Cooperative Research Centre for Aboriginal Health scholarship.

Chapter 2 - The present study explored the psychological adaptation of immigrants to Israel, while comparing between two populations – immigrants treated by the Department of Social Services welfare system, and immigrants non treated by the welfare system.

Research findings show that the psychological adaptation of immigrants is predicted by the resources in the immigrant's possession, indicating that the psychological adaptation of population with special difficulties, such as – the elderly, single mothers, psychiatric patients etc., is more problematic. These findings were refuted by the current study, according to which, unexpectedly immigrants treated by the welfare system reported higher satisfaction from their integration in Israel, from their process of Alyia and from their life condition in Israel, compared to non-welfare immigrants).

It was found that married subjects reported more familial and economic difficulties, compared to non-married, and also related these difficulties more to negative psychological responses. The present research' findings point to differences between the studied groups regarding the experience of the immigration crisis, apparently the stresses of immigration act differently according to 'the experienced level of balance' former to immigration. Finally, the present study has practical implications, by which an absorbing state should differentiate its treatment and policy of immigration, according to immigrants' position prior to immigration. Moreover, the 'resilience' hypothesis which is apparently supported by the present study, should be further examined empirically.

Chapter 3 - Given that to date relatively little research has been carried out into the effects of ongoing terrorist attacks with the emphasis on adolescents in urban areas, this study set out to investigate a wide range of self-reported emotional and behavioral outcomes among adolescents facing ongoing terrorism in both urban and rural locations in Israel.

913 adolescents aged twelve to eighteen years from four different locations in Israel who were exposed in different ways to terrorist attacks over a period of three years against the backdrop of ongoing terror are investigated to identify the prevalence of Post Traumatic Stress (PTS) and related mental health problems by self-report measures, including Achenbach’s Youth Self-Report, the Brief Symptoms Inventory and a specially designed questionnaire covering Post Traumatic Stress and exposure to terror data.

Around 90% of the adolescents experience mild to severe PTS, one fifth reported borderline or clinical emotional and behavioral problems, and one third reported mental health difficulties. Students from different locations revealed different levels of PTS and other psychological problems. Analysis according to level of exposure revealed that it was not always those whose exposure was the most objectively severe who exhibited the most symptoms.

Future research should highlight the unique characteristics of ongoing exposure to terrorism, such as the cumulative effects of exposure and risk of exposure, in order to shed light on their contribution to mental health outcomes.

Chapter 4 - During the last two decades there has been an increase in research focusing on the effects of maternal depression on the mother infant bond. Research in this field has apparently developed out of; a recognition of a relatively higher prevalence of postpartum maternal depression than once believed and recurring observations of differences in mother/infant relationships or infant behavior associated with maternal postpartum depression.

The infant behaviors that have been implicated as resulting from this theoretically compromised mother infant relationship have included slight, transient effects on sociability and affective sharing to results suggesting significant increases in irritability, cognitive delays, behavioral problems, and difficulties with attachment, among others. Longitudinal data suggest that while some problems appear to resolve relatively quickly, there are some characteristics that endure long after infancy. Specifically, some researchers have argued that children and even adolescents who experienced problems bonding with their depressed mothers are at significantly greater risk of experiencing a variety of psychological symptoms, including depression, anxiety, and problems with addiction. Again, this view is controversial and others in the field link these increased risks to other factors such as low socioeconomic status or marital discord. While there appears to be consensus among most researchers in recognizing that there are likely effects of postpartum depression on mother infant bonding that affect early development, there is little consensus regarding the specific details of these effects.

In this review, the authors will systematically analyze research focusing on the effects of postpartum depression on the mother infant bond and those variables that are believed to be affected from potential difficulties in this bond.

Chapter 5 - Individuals with eating disorders experience a high degree of stress. The combination of not having learned adaptive coping strategies and being exposed to challenging situations can render people vulnerable to

experiencing stress and developing mental health problems. Some people may turn to problematic coping strategies such as dissociation, substance abuse, and problematic eating. There is a high prevalence of traumatic histories and problematic coping skills to manage stressful situations in individuals with eating disorders.

This manuscript will review the literature on stress and coping in individuals with eating disorders. Binge eating, purging, and food restriction will be discussed in the context of self-regulatory process. Issues related to comorbidities will be addressed, and promising stress control strategies will be discussed.

The role of CBT, reflective activity, and mindfulness in regulatory process, stress reduction, and control will be discussed.

Chapter 6 - Although the current state of role stress research has to a large extent determined significant consequences, we highlight that the field do not acknowledge the complexity of role relationships, especially occasions of reverse causality.

In opening a dialogue, we discuss the possibility to an extension of the stressor-strain paradigm, that is the dominant perspective in role stress research, from explaining linear causal chains of detrimental consequences of role stress to instead researching reversed causality relationships with alternatives theories. Although we concur with previous findings, we elaborate upon the fact that what have long been indicated as important consequences of role stress may also be antecedents to role stress.

This paper examines theoretical implications of questioning causality, review typical causal role stress models and outline some method implications for using a cross-lagged design for researching reversed causality of the current role stress consequences.

Chapter 7 - In this paper the authors illustrate that much of the traditional role stress research has related to quite static roles in role taking systems where effects of role stress typically have been viewed as detrimental (i.e., the stressor-strain perspective). The authors suggest a brighter picture in that role stress can have positive consequences when roles are constructed to have enough flexibility, freedom and creativity to allow for pertinent coping alternatives. In relation to this perspective, the authors present three approaches for examining the nature of stress and for evaluating whether role stress can have positive consequences given certain role characteristics.

Versions of these chapters were also published in *International Journal of Psychology Research*, Volume 5, Numbers 1-4, edited by Alexandra M. Columbus, published by Nova Science Publishers, Inc. They were submitted for appropriate modifications in an effort to encourage wider dissemination of research.

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Chapter 1

A THEORETICAL REVIEW OF PSYCHOSOCIAL STRESS AND HEALTH

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ABSTRACT

Background: Psychosocial stress is one of the most ubiquitous concepts in public health. In the 21st century alone, over 350,000 articles have been indexed in PubMed under the keyword *stress*, with this research accompanied by a profusion of conceptual approaches.

Aims: This paper adds some clarity to this diverse field by reviewing the variety of concepts used in the study of psychosocial stress and health.

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Results: Stress is conceptualised as a stimulus or response. Approaches to studying stressors, the stress process, stress sequelae and the distribution of stressors in society are considered along with emerging directions in the study of stress.

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Conclusions: There is a need to psychosocial conceptualise stress clearly in terms of the models adopted, the types of stressors considered, the contextual factors relevant to the stress process, and the aetiological importance of stress sequelae.

Declaration of interest: This work was supported by an Australian National Health and Medical Research Council (NHMRC) Training Scholarship for Indigenous Health Research (#193321), an NHMRC Population Health Capacity-Building Grant (#236235) and a Cooperative Research Centre for Aboriginal Health scholarship.

Keywords: stress, review, theory, coping, physical health, mental health.

INTRODUCTION

The notion of stress first arose during the 17th century as synonymous with 'hardship, straits, adversity or affliction', while in the 18th and 19th centuries the term came to be associated with 'force, pressure, strain or strong effort' (Pollock 1988). It was only from the 1920s, when Walter Cannon conducted research into the physiological responses to emotional arousal, that stress came to be associated with health and wellbeing. Cannon introduced the concept of *fight-or-flight* as an adaptive function of humans and speculated that the physiological changes associated with this reaction were influenced by emotional states (Pollock 1988). The first contemporary notion of stress, based on the work of Cannon and others, was proposed by Hans Selye in the 1950s (Doublet 2000). Selye's *General Adaptation Syndrome* (GAS) model held that although change is a normal and inexorable feature of social life, all change is potentially harmful because all change requires (re)adjustment (Selye 1956).

In the GAS model, stress is characterised by: (i) an alarm reaction where natural resistance is lowered and bodily defences are mobilised; (ii) increased resistance/adaptation; and (iii) exhaustion of energy for adaptation followed by collapse (Mulhall 1996). The GAS model contends that stress is non-specific in that the same physiological changes result from every experience of stress and hence, it is the intensity of required (re)adjustment that is relevant and not whether the stress is pleasant (eustress) or unpleasant (distress) (Selye 1956).

In modern stress research, the strong physical and biological elements of the GAS model have been superceded by heavily psychologised notions of stress. Rather than change per se, only changes which are perceived as undesirable, unscheduled, non-normative, uncontrolled, or unpredictable are

now thought to be stressful ((Bartley *et al.* 1998; McQueen and Siegrist 1982; Pearlin 1989).

Psychosocial stress has now become one of the most ubiquitous concepts in contemporary lay and scientific health discourses (Hobfoll *et al.*1998). Since the 1960s a plethora of disciplines including psychology, psychiatry, nursing, medicine, sociology, anthropology and pharmacology have examined psychosocial stress (Mulhall 1996).

In the 21st century alone there have already been over 350,000 articles indexed in PubMed under the keyword *stress*. This veritable mountain of research has been accompanied by a profusion of conceptual approaches which, as a whole, suffer from difficulties in characterising stress (Hinkle 1987; Cohen *et al.* 1997; Hobfoll *et al.*1998; Monroe 2008; Quick and Nelson 2001), and have attested to criticism that 'stress in addition to being itself, and the result of itself, is also the cause of itself' (Wallis 1983).

As noted more than a decade ago, it is clearly no longer possible to conduct a comprehensive review of the stress literature (Hobfoll *et al.*1998). Rather, this paper aims to help clarify this diverse field by reviewing the variety of concepts used in the study of psychosocial stress and health. This includes an overview of contemporary definitions and conceptualisations of stress as well as an overview of approaches to studying stressors, the stress process, stress sequelae and the distribution of stressors in society. Rather than reviewing empirical findings on the relationship between psychosocial stress and health or considering measurement issues, this paper provides coverage of the range of conceptual approaches that exist in this field of research through selective reference to key scholars and articles in the field. To this end, a search of the electronic databases PubMed, PsychINFO, CINAHL and Sociological Abstracts was conducted using the following search terms: (stress OR social stress OR psychosocial OR psychosocial stress OR psycho-social stress OR psychological stress OR psychological distress OR burnout OR work stress OR life events OR stressful events OR PTSD) AND (review OR theory OR coping OR concept OR conceptualize OR conceptualise OR hypothesis OR model).

The search included articles indexed in the identified databases from their earliest records until the end of 2008. Bibliographies of identified articles were also searched to locate further papers for inclusion in this chapter. Searches were also performed to find other articles by the authors of identified papers. Article titles, abstracts and main bodies were then examined, with exclusions occurring (at each of these stages) if: (1) they were not available in English; or (2) did not focus on psychosocial stress.

The key exclusion resulting from the second exclusion criterion was of studies relating only to physical or physiological stress such as those in the field of sports science. Of the remaining included articles, only those which provided coverage of the range of conceptual approaches to stress are cited in this chapter.

CONCEPTUALISING STRESS

There are two broad approaches to conceptualising stress in modern research: as a stimulus or as a response. The *stimulus-based* or *objective stress* approach has much in common with the GAS model in viewing stress as synonymous with a stressor (i.e. a disturbing stimuli produced by an external/internal environment). On the other hand, the *response-based* or *subjective stress* model defines stress as an individual's response to stressors (Mulhall 1996), which are defined more broadly as external/internal stimuli that are *potential* causes of stress (Aneshensel 1992). Subjective stress involves a process of *appraisal* whereby an external/internal stimulus is perceived as a stressor if it is considered to be either undesirable and/or if it results in a loss of power/resources. *Primary appraisal* involves the assessment of a stimulus as a stressor while *secondary appraisal* determines if an individual can alleviate/eliminate the effects of the stressor (Lazarus 1966) through *coping* or maintaining *homeostasis* (see below).

Much contemporary theorising attempts to combine stimulus and response based models into an *interactional* or *transactional* model (Lazarus and Folkman 1984; Monroe 2008) while many approaches to measuring stress tend to conflate and response based models, very few empirical studies explicitly utilise transactional models (Monroe 2008). These models emphasise, to varying degrees, environmental stimuli as stressors; perceptual appraisal; and social, psychological and biological factors that affect both the occurrence of, and responses to, potential stressors (Hobfoll 1989). Hence, there are three key foci in contemporary stress research: the distribution, nature and meaning of (i) stressors; (ii) contextual factors that influence the stress process; and (iii) the biological and behavioural effects of, and responses to, stressors (i.e. stress sequelae).

The stress concept is fundamentally about an individual's adaptation to his/her environment. Although a variety of definitions have been proposed, there is no single universally accepted conceptualisation of stress (Monroe 2008). Stress is a relational phenomenon in which neither the interplay

between objective and subjective approaches, nor a tautological emphasis on process can, or should be, entirely avoided (Hobfoll 1989). Nonetheless, in conceptualising stress it is important to clearly delineate between stressors, the stress process and stress sequelae. Even relatively sophisticated attempts to theorise stress have tended to fall short of this required clarity. For example, Aneshensel and Sucoff (1996) and Wheaton (1999) have explored the concept of an *ecological stressor* defined as 'stressors that occur at any level of the social unit above the individual' (Wheaton 1999). They have suggested that the effect of ecological stress occurs either through a 'change in the probability of exposure to that stressor at the individual level' or by directly affecting 'individual functioning, regardless of the actual occurrence or nonoccurrence of that stressor at the individual level' (Wheaton 1999). Yet Wheaton (1996) himself notes that 'stress is not the contingent or probabilistic processes that arise from it'. To contend that a stressor operates by: (1) affecting the probability of exposure to itself; or (2) affecting individual functions whether or not it actually occurs, only further obfuscates a term which has already experienced more than enough confusion.

Stressors

Most stress research classifies stressors into three categories – *life events*, *chronic stressors*, and *daily hassles/uplifts*. Life events are discrete, acute, observable events which require major readjustment within a relatively short period of time (e.g. birth of a child, divorce) and are essentially self-limiting in nature (Wheaton 1999). Chronic stressors are relatively enduring, persistent or recurrent demands, conflicts, threats, or problems which require readjustments over much longer periods of time (e.g. disabling injury, poverty) (Wheaton 1999). Daily hassles and uplifts are mini-events, which require small behavioural (re)adjustments during the course of a day (e.g. traffic jams and a good meal, respectively) (Thoits 1995). To date, most research attention has focused on life events and chronic stressors, with a more limited focus on daily hassles/uplifts.

Life events were among the earliest approaches in stress research, generally taking the form of a checklist of events sampled from various domains across different hierarchies and weighted either by standardised importance of each event or subjectively by respondents. In general, these checklists were designed to be a representative sample of the major events that occur in people's lives (Cohen *et al.* 1997; Holmes and Rahe 1967). However,

it has been suggested that the universe of possible life events have not been sampled uniformly by such checklists, with events occurring to young adults being over-represented, while those occurring to women, minorities, and the poor being under- represented (Wheaton 1994).

Traumatic events are a type of life event characterised by their suddenness and extreme magnitude of impact. Their effects on health tend to be persistent and responses to traumas may create tendencies such as *rumination* (repetitive passive thoughts about negative emotions and their consequences) (Folkman and Moskowitz 2004; Nolen-Hoesksema *et al.* 1994). Although the term *trauma* is almost always associated with an event, it has been suggested that some chronic stressors (e.g. living in a violent neighbourhood) should also be considered a form of trauma that could be labeled as a *chronic traumatic stressor* (Wheaton 1999).

Chronic stressors, more generally, have been classified into a number of different types: role overload (e.g. caring for seriously impaired relatives), interpersonal conflicts within role sets (e.g. conflict between spouses), inter-role conflict (e.g. demands of work vs. family), role captivity (e.g. inability to leave an undesirable job), role restructuring (e.g. the changing relationship between adolescents and their parents) and ambient stressors that cut across multiple roles and spheres of social activity (e.g. poverty, crime, and violence) (Pearlin 1989; Pearlin *et al.* 2005), frustration of role expectations (Wheaton 1983) also known as constrained opportunity structures (McLeod and Nonnemaker 1999), status inconsistency (Dressler 1988) (e.g. less than expected income for a given occupation), goal-striving stress (i.e. discrepancy between aspiration/efforts and rewards/achievements) (Wheaton 1983; Dressler 1988) and lifestyle incongruity (i.e. consumption patterns/behaviours inconsistent with social class (Dressler 1988). A distinction has also been made between *chronic intermittent stressors* (e.g. examinations) and *chronic stressors* (e.g. prolonged marital discord) (Hobfoll 1989).

Daily hassles are the irritating, frustrating, distressing demands that to some degree characterise everyday life, while uplifts are the daily events that are satisfying, pleasing and/or relaxing (Kanner *et al.* 1981). Daily hassles occupy an intermediate position between chronic stressors and life events, being in a sense 'recurrent microevents' (Wheaton 1999) which may even mediate the relationship between these other two types of stressors (Weinberger *et al.* 1987; Hewitt and Flett 1993).

Although life events and chronic stressors are usually considered to be distinct, life events tend to re-occur over time due to ongoing social, economic, and psychological determinants (Aneshensel 1992) and chronic

stressors can be thought of as a series of events in their own right. Hence, stressors labeled as acute and chronic are often interrelated in that they can lead to one another and also provide meaning and context for each other (Pearlin 1989). In fact, some researchers have argued for the concept of *operant stress* which refers to a combination of recent/distal life events with chronic stressors that affect an individual at any one point in time (Turner *et al.* 1995). A similar concept is that of *cumulative stress*: an amalgamation of current stressors along with previous significant traumas that continue to act as stressors (Turner et al. 1995).

Another approach to the interplay between stressors is the notion of *stress sequences* in which the importance of the order and combination of stressors is recognised. For example, a chronic stressor in a particular role (such as work) followed by role exit/loss (such as being fired) may actually decrease rather than increase stress sequelae (Pearlin 1989; Thoits 1995) with other research finding an increased reporting of daily uplifts after exposure to a chronic stressor (Folkman and Moskowitz 2000). Related to stress sequences is the concept of *stress proliferation* in which a primary stressor leads to one or more secondary stressors, such as when the death of a loved one leads to social isolation (Pearlin 1999). The *carry over* effect of stressors (and stress coping) is another concept utilised in stress research. Carry over occurs when stress is translated between people (e.g. from wife to husband), across role domains (e.g. from work to home), across stages of life (e.g. from childhood to adulthood) (Thoits 1995) or when an individual's attempts to cope with stress become a stressor for others in his/her social sphere (Pearlin 1999).

Some researchers have also considered the notion that under-demand (e.g. boredom) is a type of stressor because it is not stimulating enough (Wheaton 1996) and that *non-events* such as the failure of an expected or desired outcome may also be a type of stressor (Pearlin 1999). For example, an anticipated event may cause stress whether or not it actually occurs (Pollock 1988). However, as others have noted (Wheaton 1994), if a non-event is simply considered an event in itself this conceptual distinction becomes superfluous.

The Stress Process

Psychological research on stress and health has explored the role that cognitive and behavioural traits, resources and responses play in the stress process (Taylor and Aspinwall 1996; Bartley et al. 1998). Several different

conceptual models have been utilised in order to understand how contextual factors/resources influence the stress process. In the *stress-suppression/ enhancement* model (Wheaton 1985), a stressor mobilises resource(s) which then alleviates or exacerbates this stressor by affecting its appraisal, responses to the stressor, further stressor proliferation and/or the relation between stressors and ill-health (Taylor and Aspinwall 1996). A variation on this model entails stressors depleting the resource which alleviates or exacerbates it. In the *stress-deterrent/stimulant* model (Wheaton 1985), these resources, which are causally antecedent to the stressor in question, reduce or increase the exposure to stressors rather than influencing the stress process itself (Pearlin 1999). A third model conceptualises stressors and resources as having separate and opposite effects while remaining independent of one another. Resources offset or buttress the stressor, but are not directly involved in the stress process because they operate along separate a causal pathway even in the absence of stressors (Wheaton 1985).

The role that psychological resources play in the stress process (under any of the above models) is commonly studied under the rubric of *stress coping* – defined as cognitive or behavioural resources used to master, tolerate, reduce, offset, prevent, or avoid stressors, contain stressor proliferation, alter the meaning of stressors, and/or manage states of arousal caused by stressors (Pearlin 1989; Aneshensel 1992). Coping can be either a set of habitual preferences activated in situations of (potential) undesirability or loss, or more specific responses invoked selectively for specific situations (Pearlin 1989; Aneshensel 1992). C*oping strategies* have been delineated along three key dimensions. The first dimension refers to the target of coping with primary control coping focused on changing the environment and secondary control coping focused on changing the self (Skinner *et al.* 2003). The second dimensions relates to the functions of coping, most commonly *problem-focused* vs. *emotion-focused* coping (Folkman and Lazarus 1980; Skinner *et al.* 2003). Problem-focused coping includes instrumental thoughts and behaviours (Folkman and Moskowitz 2000) while emotion-focused coping includes efforts to ameliorate stress-mediated negative emotions (Folkman and Moskowitz 2004).

The third dimension refers to topological features of coping, most comm.-only *approach* vs. *avoidance*, also known as sensitization versus repression, monitoring versus blunting, vigilance versus avoidance, and engagement versus disengagement coping. The key feature distinguishing approach from avoidance is the orientation of the individual's attention. Approach coping affords the opportunity for instrumental action and for integration of

distressing experiences while avoidance coping may alleviate experienced distress and provide safety or conservation of resources in taxing circumstances (Skinner *et al.* 2003).

Coping such as *positive reappraisal* (in which stimuli are (re)appraised as desirable or a gain) and *role de-valuation/distancing* (in which stimuli are deemed irrelevant and hence are neither (un)desirable nor a gain/loss) can play a part in primary and secondary appraisal, and may even do so at an unconscious level (Lazarus 2000). This type of coping which involve reinterpreting the meaning of stimuli, is also known as *meaning-focused coping* (Folkman and Moskowitz 2004). An article by Folkman and Moskowitz (2007) details five different approaches to meaning-focused coping: benefit finding, benefit reminding, adaptive goal processes, reordering priorities and infusing ordinary events with positive meaning. The nature of meaning-focused coping, in particular, highlights the conceptual difficulties inherent in differentiating between coping and secondary appraisal and raises the question of how effective such coping is in reducing/eliminating stress sequelae and/or creating positive outcomes in their own right (Folkman 2008).

A comprehensive review of coping identified problem solving, support seeking, avoidance, direct action, distraction, positive cognitive restructuring, rumination, helplessness, social withdrawal and emotional regulation as key coping responses (Skinner *et al.* 2003). This review also suggests that the three most common coping dimensions (as detailed above) fail to satisfactorily capture the nature of coping. Instead, coping should be considered a response to challenges/threats to control (competence), attachment (relatedness) or self-determination (autonomy) that coordinate an individual's: (a) actions with the contingencies in the environment, (b) reliance on others with the social resources in the environment; and/or (c) preferences with the options available in the environment (Skinner *et al.* 2003).

Stress Sequelae

There are two proposed pathways leading from stress to ill-health: a direct effect on somatic health and disease development, and an indirect effect, where stress is expressed through health-damaging behaviour (Bartley *et al.* 1998). The field of biomedicine, with its emphasis on the body and disease, has led research relating to the former type of stress sequelae (Hinkle 1987), while there has been relatively little research on either the psychological/ physiological processes by which stressors lead to the adoption, maintenance,

and cessation of health-related behaviours (Yen and Syme 1999; Steptoe 2000) or the direct pathopsychological pathways through which stress affects personality traits such as self-esteem.

Two important concepts in the biomedical approach to stress research are *homeostasis* and *allostasis*. Homeostasis is the process of maintaining a constant internal equilibrium within an organism in opposition to stressors which may disrupt this equilibrium (Brunner and Marmot 1999). In allostasis the body does not conserve the same internal state but, rather, establishes a new equilibrium in response to stressors. The cost of accommodating stressors through this process is known as allostatic load (McEwen 1988).

A premise of studying stress sequelae is that the central nervous system (CNS), as the source of perception and responses to the external world, mediates the effects of stressors on health (O'Dea and Daniel 2001). Given this premise, the biomedical study of stressors has, in the main, been pursued through two new sub-disciplines of physiology – psychoneuroendocrinology and pscyhoneuroimmunology – focusing on the effects of stressors on the endocrine and immune systems, respectively (Bartley et al. 1998). Other biomedical research has also investigated the effects of stressors on cellular aging (Epel et al. 2004) and cardiovascular health (Brotman, Golden, and Wittstein 2007) as well as differing responses to stressors for women (Kudielka *et al.* 2000; Taylor *et al.* 2000; Ennis *et al.* 2001; Klein and Corwin 2002) and racial/ethnic minority groups such as African Americans (Myers *et al.* 1998).

The concept of fight-or-flight as originally proposed by Cannon is utilised in psychoneuroendocrinology to explain the responses to stressors in terms of two main pathways of the endocrine system – the Sympathetic-Adrenal Medullary (SAM) system and the Hypothalamic-Pituitary-Adrenocortical (HPA) axis (Brunner and Marmot 1999). The fight reaction, associated with the SAM system, is activated very rapidly through the sympathetic branch of the autonomic nervous system. Stressor-mediated activation of the SAM system results in increased output of adrenaline (epinephrine) secreted into the bloodstream and noradrenaline (norepinephrine) released at the nerve endings. These hormones may produce suppression of cellular immune function, abnormal heart rhythms and neurochemical imbalances (Cohen *et al.* 1997; Cacioppo *et al.* 1998). Activation of this system also leads to the release of testosterone, heightened blood pressure, heart and metabolic rate, sweating, and constriction of peripheral blood vessels (Cohen et al. 1997; Brunner and Marmot 1999; O'Dea and Daniel 2001).

The flight reaction is associated with the HPA axis which is activated in response to chronic stress. When this occurs the anterior pituitary gland secretes andrenocorticotrophic hormone (ACTH), leading to activation of the adrenal cortex and secretion of corticosteroids such as cortisol which is an antagonist of insulin and leads to raised blood glucose, fatty acid release and increased output of cholesterol-carrying particles from the liver into the blood (Brunner and Marmot, 1999). The HPA axis also interacts with and influences the hypothalamus-pituitary-thyroid (HPT) axis (critical to normal metabolism) and the hypothalamus- pituitary-gonadal (HPG) axis (responsible for the regulation of reproduction) (Williams and Kurina 2002). Psycho-neuro-oendocrinological studies have also examined the interaction of the HPA axis with circadian rhythms (van Eekelen *et al.* 2003) and stress sequelae such as blood clotting, decrease in plasma volume, the build up of fibrofatty plaques, arteriosclerosis and impaired memory (Kaplan *et al.* 1993; McEwen and Sapolsky 1995; Patterson *et al.* 1995).

Stress research in the field of pscyhoneuroimmunology has focused on cytokines as mediators between the CNS and the immune system (Muller and Ackenheil 1998). The upregulation of factors such as interleukin-1 during the stress process leads to immunosuppression (Muller and Ackenheil 1998) and chronic heightened cortisol levels have also been shown to depress immunologic function (McEwen 1988). Prolactin secreted by the pituitary gland, as well as natural opiates such as beta endorphin and enkephalin excreted during HPA axis activation are also known to interact with the immune system in complex ways (Cohen *et al.* 1997; Brunner and Marmot 1999). Pscyhoneuroimmunological research is also revealing how stressors contribute physiologically to damaging mental health sequelae such as schizophrenia, depression and anxiety. These sequelae may be mediated through the effects of cytokines on neurotransmitters such as dopamine and serotonin (Muller and Ackenheil 1998; van Praag 2004).

The association between stressors and biomarkers specific to physiological systems (i.e. cardiovascular, neuroendocrine, immune etc.) is an emerging area of interest in biomedical research (Theorell 2003), with evidence that specific stressors may differentially affect various physiological systems (Lucas 2003:344-5). This contradicts the non-specific stress response proposed in the GAS model and highlights the need to further understand the distribution of various kinds of stressors in order to explain concomitant stress sequelae.

The Distribution of Stressors

The study of the distribution of stressors has mainly occurred in the fields of sociology and anthropology where the social factors that determine who is exposed to stressors as well as when, where, how and why have all been topics of interest. Although representing a relatively small (and somewhat controversial) body of research, evidence from studies of monozygotic and dizygotic twins suggest that genetics play a role in how many stressors an individual is exposed to, particularly in relation to life events such as interpersonal difficulties which may be influenced by individual behaviour as well as social context (Blackwood 2000). It is also possible that genetic factors influence the nature and degree of stress sequelae (Yehuda and McEwen 2004) as well as aspects of the stress process. However, there has been insufficient research in this area of study to provide definitive findings to date.

Sociological approaches to stress research have tended to focus on analysing differences in group vulnerability across class, race, ethnicity, gender and age. Anthropological studies have studied stressors and disease in the complex interplay of social organisation, historical change and cultural context (Mulhall 1996; Bartley *et al.* 1998). It has been suggested that the stress concept can provide a bridge linking large-scale organisation and social life with individual experience, action and functioning (Pearlin 1989; Thoits 1995; Hobfoll *et al.*1998).

Sociological research seeks to understand why health inequalities mirror social inequalities (Bartley *et al.* 1998). Such research focuses on stressors in the organisation and structure of life experience (Pearlin 1989). From this perspective, the distribution of stress can be summarised as follows: (i) an individual's location in the social structure reflects inequality in resources, status, and power that differentially expose him/her to stressors (Aneshensel 1992); and (ii) factors in the stress process (e.g. coping styles) are socially patterned in ways which, at least partially, leave members of disadvantaged groups more vulnerable to stress sequelae (Pearlin 1989; Thoits 1995; Turner *et al.* 1995).

To the extent that class, race, ethnicity, gender and age are systems that embody the unequal distribution of resources and opportunities, a low status within them may itself be a stressor (Pearlin 1989; Brunner and Marmot 1999), with stressors therefore being an inevitable outcome of systemic discrimination and inequity (Thoits 1995).

A related hypothesis is that societies prescribe a variety of forms of behaviour, conditions and relationships that are proper for its members –

variable by social positionality. These prescribed forms are internalised by individuals as value systems, with sanctions for stepping outside these prescriptions manifesting as stressors (Hinkle 1987).

A key question in sociological research on the distribution of stressors is whether social disadvantage is inversely associated with exposure to stressors? A recent review indicates that people in lower socioeconomic positions (SEP) encounter more frequent negative life events and chronic stressors, and experience more emotional distress after equivalent exposure to stressors compared to people in higher SEP (Gallo and Matthews 2003).

It has also been found that lower SEP is associated with more trauma (Turner and Avison 2003) but with fewer (albeit more severe) daily hassles (Gryzwacz *et al.* 2004). It is also possible that negative experiences may lose their subjective impact when they are common (i.e. people may become inured to disadvantage).

A recent U.S. study found that only disadvantaged social status in relation to race/ethnicity (and not gender or sexuality) was associated with increased stress and fewer social resources (Meyer *et al.* 2008). Anthropological studies also provide evidence for this latter alternative, wherein social contexts of extreme poverty or endemic violence are considered normal and routine by those living within them (Nguyen and Peschard 2003).

CONCLUSION

Given that the stress concept retains a powerful place in contemporary health research, it is especially important that researchers in this field conceptualise stress clearly and unambiguously in terms of the models adopted, the types of stressors considered, the contextual factors relevant to the stress process, and the stress sequelae of aetiological importance. This chapter has highlighted a number of emerging issues that will challenge such clear and concise conceptualisation, including the possibility that stressors may have differential affects on various physiological systems and may vary in their importance by social location (e.g. race and gender), both psychologically and behaviourally as well in the physiological pathways through which they operate.

Other issues of note are the difficulties in understanding relationships between types of stressors as well as the relationship of emotion- and meaning-focused coping to secondary appraisal and the effect of such coping

on individuals across social contexts and locations. Further conceptual work is required to understand the role of stressors in pathopsychological processes and in modifying health behaviours as well as the interplay between genotypical and phenotypical influences on both stress sequelae and exposure/responses to stressors. Clarifying the plethora of conceptual approaches used in the study of stress and health is a necessary prerequisite to understanding how this phenomenon interacts with health and well-being.

REFERENCES

Aneshensel, C., and Sucoff, C. (1996). Macro and micro influences in the stress process. Paper presented at the meeting of the American Sociological Association. New York.

Aneshensel, C. S., 1992. Social Stress: Theory and Research. *Annual Review of Sociology*, 18, 15–38.

Bartley, M., Blane, D., and Smith, G. D. (1998). *The Sociology of Health Inequalities*. Oxford, Blackwell Publishers.

Blackwood, D. (2000). Genetic Predispositions to Stressful Conditions. In E. Fink (Ed.), *Encyclopedia of Stress* (pp. 212-217). San Diego, Academic Press.

Brotman, D. J., Golden, S. H., and Wittstein, I. S. (2007). The cardiovascular toll of stress. *Lancet, 370,* 1089-1100.

Brunner, E., and Marmot, M. (1999). Social organisation, stress, and health. In M. Marmot and R. G. Wilkinson (Eds.), *Social Determinants of Health* (pp. 17–43). Oxford, Oxford University Press.

Cacioppo, J. T., Berntson, G.G., Malarkey, W.B., Kiecolt-Glaser, J.K., Sheridan, J.F., Poehlmann, K.M., Burleson, M.H., Ernst, J.M., Hawkley, L.C., and Glaser, R. (1998). Autonomic, neuroendocrine, and immune responses to psychological stress: the reactivity hypothesis. *Ann. N.Y.Acad.Sci., 840,* 664-673.

Cohen, S., Kessler, R. C., and Gordon, L. U. (1997). *Measuring Stress: A Guide for Health and Social Scientists*. Oxford, Oxford University Press.

Doublet, S. (2000). *The Stress Myth*. Chesterfield, MO, Science and Humanities Press.

Dressler, W. W. (1988). Social consistency and psychological distress. *J Health Soc. Behav., 29,* 79-91.

Ennis, M., Kelly, K. S., and Lambert, P. L. (2001). Sex differences in cortisol excretion during anticipation of a psychological stressor: possible support for the tend-and-befriend hypothesis. *Stress and Health, 17,* 253-261.

Epel, E. S., Blackburn, E.H., Lin, J., Dhabhar, F.S., Adler, N.E., Morrow, J.D., Cawthon, R.M. (2004). Accelerated telomere shortening in response to life stress. *Proc Natl Acad Sci U S A, 101,* 17312-17315.

Folkman, S., and Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, 21, 219-239.

Folkman, S., and Moskowitz, J. T. (2000). Stress, Positive Emotion, and Coping. *Current Directions in Psychological Science, 9,* 111-143.

Folkman, S., and Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology, 55,* 745-774.

Folkman, S., and Moskowitz, J. T. (2007). Positive affect and meaning-focused coping during significant psychological stress. In M. Hewstone, H. Schut, J. D. Wit, K.V.D. Bos and M. Stroebe (Eds.), *The Scope of Social Psychology: Theory and applications* (pp. 193-208). Hove, Psychology Press.

Folkman, S. (2008). The case for positive emotions in the stress process. *Anxiety, Stress and Coping, 21,* 3-14.

Gallo, L. C., and Matthews, K. A. (2003). Understanding the association between socioeconomic status and physical health: do negative emotions play a role? *Psychol Bull*., 129, 10-51.

Gryzwacz, J. G., Gryzwacz, J.G., Almeida, D.M., Neupert, S.D., and Ettner, S.L. (2004). Socioeconomic Status and Health: A Micro-level Analysis of Exposure and Vulnerability to Daily Stressors. *J Health Soc.*Behav., 45, 1-16.

Hewitt, P. L., and Flett, G. L. (1993). Dimensions of perfectionism, daily stress, and depression: A test of the specific vulnerability hypothesis. *Journal of Abnormal Psychology, 102,* 58-65.

Hinkle, E. (1987). Stress and Disease: The Concept after 50 years. *Soc Sci.Med*., 25, 561-566.

Hobfoll, S. E. (1989). Conservation of Resources: A New Attempt at Conceptualizing Stress. *Am Psychol, 44,* 513-524.

Hobfoll, S. E., Schwarzer, R., and Chon, K. K. (1998). Disentangling the stress labyrinth: Interpreting the meaning of the term stress as it is studied in health context. *Anxiety, Stress and Coping,* 11, 181-212.

Holmes, T. H. and Rahe, R. H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research, 11,* 213-218.

Kanner, A. D., Coyne, S.C., Schafer, C., and Lazarus, R. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine*, 4, 1-39.

Kaplan, J. R., Manuck, S.B., Williams, J.K., and Strawn, W. (1993). Psychosocial influences on atherosclerosis: Evidence for effects and mechanisms in nonhuman primates. In J. Blascovich and E. S. Katkin (Eds.), *Cardiovascular reactivity to psychological stress and disease* (pp. 3-26).Washington, D.C.: American Psychological Association.

Klein, L. C., and Corwin, E. J. (2002). Seeing the unexpected: how sex differences in stress responses may provide a new perspective on the manifestation of psychiatric disorders. *Curr Psychiatry Rep*., 4, 441-448.

Kudielka, B. M., Hellhammer, D. H., and Kirschbaum, C. (2000). Sex Differences in Human Stress Response. In E. Fink (Ed.), *Encyclopedia of Stress* (pp.424-429). San Diego, Academic Press.

Lazarus, R. S. (1966). *Psychological Stress and the Coping Process*. McGraw-Hill, New York.

Lazarus, R. S., and Folkman, S. (1984). *Stress, appraisal and coping*. New York, Springer.

Lazarus, R. S. (2000). Toward Better Research on Stress and Coping. *American Psychologist, 55,* 665-673.

Lucas, R. M., 2003. *Socioeconomic status and health: exploring biological pathways.* PhD thesis, Australian National University.

McLeod, Jane D., and Nonnemaker, J.M., 1999. Social Stratification and Inequality. In C.S. Aneshensel and J.C. Phelan (Eds), *Handbook of the Sociology of Mental Health* (pp. 321-44). New York, Kluwer.

McEwen, B. S. (1988). Protective and damaging effects of stress mediators. *N Engl J Med, 338,* 162-172.

McEwen, B., and Sapolsky, R. M. (1995). Stress and cognitive function. *Current Opinion in Neurobiology, 5,* 205-216.

McQueen, D. V., and Siegrist, J. (1982). Social factors in the etiology of chronic disease: an overview. *Soc. Sci.Med, 16,* 353-367.

Meyer, I. H., Schwartz, S., and Frost, D. M. (2008). Social patterning of stress and coping: Does disadvantaged social statuses confer more stress and fewer coping resources? *Soc. Sci. Med*., 67(3), 368-79.

Monroe, S. M. (2008). Modern approaches to conceptualizing and measuring human life stress. *Annual Review of Clinical* Psychology, 4, 33-52.

Mulhall, A. (1996). Cultural Discourse and the Myth of Stress in Nursing and Medicine. *International Journal of Nursing Studies*, 33, 455-468.

Muller, N., and Ackenheil, M. (1998). Psychoneuroimmunology and the cytokine action in the CNS: Implications for Psychiatric Disorders. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 22, 1-33.

Myers, H. F., Anderson, N. B., and Strickland, T. L. (1998). Biobehavioral Perspective for Research on Stress and Hypertension in African American Adults: Theoretical and Empirical Issues. In R.L. Jones (Ed.), *African American mental health* (pp. , 209-245). Hampton, Cobb and Henry Publishers.

Nguyen, V. K., and Peschard, K. (2003). Anthropology, Inequality and Disease: A Review. *Annu.Rev.Anthropol.*, 32, 447-474.

Nolen-Hoeksema, S., Parker, L.E., and Larson, J. (1994). Ruminative coping with depressed mood following loss. *J Pers Soc Psychol.*, 67(1), 92-104.

O'Dea, K. and Daniel, M. (2001). How social factors affect health: neuroendocrine interactions. In R. Eckersley, J. Dixon, and B. Douglas (Eds.), *The Social Origins of Health and Well-being* (pp. 231-44). Cambridge, Cambridge University Press.

Patterson, S. M., Krantz, D. S., and Jochum, S. (1995). Time course and mechanisms of decreased plasma volume during acute psychological stress and postural change in humans. *Psychophysiology, 32,* 538-545.

Pearlin, L. I. (1989). The sociological study of stress. *J Health Soc Behav.*, *30,* 241-256.

Pearlin, L. I., Schieman, S., Fazio, E. M., and Meersman, S. C. (2005). Stress, health, and the life course: Some conceptual perspectives. *J Health Soc Behav.*, *46,* 205-219.

Pearlin, L. I. (1999). The stress concept revisited: Reflections on concepts and their interrelationships. In C.S. Aneshensel and J. C. Phelan (Eds.), *Handbook of the sociology of mental health* (pp. 395-415). New York: Plenum Press.

Pollock, C. (1988). On the Nature of Social Stress: Production of a Modern Mythology. *Soc.Sci.Med.*, 26, 381-392.

Quick, J. C., Nelson, D.L., Quick, J.D., and Orman, D.K. (2001). An isomorphic theory of stress: the dynamics of person-environment fit. *Stress and Health*, 17, 147-157.

Selye, H. (1956). *The stress of life*. New York, McGraw-Hill.

Skinner, E. A., Edge, K., Altman, J., and Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychol Bull.*, 129(2), 216-269.

Steptoe, A. (2000). Health Behavior and Stress. In E.Fink (Ed.), *Encyclopedia of Stress* (pp. 322–323). San Diego, Academic Press.

Taylor, S. E., and Aspinwall, L. G. (1996). Mediating and Moderating Processes in Psychological Stress: Appraisal, Coping, Resistance, and Vulnerability. In H.B. Kaplan (Ed.), *Psychological Stress* (pp. 71-110). San Diego: Academic Press.

Taylor, S. E., Klein, L.C., Lewis, B.P., Gruenewald, T.L., Gurung, R.A., and Updegraff, J.A. (2000). Biobehavioral responses to stress in females: tend-and-befriend, not fight-or-flight. *Psychol Rev*., 107, 411-429.

Theorell, T. (2003). Editorial: Biological stress markers and misconceptions about them. *Stress and Health, 19,* 59-60.

Thoits, P. A. (1995). Stress, coping, and social support processes - where are we - what next. *J Health Soc Behav.*, 53-79.

Turner, R. J., Blair, W., and Lloyd, D. (1995). The Epidemiology of Social Stress. *American Sociological Review, 60,* 104-125.

Turner, R. J., and Avison, W.R. (2003). Status Variations in Stress Exposure: Implications for the Interpretation of Research on Race, Socioe- conomic Status, and Gender. *Journal of Health and Social Behavior,* 44, 488-505.

van Eekelen, A. P., Kerkhof, G. A., and van Amsterdam, J. G. (2003). Circadian variation in cortisol reactivity to an acute stressor. *Chronobiol Int., 20,* 863-878.

van Praag, H. M. (2004). Can stress cause depression? *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 28, 891-907.

Wallis C. (1983). Stress: Can we cope? Time, June 6th, 1-11.

Weinberger, M., Hiner, S. L., and Tierney, W. M. (1987). In support of hassles as a measure of stress in predicting health outcomes. *J Behav.Med*., 10, 19-31.

Wheaton, B. (1983). Stress, personal coping resources, and psychiatric symptoms: An investigation of interactive models. *J Health Soc Behav*., 24, 208-229.

Wheaton, B. (1985). Models for the stress-buffering functions of coping resources. *J Health Soc Behav*., 26, 352-364.

Wheaton, B. (1994). Sampling the stress universe. In W.R. Avison and I. H. Gotlib (Eds.), *Stress and mental health: Contemporary issues and prospects for the future* (pp. 77-114). New York, Plenum Press.

Wheaton, B. (1996). The Domains and Boundaries of Stress Concepts. In H.B. Kaplan (Ed.), *Psychosocial stress : perspectives on structure, theory, life-course, and methods* (pp. 29-70). San Diego, Academic Press.

Wheaton, B. (1999). Social stress. In C.S. Aneshensel and J. C. Phelan (Eds.), *Handbook of the sociology of mental health* (pp. 277-300). New York, Plenum Press.

Williams, K. and Kurina, L. M. (2002). The social structure, stress, and women's health. *Clin Obstet Gynecol*, 45, 1099-1118.

Yehuda, R., and McEwen, B. S. (2004). Protective and damaging effects of the biobehavioral stress response: cognitive, systemic and clinical aspects. *Psychoneuroendocrinology, 29*, 1212-1222.

Yen, I. H., and Syme, S. L. (1999). The social environment and health: a discussion of the epidemiologic literature. *Annu.Rev.Public Health*, 20, 287-308.

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Chapter 2

FAMILY STRESS AND PSYCHOLOGICAL ADJUSTMENT AMONG WELFARE AND NON WELFARE IMMIGRANTS

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ABSTRACT

The present study explored the psychological adaptation of immigrants to Israel, while comparing between two populations – immigrants treated by the Department of Social Services welfare system, and immigrants non treated by the welfare system.

Research findings show that the psychological adaptation of immigrants is predicted by the resources in the immigrant's possession, indicating that the psychological adaptation of population with special difficulties, such as – the elderly, single mothers, psychiatric patients etc., is more problematic (Ross et al. 1990, Cohen and Wills, 1985). These findings were refuted by the current study, according to which, unexpectedly immigrants treated by the welfare system reported higher satisfaction from their integration in Israel, from their process of Alyia

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and from their life condition in Israel, compared to non-welfare immigrants).

It was found that married subjects reported more familial and economic difficulties, compared to non-married, and also related these difficulties more to negative psychological responses. , The present research' findings point to differences between the studied groups regarding the experience of the immigration crisis, apparently the stresses of immigration act differently according to 'the experienced level of balance' former to immigration. Finally, the present study has practical implications, by which an absorbing state should differentiate its treatment and policy of immigration, according to immigrants' position prior to immigration. Moreover, the 'resilience' hypothesis which is apparently supported by the present study, should be further examined empirically.

INTRODUCTION

Immigration is a stressful life event associated with economic, social and psychological difficulties or crisis which may cause deterioration of physical, emotional and social well-being (Markovitzky, 1998; Furnham and Bochner, 1990). The family is found as very important in immigration process. Family provides the security and emotional reliance to sustain immigrant endeavors in a new culture.

Studies show that the immigration could be hazardous for family cohesion, family functioning and relations (Berry, Kim, Minde and Mok,1987; Horowitz, 1989; Roen-Strier, 2001). But, immigration could be also positively related to family cohesion and produce positive outcomes for its members (Cohen and Haberfeld, 2003; Treas and Mazumdar, 2004). Immigration initiates a process of extending resources and creates opportunity to new chance and development (McGoldrick, 1999). In some families, immigration can be a source of development, in others,of impairment in their functioning and psychological reactions.

Nevertheless, the impact of losses and stressful life events (LE) prior to immigration, on the family following the immigration attracted relatively less attention. Moreover, the impact of Stressful LE on adjustment of immigrants' welfare recipients in comparison to regular population has been largely ignored.

LITERATURE REVIEW

Family Stress and Resilience at Immigration

Immigration is a powerful, stressful event which requires adaptation to a new, culturally unfamiliar environment that involves changes and challenges within the immigrant's family. Numerous studies have been devoted to different aspects of immigrants' family life: the impact of immigration on the quality of family life (Ben-David, 1994; Grant, 1982; Poskanzer, 1995; Thomas, 1995); the influence of various aspects of family life on the adjustment of the immigrants (Aroian and Spitzer, 1996; Boyd, 1989; Scott and Scott, 1989); and relations between the family and social support institutions (Ben-David, 1995; Krausz, 1994). The effect of immigration on family life, family structure and relationship is usually negative. Studies revealed breakdown of gender roles, norms, values, reduction of quality of life and emergence of marital conflicts (Aroian, Spitzer and Bell, 1996; Doron and Markovitky, 2006). It also found negative impact of immigration on family relations with support systems such as extended family, friends, community and social institutions (Ben David, 1995; Krausz, 1994).

Changes upon immigration can be viewed from two different perspectives - both as source of distress, and as source of support that could conceivably buffer the demands of immigration.

Acording to the Stress Theory, immigration is presented as an event of risk and crisis, requiring a developmental process to overcome it (Ben David and Lavee, 1994; Lazarus, R.S., and Folkman, S. 1984; Hill, R. 1949;.Sicron and Leshem, 1998).

The family as a source of stress includes primary stress that originates within the family (e.g., demands and pressures encountered in one's family roles or lack of reciprocity) as well as outside stressors that find their way into the family and act as a conduit for stress. The relationship with the host culture and the coping efforts to adjust to the new country, may be accompanied by changes in the relationship within the family (Booth, Crouter, and Landale, 1997). These demands may follow with distress and in some case with crisis and trauma (Padilla and Perez, 2003; Stamm, Stamm, Hundnall, and Higson, 2004). Family may suffer a loss of resources like skills, roles, values, social status, and culture, and must learn to change in order to acquire a new equilibrium (Anson, Pilpel, and Rolnik, 1996; Furnhan and Bochner, 1986). The period of adjustment is accompanied by distress for both the individual (Markovitzky, 1998) and the family (Berry, Kim, and Mindel, 1987).

The second perspective, the Resilience Theory, recognizes the family as providing a context for the stress process as well as a reservoir of coping and support (Boss, 1988; Pearlin and Turner, 1987; Farrell and Barnes, 1993; Walsh, 2006). The transition between countries may bear potential benefits for individuals and families including a solution for economic difficulties, opportunities for new status or a better future for the children. On the other hand, it also involves potential losses, such as separation from extended family members left behind or disturbances in the spouse equilibrium (Fox, 1991; Lipson and Miller, 1994).

Family support has an instrumental and emotional dimension and pertains to the commitment, caring, and aid provided by family relationships (Ross et.al. 1990). Families can be highly dependable sources of social support when family functioning is healthy or if the family is adaptable to stress (Barnhill, 1979). Immigration, however, involves major changes in lifestyle and environment (Aroian, 1990) that can destabilize the family and overtax or deplete family resources (Sluzki, 1979).

Along with extensive literature on the negative effects of acculturation, studies also emphasize the way in which immigrants successfully fuse together the old and new to create a new kind of family life. Moreover, the new economical circumstances and the new social and health services given by the host society can moderate the acclimation and can enable the families to improve their conditions and accordingly their emotional state. Accordingly, in some contexts, immigrant's families seem to have stronger family ties and even higher incomes than their nonimmigrant counterparts (Basavarajappa and Halli, 1997). Instead of the unpromising prophesy of family disintegration, studies focused on the myriad ways in which new immigrants patterns are shaped and strengthened by cultural meanings, the social practices brought from home countries and the social, economic and cultural forces in the host country (Foner, 1997).

Both contrasting approaches-the stress and risk theory and strengths/ resilience theory agree that immigration may bring about major changes in family and the transition may lead to changes in the emotional state. This process accompanies with economic, financial, parental, marital and interpersonal hardships that deteriorate the assimilation and psychological well-being. Amongst those, the economic stressor was found as one of the most important factors in the social environment that affect well being (Dooley, 2003).

Although sufficient evidence exists to support both a direct and an indirect relation between social support and family functioning, it has been argued that

social support most likely enhances parenting under stressful conditions through its positive influence on parental functioning. Prior research has demonstrated that social support from friends and family enhanced maternal psychological well-being and self-esteem, which corresponded to more effective parenting practices, as well as less aversive parenting practices, among economically disadvantaged African American families (Simons, Lorenz, Wu, and Conger, 1993; Taylor and Roberts, 1995). Similarly, informal social support from family, friends, and neighbors is a particularly salient protective factor for economically disadvantaged African American single mothers, as they often rely on extended family networks, including neighbors, relatives, and church members, for support in childrearing tasks and parenting duties (Forehand and Kotchick, 1996). Thus, higher levels of social support may serve to promote effective parenting practices in the face of environmental stress by protecting parental psychological wellbeing (Mac-Phee, Fritz, and Miller-Heyl, 1996).

WELFARE RECIPIENTS AMONG IMMIGRANTS TO ISRAEL

Immigrants absorbing countries in the western world, and Israel which particularly espouses the idea of Jewish immigration, place as a considered purpose the psychological well being and health of their immigrants in the adaptation process, thus devote great efforts both to studying the phenomenon, identifying stress factors and to establishing ways to relieve the process and moderate the crisis at transition. To a certain extent, Israel succeeds in moderating immigrants' responses to the crisis (Sikron and Leshem, 1998).

The wave of immigration of about one million people from the Commonwealth of Independent States to Israel, brought about wide groups of immigrants characterized by special needs and hardships in their economic integration process. Israel was aligned to meet these needs, by means of special departments in the ministry of welfare, directed at handling these immigrants. 23% of the new immigrants to Israel use these welfare social services,.

The Department of Social Service population (DOSS) comprises those individuals and families who suffer from poverty and other interpersonal difficulties caused by personal or family disorganization (Minuchin, Montalvo, Guerncy, Rosman and Shumer, 1967) and often been called multiproblem families. They often have emotional and behavioral difficulties that prevent them from adjusting to social norms and institutions. Individuals from these

families have the tendency to drop out from work and are characterized by antisocial activities (Aponte, 1994). The phenomenon of DOSS population contains not only economic hardship but also personal and social disorganization that reflects on a wide range of problems such as poverty, poor housing conditions, troubled parental and marital relationship, children with school difficulties, lack of supportive social net and frequently poor physical and mental health. These different problem areas could lead to extreme distress (Sharlin and Shamai, 1996; Shamai and Sharlin, 2004)

One likely protective factor is social support (Belsky, 1984). In general, social support has been widely studied and found to be associated with a number of positive outcomes in the areas of both psychological and physical health (Pierce, Sarason, and Sarason, 1996,). In addition, social support has been found to have a buffering effect in stressful situations (Cohen and Wills, 1985; Forehand and Kotchick, 1996).

Research Purposes

In the current study we seek to understand the impact of FSE (family stress events) on two different populations – welfare recipients immigrants and non welfare immigrants. Since the welfare population is psychologically and socially weaker, we expected that welfare subjects will be lower on psychological adjustment and exhibit more adjustment difficulties. Since welfare population suffered previous stressful events, we expected to find higher level of stressful reactions among them.

In relation to the two different approaches - risk versus resilience - the present study examines/predicts which factors are most closely related to well-being among welfare and non-welfare recipients immigrants. Additionally, the study sought to explore the effect of psychological adjustment on stress.

METHOD

Sample and Procedure

The sample included 322 immigrants, living in three towns in the northern part of Israel, divided into two groups as follows:

1. 121 immigrants who are receiving treatment in the Department of Social Services (DOSS). From lists of three agents in the northern area of Israel, subjects were chosen randomly for the purpose of the current research.

The Department of Social Services sample was based on list of immigrant's families that were treated with family problems (marital, parental conflicts). The head of immigrants unit in the social welfare Dep. who speak Russian received from each interviewed family a permission to participate in the research.

2. 201 immigrants who are not treated by the department of social services (DOSS).

The second sample was based on a list of immigrants kept by the neighborhood cultural centers. After the interviewers visited the homes of the immigrants and explained the purpose of the research in their native language, the response rate was 100%.

Each participant was interviewed individually at home in his native language (Hebrew or Russian) by social worker that was trained specially for the study by the researchers. Face validity of the questionnaire was tested by translation and re-translation from Hebrew to Russian and vice versa, in a pilot study, and amended accordingly. Table 1 describes sample characteristics.

Table 1. Demographic characteristics of welfare and regular immigrants

		Regular immigrants		Welfare immigrants		χ^2
		n	%	n	%	
Gender	Male	86	43.0%	32	26.7%	8.60**
	Female	114	57.0%	88	73.3%	
Marital Status	Not married	56	27.9%	58	47.9%	13.31***
	Married	145	72.1%	63	52.1%	
Employment status	Employed	153	76.5%	61	50.4%	23.09***
	Unemployed	47	23.5%	60	49.6%	

** $p < .01$; *** $p < .001$.

Welfare subjects were characterized by higher percent of females than regular subjects (73.3% vs. 57% respectively), higher percent of not-married subjects than regular subjects (47.9% vs. 27.9%respectively) and higher rate of unemployed than regular subjects (49.6% vs. 23.5%, respectively).

Welfare subjects' were found to be less time in Israel the regular subjects *(M=8.07, SD=4.61 vs. M=10.90, SD=4.12, respectively;* $t_{(319)} = 5.71$, $p < .001$).

The mean age and years of education were similar in both groups of subjects ($t_{(319)} = .15$, $p = NS$; $t_{(319)} = .44$, $p = NS$, respectively).

Tools

Psychological Adjustment

Emotional state. The authors administered a self-report questionnaire that was developed for the purpose of research with immigrants (Markovitzky, 1998), based on the theory of Lazarus (1991). The questionnaire examines 20 different emotions and encompasses three types of emotions: positive emotions, such as happiness, security, and hope (α=.90); negative emotions, such as disappointment, anger, and fear (α=.88); and pathological emotions, such as humiliation and guilt (α=.73). (In the present research, "pathological emotions" refers to extreme negative emotions that are liable to lead to psychopathology or situations of social alienation).

Satisfaction. A self-report questionnaire developed for the purpose of research with immigrants (Markovitzky, 1998) was administered to examine the immigrant's satisfaction with six aspects of life in Israel. The respondents were asked to assess the degree to which they were content with the standard of living, democracy, financial situation, lifestyle, style of social relations, and social level in Israel (α = .89).

Family Inventory of Life Events and Changes-FILE

The original FILE is a 71 dichotomic item questionnaire (response of happen / didn't happen for each item) that measures individuals` perceptions of stressful events that the family has been subjected to during the previous 12 months (McCubbin, Patterson and Wilson, 1979).

The current study utilized 20 items representing four subscales of stressing situations yielded by factor analysis:

(a) Economical stress (Cronbachs' alpha internal consistency: α =.86): Included items dealing with economical difficulties such as unemployment, banking overdraft.
(b) Family stress (Cronbachs' alpha internal consistency: α =.79): Included items such as parent-child conflicts, conflict with spouse.
(c) Marital stress (Cronbachs' alpha internal consistency: α =.79): Included items such as divorce or separation, physical violence or sexual abuse.
(d) Separation (Cronbachs' alpha internal consistency: α =.65): Included items such as separation from spouse, child or parent/s.

Level of Symbolic Losses

A self-report questionnaire developed for the purpose of research with immigrants (Markovitzky, 1998) was administered to examine the immigrant's experience a loss of personal resources. the symbolic resources express one's ideas, identity and relations with others. Separation from these symbolic resources is accompanied by emotional difficulties. The questionnaire includes 4 resources that are valuable when adjusting to a new country: leaving family relations, loss of culture like literature and music and parting from friends. (α = .81).

RESULTS

Psychological Adjustment and Family Crises

Multivariate 3-way analysis (Group X marital status X occupational status) with years in Israel as covariate on stress variables as outcome variables pointed out to significant differences between the welfare and regular immigrants (Multivariate $F_{(5,308)} = 4.30$, $p < .001$) in terms of economical crisis ($F_{(1,312)} = 5.56$, $p < .05$), marital crisis ($F_{(1,312)} = 6.55$, $p < .01$), and symbolic crisis ($F_{(1,312)} = 14.40$, $p < .001$). Means according to group (see table 2) indicated that welfare immigrants reported fewer crises on each of these variables than regular immigrants. Nor 2-way neither 3-way interaction effects

involving group of immigrants was found in the outcome variables. Main effect of marital status showed that married immigrants reported higher frequency of economical crisis ($F_{(1,313)} = 8.49$, $p < .01$) than non-married immigrants (M=1.95, SD=2.22; M=1.28, SD=1.69, respectively), and less marital crisis than non-married immigrant ($F_{(1,313)} = 7.60$, $p < .01$; M=.22, SD = .62; M=.52, SD=.91, respectively).

Additional 2-way Manova of group X gender revealed significant interaction effect of Group X gender with respect to economical crisis ($F_{(1,316)} = 5.98$, $p < .02$), indicating opposite trend of difference between male and female welfare and regular immigrants. While regular female immigrants reported higher frequency of economical crisis than regular male immigrants (M=2.28, SD=2.20; M=1.45, SD=1.98, respectively), welfare female immigrants reported less frequent economical crisis (M=1.26, SD=1.82) than welfare male immigrants (M=1.69, SD=2.18). The welfare subjects were higher also in satisfaction level ($F_{(1,319)} = 6.44$, $p < .01$) as compared to regular immigrants.

The Relationship between Psychological Adjustment and Stressful Life Events

In order to examine the impact of stress and crisis on psychological adjustment, forced steps regression models were conducted (table 4).

The predictors in the model were demographic variables that were entered in the first step (marital status, years of schooling, employment) and stress variables in the second step (economical crisis, familial crisis, marital crisis, symbolic crisis and loss). The third step included all the stress variables as interaction with population (regular or welfare).

Overall two models were examined: one model for general satisfaction level, and one model for psychological adjustment – feelings.

Satisfaction Level

The results indicated that higher satisfaction was associated with higher education ($\beta = .13$, $p < .02$), employment ($\beta = .15$, $p < .01$), less family crises ($\beta = .-.23$, $p < .02$) and the interaction of family crises and marital crises with

population (β=.42, p < .001, β=-.17, p < .01, respectively). All these variables accounted for 17% of the total variance ($F_{(13,296)} = 4.52$, p < .001).

Additional regressions within each population group revealed that welfare population's satisfaction level (higher level) was predicted by more family crises (β= .32, p < .01) and more marital crises (β= -.21, p < .01), while general population's higher satisfaction level was associated with less marital crises (β= - .21, p < .05).

Table 2. Means and SDs' of stress variables among welfare and regular immigrants

Type of Stressors		Regular immigrants	Welfare immigrants	F df = 1,312
Economical	M	1.93	1.36	5.56*
	SD	2.15	1.91	
Familial	M	1.59	1.30	1.46
	SD	1.47	1.41	
Marital	M	.42	.18	6.55**
	SD	.85	.52	
Symbolic	M	1.60	1.11	14.44***
	SD	1.31	1.56	
Loss	M	.59	.52	3.57
	SD	.95	.93	
Psychological adjustment measures				
Satisfaction	M	2.72	2.99	6.44**
	SD	.83	1.06	
Feelings	M	3.51	3.56	.32
	SD	.74	.73	

* p < .05; ** p <.01; ***p < .001.

Table 3. Factor analysis of stress factors: item loadings and explained variance

Factor (stress sources)	Factor loading	% of explained variance	Cronbach's alpha
Economical	.85	18.4	.86
	.80		
	.74		
	.68		
	.63		
	.55		
Family	.76	11.4	.79
	.75		
	.69		
	.43		
Marital	.82	10.5	.73
	.79		
	.73		
Symbolic	.77	10.4	.75
	.74		
	.72		
Loss	.70	9.7	.65
	.69		
	.68		
	.59		

Feelings

Forced steps regression indicated that more positive feelings were associated with less family crises (β= -.36, $p < .001$). This variable was found to predict feelings as interaction with group (β= . 26, $p < .01$). Separate regression for each population group yielded that family crises predicted the feelings of general population (β=-.34, $p < .001$, $R2 = .11$) but not within welfare subjects.

Table 4. Forced steps regression results: standardized regression coefficients and R^2

	Predictors	Satisfaction level		Feelings	
		β coefficient	Summary	β coefficient	Summary
Step I	Marital Status	.01	R^2 = .03, $F_{(3,306)}$ = 3.08, p < .05	.13*	R^2 = .02, $F_{(3,306)}$ = 2.12, p >.05
	Years of schooling	.10		.01	
	Employment status	.13*		.03	
Step 2	Marital Status	.01	R^2 = .08, $F_{(8,301)}$ = 3.14, p < .01, R2 change = .05	.11	R^2 = .07, $F_{(8,301)}$ = 2.91, p < .01, R2 change = .05
	Years of schooling	.12*		.03	
	Employment status	.13*		.06	
	Economical crisis	-.03		.08	
	Family crisis	.05		-.18*	
	Marital crisis	-.14*		-.12*	
	Symbolic crisis	-.19**		-.03	
	Loss	.09		.05	
Step 3	Marital Status	.05	R^2 = .17, $F_{(13,296)}$ = 4.52, p < .001, R2 change = .09	.12	R^2 = .10, $F_{(13,296)}$ = 2.40, p < .01, R2 change = .03
	Years of schooling	.13*		.03	
	Employment status	.15**		.06	
	Economical crisis	.02		.17	
	Family crisis	-.23*		-.35***	
	Marital crisis	.02		-.08	

Table 4. (Continued)

	Predictors	Satisfaction level		Feelings	
		β coefficient	Summary	β coefficient	Summary
	Symbolic crisis	-.09		.06	
	Loss	.07		.05	
	Economical crisis x group	.06		-.11	
	Family crisis x group	.42***		.26**	
	Marital crisis x group	-.17**		.00	
	Symbolic crisis x group	-.07		-.10	
	Loss x group	-.10		-.02	

* p < .05; ** p <.01; ***p < .001.

DISCUSSION

The present study explored the psychological adaptation of immigrants to Israel, while comparing between two populations – immigrants treated by the Department of Social Services welfare system, and immigrants non treated by the welfare system. The importance of this study lies in examining the adaptation process of immigrants lacking of resources that suffer from psycho-social difficulties and are supported by welfare institutions, as well as an attempt to evaluate the contribution of constitutional aid, which is a part of the absorption policy of the state of Israel.

Research findings show that the psychological adaptation of immigrants is predicted by the resources in the immigrant's possession, indicating that the psychological adaptation of population with special difficulties, such as – the elderly, single mothers, psychiatric patients etc., is more problematic (Ross et al. 1990, Cohen and Wills, 1985). These findings were refuted by the current study, according to which, unexpectedly immigrants treated by the welfare system reported higher satisfaction from their integration in Israel, from their process of Alyia and from their life condition in Israel, compared to non-welfare immigrants.

It was found that family distresses and crisis predict negative emotions (anger, disappointment, confusion, lack of confidence, lack of joy etc.) among the regular immigrants sample, but not among the welfare recipients immigrants sample.

Generally, this research findings point to that welfare population reports less familial and marital crisis, as well as relates them to a lesser extent to the psychological responses and to adaptation.

These findings stress the importance of distinction between the two populations, in order to differentially examine psychological adaptation patterns and factors affecting each. There is a need in exploring both groups and their psychological reactions, each according to its social and economic context.

The current findings are in contrast to the widespread notion of a relation between low socio-demographic welfare status, and negative psychological responses. Some researches presented mental and physical health compared to distress among a population of immigrants, despite inferior socio-demographic conditions, and accounted for this tendency through the 'epidemiologic paradox' theory (Li, 2006; Jasinskaja-Lahti, Liebkind and Reuter, 2006; Viruell-Fuentes, 2007).

It was claimed that many protective cultural characteristics (nutrition practices, parental protective behavior in native country) as well as active and supportive social network (relatives, friends and neighbors and warm interpersonal relations), act as strengthening factors which assist the immigrants in dealing with the numerous hardships of immigration and to establish good mental and physical health (McGlade et al, 2004; Jasinskaja-Lahti et al ,2006; Viruell-Fuentes,2007).

A possible partial explanation for this is that the welfare population in our research, while still in their native country, developed mental resilience that was built out of coping with distresses in the native country. Probably, the welfare population examines the immigration difficulties and its stresses and thus is affected by them, through a perspective of history and experience of prior problems, while for the normal (non-welfare) population the hassles of immigration constitute a stressful life event, one which violates a former psycho-social balance, thus affecting both the individual and the family, and catalyzes emotional and adaptation difficulties.

It is possible that for the welfare population the hassles of immigration are continual to the problems experienced in the native country, and the renewed absorption constitutes an opportunity to solve some of the former familial/marital stresses. Additionally, the economic aid system provided by the country's authority is a solution to the economic difficulties that characterized this population in their native country. This perspective is in accordance with the notion of 'problem' and 'solution' by Watzlawick, Weakland and Fisch (1974), claiming that a reality sometimes perceived as 'problematic' is in fact a solution for coping with prior difficulties. Therefore, in certain situations, the transition of immigration may serve as a lever to solving marital and familial difficulties. The non welfare immigrants population, on the other hand, experiences crisis and a decrease in their socio-economic status, therefore the negative psychological emotions.

The formal services dealing with welfare populations may provide another explanation for our findings: the services constitute an answer not only to the difficulties that rose following the transition to a new country, but to the problematic nature of this population former their immigration, so far untreated. Therefore the Welfare Social Services constitute an important corroborating factor, blurring the crisis of immigration and providing this special population with a positive breakthrough.

Our research explored immigrants staying in Israel for 5-10 years. The professional literature points to a connection between length of staying in the new country and positive adaptation (Markovizky and Samid, 2008). In the

state of Israel the resources of support which immigrants are entitled to – the absorption basket – is valid for the first two years following immigration. It is possible that the ceasing of governmental aid to the non-welfare population depleted existing resources, while the welfare population is enriched by resources which are continually given to her by state constitutions.

Another finding reinforcing the need for a differential examination of the psychological responses according to each group's social context is women's responses. The literature is divided regarding gender influences upon immigrants' psychological reactions: women report more psychological distress on the one hand, on the other hand they show more flexibility and adapt better to the conditions of work and the absorbing society, and serve as 'foreign minister's of the entire family (Remennick, 2005; Markovitzky and Doron, 2007). In the present study it was found that while regular female immigrants reported higher frequency of economical crisis than regular male immigrants, welfare female immigrants reported less frequent economical crisis than welfare male immigrants. In accordance with the 'paradox' theory, this finding can be explained through former resilience among welfare women, as their hardships started before immigration, and so has their coping process. Immigration by itself created a minor change in their lives, possibly even bettered their situation, in comparison to women from the non-welfare group.

In continuity with the above findings, and in contradiction with former immigration research (Slutzki, 1979; Ben David and Lavee,1994), it was found that married subjects reported more familial and economic difficulties, compared to non-married, and also related these difficulties more to negative psychological responses. The social-cultural context may provide a useful explanation for this. The communist society encouraged equality between genders, particularly in the field of educational and occupational opportunities. Child rearing was usually made undertaken by the grandparents' generation, especially the grandmother. The immigration transition, connected with a decrease in man's ability to make a living (support a family), turned him to a 'burden' imposed on his wife's shoulders. The latter went out to work and dignifiedly supported the family while her children were reared by her mother. Former marital problems aggravated and the possibility to separate as a means of solving them is a legitimic option in the native country. Thus, non-married families are characterized by less conflicts comparing to married families amongst immigrants from Commonwealth of Independent States.

Summing up, the present research' findings point to differences between the studied groups regarding the experience of the immigration crisis, apparently the stresses of immigration act differently according to 'the

experienced level of balance' former to immigration. Therefore, the welfare group which is accustomed to stressful life events, familial and economic difficulties prior to immigration, reveals seemingly higher 'resilience' to the hardships of transition to a new country, in contradiction the normal group, the latter containing families which achieved familial balance of some kind prior to immigration, therefore is more sensitive to the changes involved in the transition to a new country, and as a consequence responds in a magnified manner – manifested in the level of negative emotions and satisfaction.

Finally, the present study has practical implications, by which an absorbing state should differentiate its treatment and policy of immigration, according to immigrants' position prior to immigration. Moreover, the 'resilience' hypothesis which is apparently supported by the present study, should be further examined empirically.

REFERENCES

Aponte, H.J.(1994). *Bread and spirit*: *Therapy with the new poor: Diversity of race, culture, and values*. NY, US.

Aroian, KJ., and Norris, AE. .(1990).Resilience, Stress, and Depression among Russian Immigrants to Israel. *West J. Nurs. Res*. 22: 54-67.

Aroian KJ, Spitzer A, Bell M. (1996) Family stress and support among former Soviet immigrants. *West J. Nurs. Res*. 18(6):655-74.

Aroian and Norris, AE. (2002) Assessing risk for depression among immigrants at two-year follow-up. *Archives of Psychiatric Nursing* .Volume 16, Issue 6 , Pages 245-253.

Aroian and Norris, AE. (2003). Depression trajectories in relatively recent immigrants *Comprehensive Psychiatry* .Volume 44, Issue 5 , September-October 2003, Pages 420-427.

Basavarajappa, KG and Halli,SS. (1997) A comparative study of immigrant and non-immigrant families in Canada with special reference to income, *Int Migr*.;35(2):225-52.

Barnhill, LR and Longo, D. (1979). Fixation and regression in the family life cycle. *Fam. Process*. 1978 Dec;17(4):469-78.

Belsky, J. (1984). The determinants of parenting: A process model. *Child Development*, 55, 83-96.

Ben-Barak, S. (1989). Attitudes towards work and home of soviet immigrant women. In T. Horowitz (Ed.), *The soviet man in an open society*. New York: University Press of America.

Ben-David, A.(1994).. Migration and Marital Distress: *The Case of Soviet Immigrants Journal of Divorce and Remarriage.* New York: Jun 30, 1994.Vol.21, Iss. 3/4; pg. 133.

Berry, J. W., Kim, U., Minde, T., and Mok, D. (1987). Comparative studies of acculturative stress. *International Migration Review*, 21, 491-511.

Boss, P. (1987). Family stress . In M. Sussman and S. Steinmetz (Eds.). *Handbook of marriage and the family*. New York: Plenum.

Boss, P (2001). Family stress management. Newbury Park, CA: Sage.

Buriel, R., and De Ment,T.(1997).Mexican American ethnic Labeling:an interfamilial and intergeneratal analysis. In Booth,A.,Crouter,A.,and Landale,N.(eds) *Immigration and the family: research and policy on US immigrants*. New Jersey : Lawerence Earlbaum Associates.165-200.

Chi-Ying Chung and; Kagawa-Singer M. (1993).Predictors of psychological distress among Southeast Asian refugees. *Social science and medicine* (Soc. sci. med.) vol. 36, no5, pp. 631-639.

Cohen, Y and Haberfeld, Y. (2003). *Ethnicity and Mixed Ethnicity: Educational Gaps among Israeli-born Jews*" :http:// sapir.tau.ac.il

Cohen, S., and Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310-357.

Conger, R. D., Wallace, L., Sun, Y., Simons, R. L., McLoyd, V. C., and Brody, G. H. (2002). Economic pressure in African American families: A replication and extension of the family stress model. *Developmental Psychology*, 38, 179-193.

Dooley, D.(2003). Unemployment, underemployment, and mental health: conceptualizing employment status as a continuum. *Am. J. Community Psychol*. 2003 Sep;32(1-2):9-20.

Farrell, M ., Barnes, G.M.,Baneriee, S.(1995) .Family Cohesion as a Buffer Against the Effects of Problem-Drinking Fathers on Psychological Distress, Deviant Behavior, and Heavy Drinking in Adolescents. *Journal of Health and Social Behavior*, Vol. 36, No. 4, pp. 377-385.

Foner, N.(1997). The immigrant family: cultural legacies and cultural changes. *Int Migr. Rev.* 1997 Winter;31(4):961-74.

Forehand, R., Brody, G., Armistead, L., Dorsey, S., Morse, E., Morse, P. S., and Stock, M. (2000). The role of community risks and resources in the psychosocial adjustment of at-risk children: An examination across two community contexts and two informants. *Behavior Therapy*, 31, 395-414.

Forehand, R., and Kotchick, B. A. (1996). Cultural diversity: A wake-up call for parent training. *Behavior Therapy*, 27, 187-206.

Furnham, A., and Bochner, S. (1990). *Culture shock: Psychological reactions to unfamiliar environments*. London: Routledge.

Hill, R. (1949). *Families under stress*. New York: Harper.

Hill, R. (1958). Generic features of families under stress. *Social Casework*, 49, 139-150.

Horowitz, T. (1989). *The soviet man in an open society*. New York: University Press of America.

Jasinskaja-Lahti, I., Liebkind. K. ,M., Reuter. A.(2006). Perceived Discrimination, Social Support Networks, And Psychological Well-Being Among Three Immigrant Groups. *Journal of Cross-Cultural Psychology*. Thousand Oaks:. Vol. 37, Iss. 3; pg. 293.

Krausz, R.(1994). The invisible woman. *Int. J. Psychoanal.* Feb;75 (Pt 1):59-72.

Lazarus, R.S., and Folkman, S. (1984). *Stress, Appraisal and Coping*. New York: Guilford.

Li, J. (2006). Immigration and Psychological Well-Being. Paper presented at the annual meeting of the American Sociological Association, Montreal Convention Center, Montreal, Quebec, Canada Online <PDF> Retrieved 2006-10-05 from http://www.allacademic.com/meta/p104508_index.html

Lim, I. .S. (1999). Korean immigrant women's challenge to gender inequality at home: The interplay of economic resources, gender, and family. In L. A. Peplau, S. C. DeBro, and R. C. Veniegas (Eds.), *Gender, culture, and ethnicity: Current research about women and men* (pp. 208-227). Mountain View, CA: Mayfield.

MacPhee, D., Fritz, J., and Miller-Heyl, J. (1996). Ethnic variations in personal social networks and parenting. *Child Development*, 67, 3278-3295.

Markovizky, G and Doron, H.(2007). The Association between Family Life Events and Psychological Distress among needed and non-needed immigrant *Population.*(submitted 7.07).

McCubbin, H., McCubbin, M., and Thompson, E. (1995). Resiliency in ethnic families: A conceptual model for predicting family adjustment and adaptation. In H. McCubbin, M. McCubbin, A. Thompson, and J. Fromer (Eds.), *Resiliency in ethnic minority families* (Vol. 1, pp. 3-48). Madison, WI: University of Wisconsin Press.

McCubbin, H., and Patterson, J. (1982). Family adaptation to crises. In H. McCubbin, A. Cauble, and J. Patterson (Eds.), Family stress, coping and social support. Springfield, IL: C.C. Thomas McCubbin, H., and Patterson, J. (1983). The family stress process: The double ABCX model

of family adjustment and adaptation. *Marriage and Family Review*, 6(1-2), 7-37.

Markovizky, G. (1998). The relationship between personal and social comparisons and psychological adjustment to immigration stress. Unpublished PhD thesis, Bar Ilan University, Ramat Gan, Israel (in Hebrew).

McGoldrick M.,. et al. (1999).Efforts to incorporate social justice perspectives into a family training program. *Journal of Marital and Family Therapy*. Oxford: Apr 1999. Vol. 25, Iss. 2; p. 191 (1).

McGoldrick, M., Garcia-Preto, N., Hines, P.M., and Lee, E. (1991). Ethnicity and family therapy. In A. Gurman and D. Kniskern (Eds.), *Handbook of family therapy*, volume II. New York: Brunner/Mazel.

Min, P. G. (2001). Changes in Korean immigrants' gender role and social status, and their marital conflicts. *Sociological Forum*, 16, 301-320.

Minuchin, S et al. (1967) Families of the Slums. *An Exploration of their Structure and Treatment.* N.Y. Basic Book.

Patterson, J. (1988). Families experiencing stress: The family adjustment and adaptation response model. *Family Systems Medicine*, 5(2), 202-237.

Patterson, J. (1991). Family resilience to the challenge of a child's disability. *Pediatric Annals*, 20, 491-499.

Pearlin, L.I and H. Turner(1987). The Family as a Context of the Stress Process. In S.V.Kasl and C.L.Cooper (eds.), *Stress and Health: Issues in Research Methodology*. New York: John Wiley and Sons.

Pierce, G. R., Sarason, B. R., and Sarason, I. G. (1996). *Handbook of social support and the family.* New York: Plenum Press.

Roer-Strier, D. (2001). Reducing risk for children in changing cultural contexts: recommendations for intervention and training. *Child Abuse and Neglect* Volume 25, Issue 2 , February 2001, Pages 231-248.

Shamai, M., Moin,V. and Sharlin,S. (2003). Poverty in the "Promised Land": Therapeutic Intervention With Immigrant Caucasus families in Israel. *Families in Society*. 84, (4). 559.

Sharlin, S. and Shamai, M. (1995). Intervention for Families in Extreme Distress (FED). *Marriage and Family Review*. 21(1-2), 91-122.

Sikron, M., and Leshem, E. (Eds.) (1998*). Profile of an immigration wave: The absorption*. Tel Aviv :Am Oved.

Simons, R. L., Lorenz, F. O., Wu, C., and Conger, R. D. (1993). Social network and marital support as mediators and moderators of the impact of stress and depression on parental behavior. *Developmental Psychology*, 29, 368-381.

Sluzki ,CE. (1979). *Migration and family conflict Fam Process*. 1979 Dec;18(4):379-90.

Taylor ,RD. and Roberts, D.(1995). Kinship support and maternal and adolescent well-being in economically disadvantaged African-American families. *Child Dev*. 1995 Dec;66(6):1585-97.

Treas,J. and Mazumdar, Sh.(2004). Kinkeeping and caregiving: contributions of older people in immigrant families *Journal of Comparative Family Studies*, Viruell-Fuentes, E.(2007). Beyond acculturation: Immigration, discrimination, and health research among Mexicans in the United States Social Science and Medicine . Vol. 65, Iss. 7; pg. 1524.

Walsh, F.(2006). *Strengthening Family Resilience*.Guilford Pub.

Watzlawick, P., Weakland,J.H., and Fisch,R. (1974). *Change: Principles of problem formation and problem resolution*. New York:W.W.Norton

Yeh, C., and Wang, Y. -W. (2000). Asian American coping attitudes, sources, and practices: Implications for indigenous counseling strategies. *Journal of College Student Development*, 41, 94-103.

Young-Kyong Kim, E., Bean, R., M Harper J.(2004). Do General Treatment Guidelines For Asian American Families Have Applications To Specific Ethnic Groups? The Case. *Journal of Marital and Family Therapy*. Vol.30, Iss. 3; pg. 359.

Ziegler, RG., and Musliner, Pj. (1977). Persistent themes: a naturalistic study of personality development in the family. *Family Process*. 16(3):293-305.

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Chapter 3

PREVALENCE OF POST TRAUMATIC STRESS AND EMOTIONAL AND BEHAVIORAL PROBLEMS AMONG ISRAELI ADOLESCENTS EXPOSED TO ONGOING TERRORISM

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ABSTRACT

Given that to date relatively little research has been carried out into the effects of ongoing terrorist attacks with the emphasis on adolescents in urban areas, this study set out to investigate a wide range of self-reported emotional and behavioral outcomes among adolescents facing ongoing terrorism in both urban and rural locations in Israel.

913 adolescents aged twelve to eighteen years from four different locations in Israel who were exposed in different ways to terrorist attacks over a period of three years against the backdrop of ongoing terror are investigated to identify the prevalence of Post Traumatic Stress (PTS) and related mental health problems by self-report measures, including Achenbach's Youth Self-Report, the Brief Symptoms Inventory and a specially designed questionnaire covering Post Traumatic Stress and exposure to terror data.

Around 90% of the adolescents experience mild to severe PTS, one fifth reported borderline or clinical emotional and behavioral problems, and one third reported mental health difficulties. Students from different locations revealed different levels of PTS and other psychological problems. Analysis according to level of exposure revealed that it was not always those whose exposure was the most objectively severe who exhibited the most symptoms.

Future research should highlight the unique characteristics of ongoing exposure to terrorism, such as the cumulative effects of exposure and risk of exposure, in order to shed light on their contribution to mental health outcomes.

INTRODUCTION

Since the start of the al-Aqsa Intifada in late September 2000, during approximately five years, Israeli society has been confronted with a wave of terrorist attacks, including, among others, drive-by shootings, break-ins and suicide bombings. By September 2003, when the present study was conducted, numerous children and adolescents had witnessed such attacks directly or indirectly, raising questions about the psychological impact of these potentially traumatic experiences. Although the mental health outcomes of exposure to terror have been increasingly studied in recent years, several areas still call for further investigation. Firstly, the majority of the studies that have been published to date involve single attack events. Given that the number of countries facing an ongoing risk of terrorist attacks is increasing worldwide, more research is needed on this aspect. Secondly, most studies have focused

on victims in urban areas, so there is a need for further research into terror-related outcomes in the populations of less urbanized and more remote areas. Thirdly, research should focus especially on youth given the relative vulnerability of youngsters and the potential implications for transition into adulthood. Taking into account these different needs, this study aims to investigate the psychological impact of ongoing exposure to terrorist attacks on Israeli adolescents in terms of posttraumatic stress and emotional and behavioral outcomes. We will first give an overview of the current research base regarding prevalence and other factors connected with mental health outcomes for adolescents exposed to terror and then draw a number of conclusions for the present study.

PREVALENCE OF POST TRAUMATIC STRESS (PTS) AND MENTAL HEALTH PROBLEMS AFTER TERRORIST ATTACKS

The research conducted to date has shown that individuals who are exposed to terror tend to be especially vulnerable to developing Post Traumatic Stress Symptoms or Post Traumatic Stress Disorder (PTSS/D). Depending on the study context and populations, prevalence rates for posttraumatic stress have been found to range from 4% to 55% (Trappler and Friedman, 1996; Joshi and O'Donnell, 2003; Solomon, Laufer, Lavi 2005). Additionally, persons exposed to terrorist attacks may experience a wide variety of adverse mental health problems, including somatic complaints (21%-33%), depression (8%-16%), agoraphobia (15%), anxiety (10%-12%), conduct disorder (12%), separation anxiety (12%), functional impairment (10%), panic attacks (9%), or substance abuse (5%) (Hoven, Duarte, Lucas, Mandell, Wu and Rosen, 2002; Hoven, Duarte, Ping, Erickson, Musa and Mandell, 2004; Pat Horenczyk, 2005; Pat Horenczyk and Doppelt, 2005). Most studies have found that these adverse mental health outcomes persist for at least several months or even increase. For example, mild to severe levels of Conduct Disorder were found in 39%, and internalizing problems were reported in three-quarters of a sample of New York public school children (grades 4-12) six months after the September 11 attacks (Hoven et al., 2005).

Single versus Ongoing Exposure to Terror

Studies from the broader field of ongoing exposure to extended periods of armed conflict and war report mental health problems such as PTSD, somatization, depressive symptoms, fears, hypervigilance, impaired concentration, and social difficulties as a result of these types of situations (Muldoon and Cairns 1999; Thabet, Abed and Vostanis, 2004; Thabet and Vostanis, 2005). Given these mental health risks, it should be noted that the implications of ongoing exposure to terror may conceivably differ from those to single attacks in several ways. For one thing, being exposed to a large number of attacks may potentially have cumulative negative effects on a person's mental health. Additionally, repeated exposure to terrorist attacks may also impact a person's risk perception and therefore affect psychological outcomes. Finally, when outcomes are analyzed after a single attack the time of investigation along with the distance in time from the attacks are known and similar for all subjects. In contrast, in the context of ongoing terror the distance in time from exposure to attacks may vary between study participants, thus possibly impacting differently on the reported outcomes. However, it should be noted that most research up to date on the prevalence of terror-related PTSS/D and psychological difficulties mainly stem from studies involving one-time exposure to a single event, as is the case with the 1998 Oklahoma bombing and the bombing of the American Embassy in Kenya or the September 11 attacks (e.g. Hoven et al., 2002; Hoven et al., 2004; Pfefferbaum Nixon, Krug, Tivis, Moore, Brown, Pynoos, Foy and Gurwitch, 1999; Pfefferbaum, Nixon, Tucker, Tivis, Moore, Gurwitch, Pynoos and Geis, 1999; Pfefferbaum, North, Doughty, Gurwitch, Fullerton and Kyula 2003).

In contrast, only a limited number of studies have investigated mental health outcomes after multiple attacks or an ongoing exposure risk. These include mainly a number of recent Israeli studies that have been prompted by the ongoing Israeli-Palestinian conflict (Cohen and Eid, 2007; Pat-Horenczyk 2005; Schiff, Benbenisty, McKay, DeVoe and Liu, 2006; Solomon and Lavi, 2005; Zeidner, 2005). Moreover, research in the context of ongoing terrorism has typically focused on a more limited scope of outcomes compared with single-attack studies. More specifically, young Israelis who are exposed to ongoing terrorism have been found primarily to exhibit PTSS/D (6%-45%), risk-taking behaviors and functional impairment (20%), as well as depression (10%-16%) and somatization (21%-33%) (Pat Horenczyk, 2005; Solomon, Laufer and Lavi, 2005).

Types of Populations Investigated

Most of the research conducted to date has involved urban populations, including, for example, New York City, Oklahoma City, and youngsters in Nairobi in the aftermath of *single attacks* (Hoven et al., 2002; Hoven et al., 2004; Pfefferbaum et al., 1999; Pfefferbaum et al., 1999; Pfefferbaum et al., 2003) or urban youth from main Israeli cities in the context of ongoing terrorism. In the case of the West Bank or Gaza Strip Settlements, findings suggest that those who live in the Settlements are highly exposed to terror-related events and exhibit more symptoms of psychopathology (Pat Horenczyk and Dopplet 2005; Solomon, Laufer and Lavi, 2005; Schiff et al., 2006). We therefore believe it is important to investigate adolescents from different regions, including rural districts, in conjunction with the related levels of exposure to shed more light on the role of these demographic characteristics as regards relative vulnerabilities or resiliencies to mental health difficulties in the context of ongoing terror risks.

Gender and Age as Mediating Factors

As can be deduced from the above discussion, the prevalence rates of terror-related PTSS/D and other psychological difficulties in adolescents that have been documented to date tend to vary widely, spurring research into potential moderating or mediating factors. Gender and age have been most frequently investigated in this context.

As regards gender, most studies find that girls report more PTSD, stress-related symptoms and internalizing difficulties and that boys report more externalizing problems, consistent with general developmental psycho-pathology literature (Celestin-Westreich and Celestin, 2005; Hoven et al., 2002; Hoven et al., 2004; Pat Horenczyk, 2003; Pfefferbaum et al., 1999; Pfefferbaum, Nixon, Tivis, Doughty, Pynoos, Gurwitch and Foy, 2001; Pfefferbaum et al., 2003;). Furthermore, age has been found to exert a moderating influence on the extent of stress reactions and negative symptoms following single or ongoing terror experiences. More specifically, younger children appear to exhibit more severe symptoms of psychopathology than older youths, a finding that has been linked to developmental limits in cognitive-emotional abilities to cope with adverse experiences at younger ages (Hoven et al., 2002; Hoven et al., 2004; Pat Horenczyk, 2005).

Implications for Our Present Research, Aims and Hypotheses

Given the relative dearth of studies pertaining to psychological outcomes in adolescents after multiple attacks or the ongoing risk of terrorism, there is a need for in-depth investigation of the prevalence of different types of emotional and behavioral problems in this context. Since most of the studies to date have involved mainly single attacks and urban populations, the present study aims to investigate the prevalence of posttraumatic stress along with related emotional and behavioral outcomes among Israeli adolescents living in both rural and urban areas in the context of ongoing terrorism. We formulated the following primary research questions and hypotheses:

1. To what extent do Israeli adolescents exposed to ongoing terrorist attacks report PTSS/D and emotional and behavioral problems? Based on the literature, we can expect prevalence estimates of 4%-42% for PTSS/D, 21%-33% for somatic complaints, and 10%-16% for depression (Pat Horenczyk and Doppelt, 2005; Pat Horenczyk, 2005; Solomon, Laufer and Lavi, 2005).
2. To what extent do Israeli adolescents from different areas reveal different mental health outcomes? Given that location and level of exposure tend to be interrelated, we expect youngsters living in more exposed city districts to show higher levels of Post Traumatic Stress and emotional and behavioral problems compared to youth from more rural and less exposed areas such as the south of Israel.

Furthermore, based on the research literature we expect gender and age to moderate the mental health outcomes of exposed youths.

1. Thus, girls can be expected to exhibit more PTSS/D and internalizing symptoms compared to boys, who for their part might be expected to report more externalizing problems (e.g. Hoven et al., 2002; Pefferbaum et al., 1999).
2. Early adolescents can also be expected to display more PTSS/D and emotional and behavioral problems compared to older teens (e.g. Hoven et al., 2002; Pat Horenczyk, 2005).

METHOD

Population Sample

This study comprised a sample of 913 Israeli adolescents aged between 12 and 18 years. No other inclusion or exclusion criteria were used apart from age and availability at the time of testing. The demographic characteristics of the participants are shown in table 1.

Students attending four different schools (junior and senior high schools) in four locations in Israel were chosen to represent different types of populations (urban vs. rural) as well as different levels of exposure. Three of the schools (Central Israel, Southern Israel, and Jordan Valley) belong to the same educational sub-system (Ha Agaf L'chinuch Hityashvuti - Department of Rural Education), which is the only education authority that has schools dotted throughout Israel. Most of the schools in this system are located in suburbs or in rural areas, with students living in kibbutzim[1], moshavim[2], or small towns. The Jerusalem school, for its part, serves different neighborhoods of Jerusalem and nearby small towns. All the participating schools are "open access" establishments (no selective admission procedures). In the Jordan Valley School, the entire age-relevant population took part in the study. For the other schools, the participating classes were those whose timetable meant that they were available at the time of the study. As shown in Table 1, subjects were distributed quite evenly as regards gender and age across schools/locations.

Measures

Adolescents filled out a standardized self-report battery comprising a demographic inventory designed for this study; an extensive, multi-section 'Exposure to Terror and Post Traumatic Stress' (EPTS) Questionnaire designed specifically for the purpose of this study and outcome measures - the Achenbach Youth Self-Report (YSR, Hebrew version) and Brief Symptom Inventory (BSI) of Derogatis.

[1] Kibbutz: Collective farm or settlement in Israel.

[2] Moshav: A cooperative settlement of small individual farms in Israel.

Table 1. Demographic Characteristics of Populations

Characteristic	No.	%
Age of participants, mean (SD) [range years]	14.45 (1.27) [12-18]	
Gender		
Girls	462	50.6
Boys	447	49
Grade level		
8th grade	335	36.7
9th grade	302	33.1
11th grade	276	30.2
Age group		
Youngest 12-13.5	305	33.4
Middle 14-15.5	349	38.2
Oldest 16-18	255	27.9
Schools		
Central Israel	250	27.4
Jordan Valley	183	20
Southern Israel	226	24.8
Jerusalem	254	27.8
Socio Economic Status		
Low	242	26.1
Average	487	52.5
High	116	12.5

The demographic inventory included questions regarding age, class, school, gender, place of living, and parental work.

"Exposure to Terror and Post Traumatic Stress" (EPTS) questionnaire assess multiple aspects of subjects' level of exposure (part 1), along with self-reported Post Traumatic Stress symptoms (part 2). To investigate the present hypotheses, the items regarding direct physical exposure and indirect exposure (through relationship with a victim) were combined to form a 'Global Objective Exposure Index', which showed satisfactory internal consistency (α=0.76). The items for assessing Post Traumatic Stress consisted of a rewording of the DSM IV criteria for PTSD into a yes/no question format. This PTSS/D scale thus included sixteen items with satisfactory Cronbach alpha reliability (α=0.74). The EPTS questionnaire was administered to a

small sample of young people (n=10) prior to the research to ensure that the items were clear and could be easily understood.

Achenbach Youth Self-Report for ages 11-18 (Hebrew version) (Thomas M. Achenbach and Leslie A. Rescorla 2001) measures a broad range of behavioral and emotional problems through 112 items yielding a total problem score along with two broad-band scales (internalizing and externalizing), eight subscales and six DSM scales. The YSR form has been shown to have good internal consistency, test-retest reliability (0.87) and content validity (Achenbach and Rescorla 2001). Cronbach alpha of the different scales in the present study ranged from 0.65 to 0.91.

Brief Symptom Inventory (BSI) (Leonard R. Derogatis 1993) is a 53-item scale on 5 Likert points that measures nine dimensions of psychological and psychiatric problems, summarized in a "Global Severity Index" (GSI). Due to restrictions imposed by the Israeli Ministry of Education, five items of this questionnaire had to be omitted (namely, "Thoughts of ending your life", "Spells of terror or panic", "Feelings that you are watched or talked about by others", "The idea that someone else can control your thoughts", and "The idea that you should be punished for your sins"). Given that the manual states that omitting up to 25% (<=13 for the GSI and <=1 for the subscales) does not affect the reliability of the scales, only the "Psychotics" subscale needed to be omitted due to too few remaining items. The BSI has good internal consistency for the GSI (0.90) and its subscales (0.68-0.91) (Derogatis, 1993). The questionnaire was translated into Hebrew and back-translated into English to guarantee accuracy. Cronbach alpha of the different scales in the present study ranged from 0.68 to 0.93.

Procedures

In the course of conducting this study, we adhered to all the ethical procedures demanded by the Israeli Ministry of Education. The proposal and questionnaires were sent to the office of the "Central Scientist" and were reviewed both by the 'Central Scientist' and by the 'Counseling and Psychological Services' of the Ministry of Education. After receiving their approval, permission to enter schools was received by each participating principal confirming that they had met all the conditions imposed by the Ministry of Education.

Data were gathered during the month of September 2003. The self-report questionnaires were filled out anonymously during regular class periods. The

time of completion varied according to age, ranging from around twenty-five to forty-five minutes. Subjects were informed that the researcher was interested in their experiences as a result of the ongoing terrorist attacks.

The researcher informed the students that participation was voluntary and that if they felt uneasy or uncomfortable at any time during the administration of the questionnaire, they were free to terminate their participation. Few (twenty students, or less than 2%) chose not to participate and stopped before completing the questionnaire. Many participants expressed enthusiasm while completing the questionnaires and said they were glad to have an opportunity to share their experiences.

Data Analysis

Firstly, the frequencies and percentages of the demographic characteristics of the sample were explored. Secondly, One Way ANOVA was performed to highlight differences in objective levels of exposure according to the location of the participating schools. Finally, differences in mental health outcome scales across location / level of exposure, gender and, age, were tested by means of T tests (gender) and One way ANOVA (school/location, and age). Statistical analyses were conducted with the statistical software SPSS Version 12, with the accepted p level set at alpha<0.05.

RESULTS

Overall, two-thirds of the adolescents reported some level of objective exposure to terrorist attacks, either by being physically exposed to an attack or by knowing someone who had been hurt in an attack. Among these, approximately one-tenth reported having been physically exposed to more than one attack, and approximately one-third of the adolescents reported knowing more than one person who had been hurt. Furthermore, findings show that even those who had never been personally exposed to an attack and/or did not know anyone who had been hurt had nonetheless experienced some kind of exposure through the media or through ‘near-miss’ experiences (e.g. missed the bus that later exploded; left the scene just before an attack occurred, etc.).

Prevalence of Posttraumatic Stress and Mental Health Problems

As shown in *Table 2a*, only less than one-tenth of the youth surveyed showed no Post Traumatic Stress symptoms. In contrast, a large majority of adolescents (over 75%) experienced mild to severe posttraumatic stress. It is noteworthy that although 40% of the sample population reported no 'objective exposure', of this group only 14% reported no symptoms of PTSS. Overall, up to one-fifth of the adolescents reported total, internalizing and/or externalizing problems within the borderline or clinical range compared to Israeli Achenbach YSR norms (Table 2b). Clinically significant internalizing problems mainly consisted of withdrawn depressed and somatic symptoms, along with DSM-IV concordant affective problems and dysthymia. A noticeable 10% of the adolescents also expressed significant externalizing problems, especially oppositional-defiant, rule-breaking and aggressive behavior. Furthermore, approximately one third of the adolescent sample reported overall mental health difficulties above Israeli norms as measured by the Global Severity Index of the Brief Symptom Inventory (Table 2c).

Table 2a. Prevalence of PTSS/D symptoms among Israeli Adolescents

No. of PTSS/D Symptoms	% of Population
No symptoms = 0 symptoms	9.3
Mild = 1-5 symptoms	61.8
Medium = 6-10 symptoms	25.5
Severe = 11-14 symptoms	3.6

Table 2b. Prevalence of Emotional and Behavior Problems among Israeli Adolescents according to Achenbach YSR

Achenbach Scale	% of Borderline and within Clinical Range
Total Problems	19.4
Externalizing	22.3
Internalizing	18.9
Anxiety Depressed	7.6
Withdrawn Depressed	9.0
Somatic Problems	8.9

Table 2b. (Continued)

Achenbach Scale	% of Borderline and within Clinical Range
Social Problems	5.9
Thought Problems	7.7
Attention Problems	7.8
Rule Break	10.4
Aggressive Behavior	10.2
DSM Affective Problems	9.9
DSM Anxiety Problems	4.9
DSM Somatic Problems	7.9
DSM ADHD	5.8
DSM Oppositional Defiant	15.4
DSM Conduct Problems	8.3

Table 2c. Prevalence of Mental Health Problems among Israeli Adolescents according to Brief Symptom Inventory

BSI SCALE	% above Mean Norms
Global Severity Index	27.2
Somatization	27.2
Obsessive Compulsive	27.5
Interpersonal Sensitivity	29.8
Depression	21.9
Anxiety	18.1
Hostility	32.6
Phobic Anxiety	48.2
Paranoid Ideation	24.9

More specifically, around half of the adolescents exhibited above-mean levels of phobic anxiety, such as avoidance or fear of open spaces, of being on the street and of traveling on buses. In addition, around one third of the adolescents express above-mean levels of hostile feelings.

Differences in Mental Health Outcomes According to Level and Area of Exposure

Given that location and level of exposure tend to be interrelated, it was first verified whether the urban versus rural locations had experienced different levels of objective exposure (cf. procedure) (Table 3). Significant

differences between the different locations were indeed found on our Global Objective Exposure Index, with Southern Israeli adolescents representing the lowest levels and the Jerusalem adolescents the highest levels of Objective Exposure, compared to students from the 'Central Israel' and 'Jordan Valley' schools. These results allowed us to group the participating adolescents into three categories, i.e. 'Rural/Low' (Southern Israel), 'Rural/Intermediate' (Jordan Valley and Central Israel) and 'City/High' (Jerusalem) areas respectively with corresponding levels of objective exposure.

Subsequent analyses generally revealed an anticipated pattern of 'Rural/Least exposed' adolescents reporting least Post Traumatic Stress, although this difference reached statistical significance only between 'Intermediate' and 'Low/Rural' adolescents (Table 4).

Table 3. Differences in Objective Exposure among the Different Schools

Schools	Objective Exposure Index
Central Israel	M=1.40 SD=1.70
Jordan Valley	M=1.50 SD=1.98
Jerusalem	M=2.04 SD=2.53
Southern Israel	M=0.30 SD=0.65
F value	35.522
Sig. Level	0.000**

Table 4. Prevalence of Mental Health and Behavioral Outcomes According to Schools

Outcome Scales	Center Israel	Jordan Valley	South Israel	Jerusalem	F value	Sig. Level
PTSS/D					4.47	0.004*
M	4.46	4.25	3.52	4.19		
SD	3.03	2.88	2.72	2.99		

Table 4. (Continued)

Outcome Scales	Center Israel	Jordan Valley	South Israel	Jerusalem	F value	Sig. Level
Achenbach						
Total					3.55	0.014*
M	39.5	40.45	35.76	35.83		
SD	18.96	20.082	18.292	19.38		
Internalizing					4.65	0.003*
M	11.56	11.51	9.65	9.82		
SD	7.697	7.912	6.68	6.83		
Externalizing					1.86	0.134
M	11.22	12.61	11.36	12.13		
SD	6.26	7.42	6.92	7.51		
Anxiety Depressed					2.51	0.053
M	4.88	4.82	4.16	4.22		
SD	3.87	3.87	3.27	3.47		
Withdrawn Depressed					5.05	0.002*
M	3.41	3.65	2.85	2.96		
SD	2.46	2.72	2.25	2.34		
Somatic Complaints					3.01	0.029*
M	3.27	3.03	2.64	2.64		
SD	2.99	3.03	2.54	2.56		
Social Problems					5.72	0.001**
M	3.29	3.01	2.58	2.46		
SD	2.50	2.66	2.35	2.48		
Thought Problems					4.97	0.002*
M	4.52	4.53	4.04	3.53		
SD	3.40	3.59	3.11	2.92		
Attention Problems					4.73	0.003*
M						
SD	5.18	5.07	4.55	4.29		
	3.15	2.93	2.86	2.98		
Rule Breaking					5.27	0.001**
M	4.22	5.10	3.93	4.82		
SD	2.932	3.813	3.328	3.657		
Aggressive Behavior					0.56	0.635
M	7.00	7.51	7.43	7.31		
SD	4.17	4.49	4.43	4.67		
DSM Affective					2.88	0.035*
Problems	4.49	4.56	3.91	3.84		
M	3.47	3.46	2.87	3.13		
SD						
DSM Anxiety Problems						
M	2.46	2.52	2.33	2.47	0.34	0.793
SD	2.05	1.81	1.86	2.06		

Table 4. (Continued)

Outcome Scales	Center Israel	Jordan Valley	South Israel	Jerusalem	F value	Sig. Level
DSM Somatic Problems					1.62	0.182
M	1.73	1.69	1.40	1.47		
SD	2.01	2.11	1.73	1.78		
DSM Attention Deficit Hyperactivity Problems					3.01	0.029*
M	4.20	3.99	3.85	3.50		
SD	2.71	2.52	2.61	2.59		
DSM Oppositional Defiant Problems					2.30	0.075
M	3.26	3.74	3.54	3.43		
SD	1.93	1.94	1.89	1.86		
DSM Conduct Problems					3.46	0.016*
M	3.26	3.90	3.13	3.89		
SD	2.72	3.30	3.19	3.55		
BSI						
GSI					2.70	0.045*
M	0.63	0.70	0.53	0.62		
SD	0.57	0.67	0.55	0.59		
Somatization					1.51	0.209
M	0.36	0.47	0.35	0.58		
SD	0.59	0.70	0.55	0.03		
Obsessive Compulsive					2.68	0.045*
M	0.69	0.76	0.56	0.64		
SD	0.70	0.77	0.66	0.69		
Interpersonal Sensitivity					4.02	0.007*
M	0.83	0.93	0.66	0.74		
SD	0.76	0.90	0.74	0.78		
Depression					3.70	0.011*
M	0.56	0.67	0.42	0.49		
SD	0.75	0.94	0.73	0.75		
Anxiety					2.59	0.051
M	0.74	0.73	0.57	0.72		
SD	0.76	0.81	0.65	0.76		
Hostility					0.78	0.501
M	0.72	0.81	0.72	0.79		
SD	0.75	0.81	0.76	0.80		
Phobic Anxiety					3.06	0.027*
M	0.77	0.68	0.58	0.77		
SD	0.79	0.80	0.72	0.85		
Paranoid Ideation					2.64	0.048*
M	0.64	0.81	0.62	0.74		
SD	0.71	0.85	0.76	0.77		

*p<.001. **p<.05.

Table 5. Gender Differences on Outcome Scales- Achenbach, BSI, PTSD

Scales	Mean (SD)	t (df)	Sig.
PTSS/D	Males: 3.30 (2.60) Females: 4.90 (3.00)	-8.99 (891.552)	0.000**
Achenbach			
Total	Males: 36.31 (18.69) Females: 39.23 (19.67)	-2.28 (901)	0.023*
Internalizing	Males: 8.79 (6.32) Females: 12.38 (7.77)	-7.63 (876.649)	0.000**
Externalizing	Males: 12.59 (7.53) Females: 11.04 (6.45)	3.32 (869.388)	0.001**
Anxiety Depressed	Males: 3.49 (2.97) Females: 5.50 (3.94)	-8.68 (852.648)	0.000**
Withdrawn Depressed	Males: 3.04 (2.42) Females: 3.36 (2.46)	-1.99 (901)	0.047*
Somatic Complaints	Males: 2.26 (2.41) Females: 3.52 (2.99)	-6.96 (874.894)	0.000**
Social Problems	Males: 2.84 (2.52) Females: 2.83 (2.52)	0.02 (901)	0.977
Thought Problems	Males: 4.02 (3.11) Females: 4.25 (3.42)	-1.04 (901)	0.296
Attention Problems	Males: 4.59 (3.00) Females: 4.92 (3.01)	-1.60 (901)	0.109
Rule Breaking	Males: 5.28 (3.57) Females: 3.74 (3.16)	6.86 (878.843)	0.000**
Aggressive Behavior	Males: 7.31 (4.78) Females: 7.30 (4.09)	0.03 (869.056)	0.969
DSM Affective Problems	Males: 3.66 (2.86) Females: 4.69 (3.52)	-4.60 (826.279)	0.000**
DSM Anxiety Problems	Males: 1.97 (1.76) Females: 2.92 (2.04)	-7.40 (868.576)	0.000**
DSM Somatic Problems	Males: 1.19 (1.70) Females:1.95 (2.03)	-6.12 (883.482)	0.000**
DSM Attention Deficit Hyperactivity Problems	Males: 3.78 (2.66) Females: 3.99 (2.60)	-1.13 (874)	0.256
DSM Oppositional defiant	Males: 3.46 (1.98) Females: 3.50 (1.85)	-0.35 (878)	0.722
DSM Conduct Problems	Males: 4.34 (3.56) Female: 2.80 (2.65)	7.14 (768.861)	0.000**
BSI			
GSI	Males: 0.48 (0.51) Females: 0.75 (0.65)	-6.83 (823.963)	0.000**

Table 5. (Continued)

Scales	Mean (SD)	t (df)	Sig.
Somatization	Males: 0.28 (0.51) Females: 0.50 (0.67)	-5.49 (813.217)	0.000**
Obsessive Compulsive	Males: 0.51 (0.60) Females: 0.80 (0.77)	-6.15 (821.349)	0.000**
Interpersonal Sensitivity	Males: 0.62 (0.69) Females: 0.96 (0.86)	-6.38 (823.881)	0.000**
Depression	Males:0.40 (0.64) Females: 0.67 (0.90)	-5.01 (783.018)	0.000**
Anxiety	Males: 0.51 (0.61) Females: 0.87 (0.82)	-7.18 (805.434)	0.000**
Hostility	Males: 0.67 (0.75) Females: 0.85 (0.81)	-3.31 (853)	0.001**
Phobic Anxiety	Males: 0.51 (0.68) Females: 0.91 (0.85)	-7.57 (820.993)	0.000**
Paranoid Ideation	Males: 0.62 (0.73) Females: 0.77 (0.81)	-2.68 (853)	0.007*

* $p<.001$.
**$p<.05$.

While the pattern of rural/least exposed adolescents presenting least overall, emotional, behavioral, and mental health problems tends to remain consistent for the other outcome measures (YSR and BSI), counterintuitive findings came forward for the other groups. Thus, 'Intermediate' adolescents repeatedly report significantly higher levels of adverse mental health outcomes compared to the 'High exposure/City area' adolescents (Table 4).

Differences in Mental Health Outcomes According to Gender and Age

Differences in gender were found to be as expected, with girls reporting significantly more Post Traumatic Stress, overall mental health problems, and internalizing problems than boys, who displayed more externalizing difficulties (cf. YSR and BSI).

In contrast, age differences were less prevalent, and when they did occur they followed a less expected pattern (Table 6). Grouping the population into "youngest" (8^{th} grade, ages 12-13.5), "middle" (9^{th} grade, ages 14-15.5) and "oldest" adolescents (11^{th} grade, ages 16-18), no significant age differences

were found for Post Traumatic Stress and Achenbach overall, internalizing, and externalizing scales. Remarkably, however, for those scales showing significant differences (YSR Withdrawn/Depressed, DSM-Affective and 'Rule-Breaking' problems, along with the Global Severity Index and the BSI subscales), older adolescents were found to have experienced more severe problems than younger ones, contrary to the literature findings.

Table 6. Differences on Outcome Scales- Achenbach, BSI and PTSD According to Age

Outcome Scales	Group 1 12-13.5	Group 2 14-15.5	Group 3 16-18	F value	Sig. Level
PTSS/D				.426	0.653
M	4.01	4.14	4.23		
SD	2.98	2.87	2.94		
Achenbach					
Total				1.89	0.151
M	36.87	37.21	39.81		
SD	19.79	18.50	19.39		
Internalizing				2.75	0.064
M	10.44	10.13	11.51		
SD	7.17	7.00	7.82		
Externalizing				2.14	0.118
M	11.16	11.96	12.36		
SD	7.17	7.24	6.50		
Anxiety Depressed				2.81	0.060
M	4.35	4.33	4.98		
SD	3.48	3.41	4.05		
Withdrawn Depressed				3.71	0.025*
M	3.14	3.01	3.55		
SD	2.35	2.30	2.71		
Somatic Complaints				0.46	0.630
M	2.96	2.79	2.98		
SD	2.87	2.73	2.76		
Social Problems				0.61	0.539
M	2.93	2.72	2.87		
SD	2.57	2.38	2.63		
Thought Problems				2.75	0.064
M	4.12	3.88	4.51		
SD	3.51	2.87	3.43		
Attention Problems				0.67	0.511
M	4.67	4.72	4.95		
SD	3.03	2.95	3.05		

Outcome Scales	Group 1 12-13.5	Group 2 14-15.5	Group 3 16-18	F Value	Sig.Level
Rule Breaking				8.69	0.000**
M	3.97	4.45	5.19		
SD	3.31	3.55	3.35		
Aggressive Behavior				0.58	0.556
M	7.19	7.51	7.17		
SD	4.60	4.46	4.19		
DSM Affective Problems				5.73	0.003*
M	3.81	4.09	4.75		
SD	2.99	3.14	3.59		
DSM Anxiety Problems				2.02	0.132
M	2.33	2.41	2.66		
SD	1.88	1.81	2.22		
DSM Somatic Problems				1.96	0.141
M	1.75	1.50	1.46		
SD	2.06	1.83	1.80		
DSM Attention Deficit Hyperactivity Problems				0.36	0.695
M	3.89	3.97	3.78		
SD	2.68	2.58	2.61		
DSM Oppositional defiant				0.29	0.742
M	3.41	3.52	3.50		
SD	1.96	1.90	1.85		
DSM Conduct Problems				0.19	0.825
M	3.60	3.56	3.43		
SD	3.48	3.32	2.70		
Outcome Scales	Group 1 12-13.5	Group 2 14-15.5	Group 3 16-18	F value	Sig. Level
BSI					
GSI				5.10	0.006*
M	0.55	0.61	0.71		
SD	0.57	0.58	0.64		
Somatization				1.53	0.217
M	0.36	0.38	0.45		
SD	0.57	0.60	0.65		
Obsessive Compulsive				3.95	0.020*
M	0.58	0.66	0.76		
SD	0.67	0.69	0.76		
Interpersonal Sensitivity				10.02	0.000**
M	.66	.77	.96		
SD	.74	.78	.84		
Depression				6.36	0.002*
M	0.43	0.50	0.67		
SD	0.73	0.77	0.87		
Anxiety				2.70	0.067
M	0.64	0.67	0.78		
SD	0.74	0.70	0.81		

Table 6. (Continued)

Outcome Scales	Group 1 12-13.5	Group 2 14-15.5	Group 3 16-18	F value	Sig. Level
Hostility				1.74	0.175
M	0.69	0.79	0.80		
SD	0.79	0.77	0.78		
Phobic Anxiety				0.74	0.474
M	0.66	0.72	0.75		
SD	0.82	0.79	0.76		
Paranoid Ideation				3.38	0.034*
M	0.61	0.70	0.79		
SD	0.71	0.77	0.83		

*p<.001.
**p<.05.

DISCUSSION

Prevalence of Post Traumatic Stress and Emotional and Behavioral Problems

The literature on young people who are exposed to traumatic events in general reveals a wide range of Post Traumatic Stress symptoms, with prevalence rates of 95%. Research specifically related to the effects of terror attacks on adolescents indicates prevalence rates ranging from 4% to 53% after single attacks and from 4% to 42% in the context of ongoing terrorism. This variability may be explained by sample and methodological differences, for example as regards the investigated traumatic events, the time between the event and the research assessment, as well as the operationalization of psychological outcomes (Saigh, Yasik et al., 1999; Hoven et al., 2002; Pfefferbaum et al., 2000; Laufer and Solomon, 2003; Pat Horenczyk and Dopplet, 2005; Solomon, Laufer and Lavi, 2005). Our findings confirm that Post Traumatic Stress is a major mental health outcome after ongoing exposure to terror, with 90% of the investigated adolescents reporting some level of posttraumatic stress and up to one third experiencing symptoms suggestive of a Post Traumatic Stress Disorder, despite the fact that over one third of the sample report no ‘objective exposure’ through direct personal experience or through relatives. Furthermore, the levels of overall mental health, emotional, and behavioral problems reported by the adolescents in our

sample mostly exceeded those expected in a general epidemiological sample, with more than one fifth of these youth experiencing some form of clinically significant problem. Thus, as postulated, facing the *a priori* stressful task of living in a context of ongoing (risk of) terrorist attacks makes adolescents more prone to an increase in adverse mental health outcomes. It is important to recognize that these comprise not only PTSD and internalizing, affective difficulties. Indeed, the amount of externalizing problems such as oppositional, rule-breaking and aggressive behavior patterns and feelings of hostility documented in this study draws attention to the potential social implications regarding adolescents' lack of cognitive, emotional, and behavioral adjustments when entering adult life in an already complex society (Muldoon and Cairns, 1999; Zilber, Auerbach and Lemer, 1999).

Interestingly, however, our findings also suggest that such mental health vulnerabilities in the context of ongoing risks of terrorist attacks tend to adopt a non-uniform pattern. Thus, while only around one-tenth of the investigated adolescents did not report experiencing any posttraumatic stress, this percentage is noteworthy in its own right as regards the resiliencies that may develop when facing ongoing risks of terrorist attacks. In the same line of thought, our sample displays lower levels of mental health problems compared to those found in young people following the September 11 attacks or in other studies of ongoing terrorism. For example, the present sample appears to comprise fewer youths who suffer from severe depression and somatic complaints compared to Pat Horenczyk's studies (Pat-Horenczyk, 2005). While the use of different measurements across studies limits the possibility of drawing solid conclusions in this regard, the relatively lower levels of depression and somatization may be attributable to habituation and adaptation to a "chronic situation" of terrorist attacks, given that our study was conducted more than a year after Pat Horenczyk's.

Differences According to Types of Population as Regards Location and Exposure Level

We also sought to explore to what extent young people from different locations in Israel might experience different mental health outcomes. Previous Israeli studies in the context of ongoing terrorism focused mainly on urban populations (Pat-Horenczyk and Dopplet, 2005; Solomon, Laufer and Lavi, 2005; Schiff et al., 2006), or in the Jewish settlements in the West Bank or the Gaza Strip which tend to be characterized by a strong ideological

component (Pat-Horenczyk, 2005; Solomon, Laufer and Lavi, 2005). In contrast, the participants in the present study came from families who live in small and remote towns or settlements, with the exception of the Jerusalem school. Also, while the investigated 'Jordan Valley' school is the only one located outside the "Green Line"[3], in contrast to the West Bank or Gaza Strip settlements, families who live there tend not to be characterized by a strong ideology. Rather, their main goal appears to be to achieve a "better quality of life". Our findings reveal that rural youth from Southern Israel experience the least Post Traumatic Stress and the fewest mental health difficulties, which we might have expected given that they also faced fewer terrorist attacks. Counterintuitively, however, adolescents living in the 'Jordan Valley' or in 'Central Israel' appear to experience *more* psychological distress than those from the most exposed Jerusalem area, indicating that objective levels of exposure do not in themselves explain all mental health outcomes.

When we interpret these results in terms of location, it becomes clear that the relationship between exposure to terror and mental health outcomes is also mediated by subjective aspects, for example, the choice of living location. Thus, families from the 'Jordan Valley' or 'Central Israel' areas may have been looking for a rural-type "quality of life", which is possibly indicative of individuals characterized by a specific type of response toward overall societal stresses as well as specific terror-related stresses. In short, it may be that this sub-population's choice of living location already reflects a subjective vulnerability or receptivity to societal / terror-related stress and that they therefore experience more mental health symptoms compared to more exposed populations.

These results may also be interpreted in terms of differences in available societal responses according to level of exposure. Thus, the young people in Jerusalem, who, as is known, face the highest risk of terrorist attacks, may have benefited more from preventive programs and mental health interventions, which may have increased their resilience to (higher) objective exposure to terrorist attacks. Another interpretation might be that this highly exposed group experienced defensive responses which may be reflected in fewer symptoms.

Taken together, these findings underscore the importance of considering multiple levels of interpretation when analyzing the relative impact of exposure to terrorism on adolescents' mental health outcomes. Consistent with

[3] Green lines: This was the demarcation between the 1967 borders of Israel and the West Bank territories captured in the Six-Day War.

a developmental psychopathology approach to understanding vulnerability versus resiliency sources at individual, family and societal levels, both objective and subjective risks of exposure will need to be addressed in further research, in relation to protective dynamics such as intervention programs or families' attempts to deal with adverse experiences (Celestin and Celestin-Westreich, 2006; Pfefferbaum et al., 2002; Pfefferbaum et al., 2003; Laufer and Solomon 2003).

Gender and Age as Mediating Factors

As regards gender, our findings are in line with the developmental psychopathology literature in that girls tend to respond to stressful situations predominantly by internalizing and boys by externalizing problems (Pfefferbaum et al., 1999; Pfefferbaum et al., 2001; Pfefferbaum et al., 2003; Hoven et al., 2002; Hoven et al. 2004; Pat-Horenczyk, 2003). A methodological note deserves to be made here. The choice of measurements in effect helps determine the focus of observed outcomes. For example, the BSI comes forward as predominantly highlighting a range of internalizing 'female'-type symptoms. Given the significant proportion of externalizing problems in the mental health difficulties observed in the course of our study, a balanced choice of measures is recommended to assess accurately the full scope of mental health outcomes experienced by adolescents exposed to terrorism.

Interestingly, our findings concerning the role of age tend to differ from previous studies, most of which found that younger adolescents display more psychological distress in the context of both single and multiple terrorist attacks (Hoven et al., 2002; Hoven et al., 2004; Pat Horenczyk, 2005). In contrast, when significant differences were found in the present research internalizing/somatizing difficulties were more severe in older adolescents. The timing of our study in relation to the age range may provide at least a partial explanation for these results. Bearing in mind that this study was conducted three years after the start of the Intifada, the older adolescents in our study were old enough to have been more exposed to terrorist events, for example by being more likely to have wandered around malls and used public transportation more than the younger adolescents investigated (Pat Horenczyk et al. 2006). Thus, increasing age corresponds in our sample to increasing objective exposure to risks as well as an increased subjective perception of risks over the years, which might account for the higher levels of certain adverse emotional, cognitive, or behavioral responses to such risks.

Consequently, the potential impact of age in the context of ongoing terror appears to require modulated conceptualization. Thus, while children's abilities to regulate cognitive, emotional, and behavioral responses may increase over time, thereby strengthening their capacity to deal effectively with terror-related stresses, in this specific context an age increase may also imply an increased objective and perceived risk of exposure to terror and thereby lead to more psychological distress or vulnerabilities (Braun-Lewensohn, Celestin-Westreich, Verte, Celestin, Ponjaert-Kristoffersen, 2009).

Study Limitations

When considering the interpretation options with regard to our findings, a number of study limitations should be taken into account. For example, since all the data are retrospective and based on self-reports, the extent to which statements made by adolescents concerning stress and mental health difficulties correspond to external observations and/or clinical assessments remains to be investigated. Measuring adolescents' psychological outcomes from multiple perspectives is thus needed to assess their full implications, for example as regards levels of functional impairment. Also, it should be noted that a degree of participation bias could not be avoided in our sample, given that a number of adolescents did not complete the testing procedure. While these accounted for a small proportion (less than two percent) of the sample, they may represent a "significant few" for whom the questionnaires posed an emotional threat. In addition, since we have no base rate information, notably regarding the rates of PTSS/D or other mental health problems prior to the study period, we cannot with any certainty ascribe the observed mental health outcomes solely to the impact of terrorism. As mentioned above, a comprehensive developmental psychopathology perspective on adolescents' sources of vulnerability and resiliency in the context of ongoing risks of terrorism must take into account multiple-entry factors at individual, family, and contextual levels. Another study limitation is the inherent connectedness of location and level of exposure, which limits the attribution of explanations to one or other factor. In future analyses, an approach that takes into account multiple components of exposure may shed more light on this question. Finally, while the study sample is relatively large and was chosen to represent different segments of the Israeli adolescent population in terms of location, age range, and levels of exposure, the generalization of our findings is obviously

limited to these population segments. Further study is needed into the potential influences of varying socio-demographic backgrounds, for example certain aspects of religious observance or ethnic diversity, issues which have not been investigated here.

CONCLUSION AND IMPLICATIONS

This study reveals that a sample of Israeli adolescents aged twelve to eighteen years who have been exposed to repeated terrorist events over a period of several years experience significant levels of psychological distress, including Post Traumatic Stress Symptoms or Disorder along with clinically significant overall, internalizing and externalizing mental health problems. Consistent with similar research, our findings underscore the need to provide both preventive actions and adequate interventions to help adolescents cope with the ongoing risk of terror in order to limit its adverse effects. Given the wide range of the study along with the repeatedly documented gender differences in the types of psychological distress expressed, including clinically significant levels of oppositional and aggressive behavior along with feelings of hostility in a sizeable proportion of the adolescents, mental health actions need to be modulated accordingly to make them more effective.

Also, while a comparison of students from urban and rural locations with different levels of objective exposure to terrorist attacks confirms that the lower the exposure level and the more remote the area, the less young people experience mental health difficulties, the finding that higher levels of objective exposure are not systematically associated with higher levels of PTSS/D and other mental health problems calls for further investigation of the concept of exposure and differentiation of its components. Our findings clearly reveal that aspects that are specific to ongoing exposure to terrorism should be addressed more extensively in future research (e.g. cumulative effects, experienced risk of exposure to future events, etc.). For example, location (choice of living area) may in itself reflect an attempt to cope with (anticipated) terror-related risks and therefore reflect psychological vulnerabilities that merit further study. Importantly, our findings suggest that different dimensions of exposure such as the subjective experiences of threat need to be taken into account to account for related mental health outcomes, an aspect we are currently investigating. Thus, a multidimensional approach to the ‘exposure to terror’ concept is recommended to shed further light on the variability in PTSD and internalizing and externalizing difficulties among adolescents. As has been

evidenced in other fields of developmental psychopathology, for example as currently experienced in the ongoing multi-site European FACE© program (for 'Facilitating Adjustment of Cognitions and Emotions') for youth with emotional and behavioral problems and their families, addressing both subjective and more dynamic personal characteristics tends to be fundamental in strengthening resiliency when facing multiple, ongoing life stresses (Celestin, Celestin-Westreich, 2006; Celestin-Westreich et al., 2005). From this perspective, coping is a strong potential candidate to deepen our understanding of how youth adjust cognitively and emotionally to experiences of persistent sources of stress, an aspect that has recently begun to be investigated in the context of exposure to terrorism (Gil, 2005; Somer, Ruvio, Soref and Sever, 2005; Zeidner, 2005). Finally, as our current results further indicate, age may exert multidirectional influences depending on the correlation between the combined effects of, on the one hand, increased cognitive, emotional, and behavioral mastery over time and, on the other hand, longer and potentially more intense exposure. Prevention and/or intervention programs aimed at fostering adolescents' adjustment processes should be modulated accordingly in order to help them cope more effectively with the stresses and consequences of ongoing exposure to terror risks.

REFERENCES

Achenbach, T. M., Rescola, L. A. (2001). Manual for the ASEBA School-Age Forms and Profiles. Burlington, VT: University of Vermont, Research Center for Children, Youth and Families.

Braun-Lewensohn, O., Celestin-Westreich, S., Verte, D., Celestin, L. P., Ponjaert-Kristoffersen, I. (2009). Mental health outcomes as a function of different types of exposure to ongoing terrorism. *Journal of Youth and Adolescence, 38, 6,* 850-862. DOI 10.2007/s10964-008-9305-8.

Celestin L. P., Celestin-Westreich S. (2006). Enhancing cognitive-emotional adjustment in bipolar youth and their families: rationale and initial outcome of the FACE© program. *Journal of Affective Disorders, 91* Supp.1, S74-5.

Celestin-Westreich S., Celestin L. P. (2005). [Families' cognitive-emotional adjustment processes when facing Attention-Deficit/Hyperactivity Disorder] *Annales Médico-Psychologiques* (in press, available online 23 November 2005).

Celestin-Westreich S., Celestin L. P., Van Gils Y., Ponjaert-Kristoffersen I. (in press). How to FACE© sibling violence: pathways from feud to friend. In: A. Dillen (ed.). Violence in family relations. Leuven.

Derogatis, L. R. (1993). Brief Symptom Inventory Administration, Scoring and Procedure Manual. Minneapolis: NCS Pearson, Inc.

Frydenberg, E., Lewis, R. (1993). *Adolescent Coping Scale Administrator's Manual.* Melbourne: The Australian Council for Educational Research Ltd.

Gil S. (2005). Coping style in predicting posttraumatic stress disorder among Israeli students. *Anxiety, Stress and Coping, 18 (4),* 351-360.

Hoven, C. W., Duarte, C. S., Lucas, C. P., Mandell, D. J., Wu, P. and Rosen, C. (2002). Effects of the World Trade Center Attack on NYC Public School Students: Initial Report of the New York Board of Education. New York: Applied Research and Consulting, LLC and Columbia University Mailman School of Public Health and New York State Psychiatric Institute.

Hoven, C. W, Duarte, C. S., Ping, W., Erickson, E. A, Musa, G. J, Mandell, D. J (2004). Exposure to trauma and separation anxiety in children after the WTC attack. *Applied Developmental Science, 8 (4),* 172-183.

Hoven, C. W., Durate, C. S., Lucas, C. P., Wu, P. Mandell, D. J., Goodwin, R. D., Cohen, M., Balaban, V., Woodruf, B. A., Bin, F. Musa, G. J., Mei, L. Cantor, P. A., Aber, J. L., Cohen, P., Susser, E. (2005). Psychopathology among New York City public school children 6 months after September 11. *Archive of General Psychiatry, 62,* 545-552.

Joshi, P. T., and O'Donnell, D. A. (2003). Consequences of child exposure to war and terrorism. *Clinical Child and Family Psychiatry Review 6 (4),* 275-292.

Laufer, A., Solomon, Z. (2003). Coping of Israeli children with the events of terror. The role of values and the social support in the area of the stressful events. In M. Caspi (Ed.): *Children's anxiety as result of the terrorist events*. Jerusalem: Israeli Knesset, research and information center.

Muldoon, O., Cairns, E. (1999). Children, young people, and war: Learning to cope. In Frydenberg, E (Ed.): *Learning to cope. Developing as a person in complex societies*. Oxford: University press.

Pat Horenczyk, R. (2003). The impact of ongoing terrorist attacks on the adolescent population in Jerusalem and the Jerusalem area. In M. Caspi: *Children's anxiety as a result of the terrorist events.* Jerusalem: Israeli Knesset, research and information center.

Pat Horenczyk, R. (2005). Posttraumatic distress in adolescents exposed to ongoing terror: Findings from school-based screening project in the Jerusalem Area. In Y. Daniely, and D. Brom (Eds.): *The trauma of terrorism sharing knowledge and shared care*. Haworth Press.

Pat Horenczyk, R., Doppelt, O. (2005). Screening for Post Traumatic Distress among adolescents who are exposed to ongoing terror in Israel. In Somer E. and Bleich A. (Eds.), *Mental Health in Terror's Shadow: The Israeli Experience.* Ramot Press. Tel-Aviv University.

Pat Horenczyk, R., Abramovitz, R., Brom, D, Doppelt, O., Daie, A., Horowitz, S., Baum, N., Chemtob, C. M. (2007). Adolescent exposure to recurrent terrorism in Israel: Posttraumatic distress and functional impairment in adolescents in Israel. *American Journal of Orthopsychiatry, 77, 1,* 76-85

Pat Horenczyk, R., Doppelt, O., Miron, T., Brom, D., Chemtob, C. M. (2007). Risk taking behaviors among Israel adolescents exposed to recurrent terrorism: Provoking danger under continuous threat? *American Journal of psychiatry, 164,* 66-72.

Pat Horenczyk, R., Schiff, M., Doppelt, O. (2006). Maintaining routine despite ongoing exposure to terrorism: A healthy strategy for adolescents? *Journal of Adolescence Health, 39 (2),* 199-205.

Pfefferbaum, B., Nixon, S., Krug, R., Tivis, R., Moore, V., Brown, J., Pynoos, R., Foy, D. Gurwitch, R. H. (1999). Clinical needs assessment of middle and high school students following the 1995 Oklahoma City bombing. *American Journal of Psychiatry, 156,* 1069-1074.

Pfefferbaum, B., Nixon, S., Tucker, P., Tivis, R., Moore, V., Gurwitch, R. H., Pynoos, R., Geis, H. (1999). Posttraumatic stress responses in bereaved children after the Oklahoma City bombing. *Journal of the American Academy of Child and Adolescent Psychiatry, 38,* 1372-1379.

Pfefferbaum, B., Nixon, S.J., Tivis, R. D., Doughty, D. E., Pynoos, R. S., Gurwitch, R. H., Foy, D.W. (2001). Television exposure in children after a terrorist Incident. *Psychiatry, 64 (3),* 202-211.

Pfefferbaum, B., Doughty, D. E., Peddy, C., Patel, N., Gurwitch, R., Nixon, S. J., and Tivis, R. D. (2002). Exposure and peritraumatic response as predictors of postraumatic stress in children following the 1995 Oklahoma City bombing. *Journal of Urban Health, 79 (3),* 354-361.

Pfefferbaum, B., North, C. S., Doughty, D. E., Gurwitch, R. H., Fullerton, C. S., Kyula, J. (2003). Posttraumatic stress and functional impairment in Kenyan children following the 1998 American embassy bombing. *American Journal of Orthopsychiatry, 73 (2),* 133-140.

Saigh, P. A., Yasik A. E et al., 1999. Child-adolescent posttraumatic stress disorder: Prevalence, risk, factors, and co-morbidity. P. A. Saigh and J. D. Bremner (Eds.). *Posttraumatic Stress Disorder: A Comprehensive Text (pp. 18-43).* NY: Allyn and Bacon.

Schiff, M. (2006). Living in the shadow of terrorism: Psychological distress and alcohol use among religious and non-religious adolescents in Jerusalem. *Social Science & Medicine, 62*, 2301–2312

Schiff, M., Benbenisty, R., McKay, M., DeVoe, E., Liu, X. (2006). Exposure to terrorism and Israeli youth's psychological distress and alcohol use: An exploratory study. *American Journal of Addiction.*

Solomon, Z., Laufer, A., Lavi, T. (2005). In the shadow of the Intifada: Exposure and Post traumatic reactions among adolescents in Israel. In Somer E. and Bleich A. (Eds.), *Mental Health in Terror's Shadow: The Israeli Experience.* Ramot Press. Tel-Aviv University.

Solomon, Z., Lavi, T. (2005). Israeli youth in the second Intifada: PTSD and future orientation. *Journal of the American Academy of Child and Adolescent Psychiatry, 44, (11),* 1167-1175.

Somer E., Ruvio A., Soref E., Sever I. (2005). Terrorism, distress and coping: high versus low impact regions and direct versus indirect civilian exposure. *Anxiety, Stress and Coping, 18 (3),* 165-182.

Thabet, A. A, Abed, Y., Vostanis, P. (2004). Comorbidity of PTSD and depression among refugee children during war conflict. *Journal of Child Psychology and Psychiatry, 45 (3),* 533-542.

Thabet, A. A, Vostanis, P. (2005). Child mental health problems in the Gaza Strip. *The Israeli Journal of Psychiatry and Related Sciences, 42 (2),* 84-87.

Trappler, B., Friedman, S. (1996). Posttraumatic stress disorder in survivors of the Brooklyn Bridge shooting. *American Journal of Psychiatry, 153*, 705-707.

Zeidner, M. (2005). Contextual and personal predictors of adaptive outcomes under terror attack: The case of Israeli adolescents. *Journal of Youth and Adolescents, 34, (5),* 459-470.

Zilber, N., Auerbach, J., Lemer, J. (1994). Israeli norms for the Achenbach Child Behavior Checklist: Comparison of clinically-referred and non-referred children. *Israeli Journal of Psychiatry and Related Sciences, 31, (1),* 5-12.

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Chapter 4

THE EFFECTS OF POSTPARTUM DEPRESSION ON THE MOTHER-INFANT RELATIONSHIP AND CHILD DEVELOPMENT

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ABSTRACT

During the last two decades there has been an increase in research focusing on the effects of maternal depression on the mother infant bond. Research in this field has apparently developed out of; a recognition of a relatively higher prevalence of postpartum maternal depression than once believed and recurring observations of differences in mother/infant relationships or infant behavior associated with maternal postpartum depression.

The infant behaviors that have been implicated as resulting from this theoretically compromised mother infant relationship have included slight, transient effects on sociability and affective sharing to results suggesting significant increases in irritability, cognitive delays, behavioral problems, and difficulties with attachment, among others. Longitudinal data suggest that while some problems appear to resolve

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relatively quickly, there are some characteristics that endure long after infancy. Specifically, some researchers have argued that children and even adolescents who experienced problems bonding with their depressed mothers are at significantly greater risk of experiencing a variety of psychological symptoms, including depression, anxiety, and problems with addiction. Again, this view is controversial and others in the field link these increased risks to other factors such as low socioeconomic status or marital discord. While there appears to be consensus among most researchers in recognizing that there are likely effects of postpartum depression on mother infant bonding that affect early development, there is little consensus regarding the specific details of these effects.

In our review, we will systematically analyze research focusing on the effects of postpartum depression on the mother infant bond and those variables that are believed to be affected from potential difficulties in this bond.

INTRODUCTION

The mother infant bond has long been recognized as being crucial in multiple areas of infant development (Beardslee et al., 1983; Cummings and Cicchetti, 1990). The value that is placed on this relationship is recognized throughout the world and across socioeconomic status (Narayanan, 1987). The multitudes of variables that are thought to be influenced by the mother infant relationship are impressive, even staggering. Research suggests that, depending on the level of bonding or lack thereof, infants may suffer outcomes such as cognitive deficits, interpersonal difficulties, or the development of long-standing psychopathology (Downey and Coyne, 1990; Gunning et al., 2004. Others have argued that the effects are likely much more subtle, but certainly still important. During the last two decades there has been an increase in research focusing on, possibly one of the most prevalent threats to the mother infant bond, maternal depression. Research in this field has apparently developed out of the recognition of a higher prevalence of postpartum maternal depression than once believed and recurring observations of differences in mother/infant relationships or infant behavior resulting from maternal postpartum depression.

The infant behaviors which have been implicated as resulting from this theoretically compromised mother infant relationship have included slight, transient effects on sociability and affective sharing to results suggesting significant increases in irritability, cognitive delays, behavioral problems, and

difficulties with attachment, among others (Sharp et al., 1995; Murray et al., 1996).

Longitudinal data suggest that while some problems appear to resolve relatively quickly, there are select characteristics that endure long after infancy. Specifically, some researchers have argued that children, adolescents, and even young adults who experienced problems bonding with their depressed mothers are at significantly greater risk of experiencing a variety of psychological symptoms, including depression, anxiety, and problems with addiction (Ensminger et al., 2003; Peisah, Brodaty, Luscombe, and Anstey, 2004; Timko et al., 2008). Again, this view is controversial and others in the field link these increased risks to factors other than maternal depression, such as low socioeconomic status or marital discord. While there appears to be consensus among most researchers in recognizing that there are likely effects of postpartum depression on mother infant bonding that affect early development, there is little consensus regarding the specific details of these effects.

In this review, we will systematically analyze research focusing on the effects of postpartum depression on the mother infant bond and those variables which are believed to be affected from potential difficulties in this relationship. In this report, we will review systematically postpartum depression and its effect on the mother-infant bond.

Maternal depression has received increasing attention during the past several years due to interest in the possible implications for both mother and child. However, confounding variables that may also affect children of depressed mothers present a limitation that systematically appears in the maternal depression literature. For example, results from various studies suggest that the following variables may all have an effect on children's well-being, regardless of maternal depression; marital status, socio-economic status, low social support, maternal daily stressors, family adversity, quality of childcare (Belsky, 1984; Downey and Coyne, 1990). Furthermore, there are difficult issues involved in trying to identify the effects of depression when the onset of symptoms can be vague or difficult to identify. While some mothers with depression only experience depressive symptoms during the postpartum period, there are also mothers who meet diagnostic criteria for depression throughout both the prepartum and postpartum period (Dietz, Williams, Callaghan, Bachman, Whitlock, and Hornbrook, 2007). Given that there are distinct consequences for infants and children exposed to maternal depression during the prenatal period, it is often difficult to ascertain what is a product of

postpartum maternal depression instead of maternal depression with an earlier onset during pregnancy.

While a large number of the outcome variables associated with depression during the prenatal period have focused on physiological indices related to prenatal exposure to elevated neurotransmitters and cortisol levels (Davis, et al., 2007; Field, et al., 2004; Field, 1995; Jones, et al., 1998; Lundy, et al, 1999), the effects of postpartum depression have tended to emphasize the role of compromised bonding between infant and mother and resulting psychological and cognitive outcomes.

To understand the importance of identifying maternal depression and the possible effects on both mother and child, it is critical that one first understands the prevalence of this condition. While it has been argued that perinatal depression is likely grossly underreported, estimates suggest that 8% to 52% of women experience postpartum depression. When one adds those women with children who have experienced depressive symptoms, that estimate consistently jumps to over 50% of women (Baker-Ericzen et al., 2008; Horowitz, 2007; McLennan and Offord, 2002).

The World Health Organization has posited that for women of child-bearing age, depression is the leading cause of disease burden worldwide (World Health Organization, 2001). And while unfortunate, researchers have argued that mothering young children increases the risk of depression and that, childbirth in particular, is the time when women are most prone to develop psychiatric disturbance (Brockington and Kumar, 1982; Murray and Lopez, 1996).

In addition, there appears to be specific risk factors associated with those mothers of young children who endorse the highest rates of depression, including; never being married, achieving less than a high school education, under 25 years of age, specific racial status, and low socioeconomic status (Hall, 1990). Surveys focusing on women bringing in children for pediatric care have estimated that 15% to 40% of mothers report depressive symptoms (Kahn, Wise, Finkelstein, Bernstein, Lowe, and Homer, 1999; Kemper, 1994).

Given that maternal depression borders on epidemic proportion and considering the fact that when we are able to recognize depression and treat it effectively, the duration may be reduced significantly, there is increasing need to understand maternal depression and the outcomes that may result from depression in both mother and child (Beck and Gable, 2000).

The description of maternal depression varies significantly in the literature. Defining maternal depression varies from self-reports, subjective ratings from clinicians or family members, to structured clinical interviews.

In addition, women who are included in maternal depression studies vary from individuals who have suffered from severe depressive symptoms for years to others who appear to have more transient mild symptoms of depression.

Lastly, it is often unclear whether the symptoms of depression that are reported in the women with depression during the perinatal period are related to their perinatal status or represent long-term depression that simply carries over into the perinatal period. The unifying theme for the studies presented in this chapter is that they reflect a wide range of outcome variables that are thought to result from maternal depression.

MATERNAL DEPRESSION OUTCOME VARIABLES

Physical Health and Injury

Over the years, researchers have uncovered a number of physical differences which appear to distinguish offspring of depressed mothers compared to those of non-depressed mothers. Many of these characteristics appear as early as infancy. Among these are elevated heart rates associated with sympathetic arousal during interactions with their depressed mothers (Field, 1984) and lower vagal tone suggestive of lowered parasympathetic activity during interactions (Porges et al., 1982), both suggesting an elevated degree of stress in these infants with their mothers. While some argue that these characteristics may be inherent in these children from birth, there are compelling findings suggesting that interaction with the depressed mother exacerbates physiological deficits. For example, a number of these physiological indices are *not* present in infants when they are separated from their mothers and observed with strangers, even when their external observable behavior is unchanged. However, there are other measures which appear to be more chronic, regardless of the presence of the depressed mother during assessment. . For example, infants with depressed mothers exhibit elevated cortisol levels across multiple measurement times, suggesting that infants most likely experience chronic stress (Gunnar et al., 1984; Tennes, Downey and Vemadakis, 1977). Dawson, Frey, Self, et al. (1999) furthered the argument that there are likely static physiological conditions in these infants leading to increased stress and chronic negative outcomes. Specifically, the researchers hypothesized that the atypical brain activity that has been observed in infants of depressed mothers may reflect a tendency to experience more frequent and

possibly more intense negative affect in addition to a lack of appropriate self-regulatory strategies that are used to modulate negative emotions. Furthermore, the reduced frontal brain activation (EEG) is likely associated not only with cognitive deficits that will be addressed later, but also contribute to difficulties with inhibition and emotional regulation (Ashman, Dawson and Panagiotides, 2008). That infants of depressed mothers may be predisposed to experience more frequent and greater negative affect while also lacking sufficient self-regulatory strategies to modulate these negative emotions lends further support to the idea that there may be multiple factors pointing towards chronic stress in infants of depressed mothers.

This perceived relationship between maternal depression and increased stress in their offspring has been of great interest to researchers and has been studied across multiple physical outcome variables. One condition that has been studied in depth is asthma. Given that asthma is considered by many to be a stress-sensitive illness, researchers have questioned the relationship between asthma and psychological distress, specifically focusing on depression (Shalowitz, Berry, Quinn and Wolf, 2001). The autonomical dysregulation model of asthma proposed by Miller and Wood (1997) suggests that depressive states involve autonomic nervous system dysregulation that may be associated with vagally mediated asthma episodes (Waxmonsky et al., 2006). This model is consistent with past studies which have found a link between high internalizing symptoms and asthma severity (Goodwin et al., 2004; Wamboldt et al., 1998) and research suggesting higher than average rates of depression in children and those children's mothers who present at hospitals for asthma symptoms (Waxmonsky et al., 2006). Given these findings, a natural question that arises is whether children of depressed mothers may be at greater risk for developing asthma and/or exhibit greater asthma activity. While it remains controversial whether there is a direct relationship between maternal depression and asthma disease activity, research findings suggests that there is higher prevalence of asthma in children of depressed mothers and that there appears to be an indirect relationship between maternal depression and increased child internalizing symptoms (e.g. depressive and anxiety symptomatology) that result in increased asthma activity (Lim, Wood and Miller, 2008; Shalowitz, Berry, Quinn and Wolf, 2001). Furthermore, there is strong evidence that maternal depression is associated with internalizing disorders (Beardslee, Versage and Gladstone, 1998; Weissman et al., 2006), suggesting that maternal depression may play an important role in child asthma as well as a number of other conditions which involve internalizing symptoms.

A different, possibly more controversial, area of research in maternal depression focuses on issues such as the increased prevalence of accidents, injuries, and doctors' appointments in children of depressed mothers. There are numerous studies suggesting overall poorer physical health in children of depressed mothers, greater number of headaches and stomachaches, higher rates of medical problems, and even higher rates of mortality in the offspring of depressed parents in longitudinal studies following participants into middle age (Weissman, Gammon et al., 1987; Weissman, Wickramaratne et al., 2006; Zuckerman, Stevenson and Bailey, 1987). However, there is slightly more controversy surrounding whether children of depressed mothers have more accidents, more physical injuries and greater frequency of doctor's visits.

Lewsinsohn, Olino, and Klein (2005) found that children of mothers with depression had greater occurrences of treatment for illness. Schwebel and Brezausek (2008) found that chronic levels of severe maternal depression were associated with increased risk of injury in infants and toddlers (up to age three). This finding was robust even when the researchers controlled for SES, sex of the child, child temperament, externalizing behavior, and parenting. It should be noted, however, that the risk for injury was not noted when mothers endorsed less severe symptoms of chronic maternal depression. Brown and Davidson (1984) also demonstrated a higher rate of accidents in children of depressed mothers as compared with children of nondepressed mothers. However, they point out that other studies noting similar results have introduced the possible role of maternal psychotropic medication use at the time of the child's injury, reporting that 26% of the depressed mothers were receiving prescribed psychotropic medication at the time of injury (Hyman, 1978). Others have argued that a more feasible explanation of increased medical care and increased injuries in children of depressed mothers focuses on the fact that these children may be more likely to have growth failure (both height and weight) due to "failure to thrive" (O'Brien et al., 2004). Past studies suggest that low maternal self-esteem and depressive mood are important factors associated with growth failure (Evans, Reinhart and Succop, 1972). These characteristics often viewed as a failure to thrive appear to be related to poor maternal affect and poor child-rearing. However, the relationship between maternal depression and infant growth outcomes is poorly understood with possibilities including; infant growth 'failure' may negatively affect maternal mood, children of mothers with depression may be more likely to be identified with "failure to thrive" due to increased health-seeking behaviors by the mother, difficulty breastfeeding and poor mother-child interaction, or the

established relationship between antenatal depression and low infant birth weight (Stewart, 2007).

Cognition and Language

While many of the physical outcome variables studied in the maternal depression literature are assessed early in development, often at infancy, the outcome measures associated with cognition and language development are often assessed later in development. While there appears to be ample evidence suggesting that children of mothers with depression may exhibit developmental delays and some degree of cognitive and functional impairrment, there is quite a bit of variability in the literature (Beck, 1998). There are clearly certain situations that may lead to different outcomes or select variables that lead to diverse effects. Among these, researchers have identified two main variables that may affect outcome the most: the age of the child at which the onset of maternal depressive symptoms appear and the gender of the child. Some research results suggest that the first two years are the most critical in terms of mother/infant bonding and the potential impairment of cognitive development (Cogill et al., 1986). Others argue that cognitive impairments are less a function of timing and more likely associated with the gender of the offspring. For example, poor cognitive performance resulting from maternal depression has been found to be selectively limited to sons in some studies, specifically finding that boys of depressed mothers have poorer educational attainment (Ensminger et al., 2003). Others argue that while there are clearly cognitive and linguistic variables that appear to be affected by maternal depression, it is less clear whether this relationship is direct or mediated by another variable. For example, some studies find direct associations between poorer cognitive functioning and maternal depression (Teti et al., 1995) but others show an association only in the context of family adversity or, as mentioned previously, only for boys (Murray et al., 1996; Sameroff et al.,1993).

More general findings have appeared across genders. There are widespread language difficulties and specific cognitive deficits that span early childhood to late adolescence. In terms of language, persistent maternal depression has been associated with delayed language development (e.g. counting objects, naming colors) in children approximately three years of age (Kahn, Zuckerman, Bauchner, Homer and Wise, 2002). Other studies assessing the same age range have noted poor verbal comprehension, poor

linguistic functioning, and difficulties with expressive language (NICHD Early Child Care Research Network, 1999). In addition, there are a number of cognitive outcome measures that may surface later in development, possibly after the mother's depression has resolved. For example, children who have been exposed to maternal depression at age three exhibit deficient reading even at age eight (Hopkins, Marcus, and Campbell, 1984). These difficulties can also persist much later, with studies suggesting that children whose mothers have had persistent depression are more likely to drop out of high school (Ensminger et al., 2003).

Failure to complete school is not the only education-related variable that has been noted in the literature. Children of depressed mothers tend to show more difficulty with school-readiness (NICHD Early Child Care Research Network, 1999). From teacher reports, these children are more often described as more aggressive, angry, defiant, and uncooperative than are other children (Alpern and Lyons-Ruth, 1993). However, it has been argued that the more external, behavioral problems that have been repeatedly noted by teacher ratings in the literature tend to minimize internalizing symptoms, often reported by family members, such as fear, anxiety, and physical complaints (Bird, Gould and Staghezza, 1992). Instead, given the teachers' instructional role, they are more likely to report these children's behaviors such as aggression, hostility, and hyperactivity, which disrupt classroom routines.

While there are multiple theories about why maternal depression is related to compromised cognitive and linguistic development, it has been suggested that it is likely due to a combination of factors. Many of these include indirect influences that may be more related to the child's environment in the home of a depressed mother (e.g. high stress, limited resources, etc.) while others focus more on the relationship between the mother and child. These mother/child variables range from poor modeling of enriched language and engaged problem solving by the depressed mother to more general issues such as reduced maternal sensitivity to the child's needs and reduced level of engagement with the child (Hay, 1997; NICHD Early Child Care Research Network, 1999).

Psychological Effects and Behavioral Correlates

The last facet of development that has arguably received the most attention in the maternal depression literature is the psychological and behavioral correlates of exposure to maternal depression.

While there is definite controversy in the literature regarding the types and the extent of pathology that may be associated with maternal depression, the majority of literature suggests that there are likely at least transient psychological effects and behaviors that result from exposure to maternal depression. For decades, researchers have highlighted the relationship between parental depression and higher rates of depression in their offspring. These rates vary significantly from study to study, 10% to 33% in some studies, 2-6 times greater than in control groups in other studies, with all noting a significant increase in the odds of these children becoming depressed at some point in their life (Beardslee, Keller and Klerman 1985; Downey and Coyne, 1990; Lieb et al., 2002; Weissman, Prusoff, Gammon, Merikangas, Leckman and Kidd, 1984; Weissman et al., 1987; Welner, Welner, Williams and Corrigan, 1992). However, the increase in psychopathology is not limited to depression. Children of depressed mothers are also more likely to suffer from other types of clinical disorders including anxiety disorders, attention deficit hyperactivity disorder, conduct disorder and substance abuse, among others (Fendrich, Warner and Weissman; 1990; Hammen, Burge, Burney and Adrian, 1990; Orvaschel, Walsh-Allis and Ye, 1988). In addition, children of depressed mothers, not only have higher rates of psychopathology, but receive higher levels of treatment for psychiatric disturbance (Klein, Clark, Dansky and Margolis, 1988; Orvaschel, Welsh-Allis and Weijai, 1988; Weissman, 1988). In longitudinal studies spanning 10-20 years, children of depressed mothers have been found to use more mental health resources during their lifetime and were more likely to report that they had obtained mental health assistance in the past year (Weissman et al., 2006).

Others who have studied the relationship between maternal depression and pathology in their children agree that there is an increase in psychopathology, however, it appears to vary as a function of exposure and chronicity. When mothers/offspring are assessed at two separate time periods (e.g. spanning months to years), children whose mothers reported depressive symptoms at both ages exhibited significantly elevated rates of hostile behavior problems in the classroom and at home. However, children of mothers who were previously, but not currently, depressed exhibited significantly more anxious and withdrawn behavior at school and at home, while, lastly, children of recently depressed mothers were noted as exhibiting more hyperactivity and demanding behavior.

These higher rates of psychopathology have been noted not only when compared to controls, but also when compared to children of non-depressed mothers or mothers with “medical conditions” (Weisman et al.,1984; Zelner

and Rice, 1988). Furthermore, these differences appear to persist over time, even decades. In studies spanning 25-32 year follow-ups of adult children of depressed mothers, researchers have found that their risk for specific disorders such as depression, anxiety, social impairment, and substance disorder were significantly increased compared to controls (Ensminger et al., 2003; Peisah, Brodaty, Luscombe and Anstey, 2004). And often, the emergence of pathology did not surface until years following the initial exposure to maternal depression. For example, the period of highest incidence for major depressive disorder was found to be between ages 15 and 20 years (Weissman, Wickramaratne, Nomura, Warner, Pilowsky and Verdeli, 2006). Outcome variables outside the realm of diagnosable mental illness have also been found, specifically in terms of behaviors that appear to be relatively latent until adolescence when children of depressed mothers are described as showing elevated patterns of defiant, rebellious, and withdrawn behavior (Weissman and Siegel, 1972).

One interesting facet of this area of research is the control groups that have been selected as comparison groups for the mothers with depression. Even when researchers use psychiatric comparison groups, such as mothers with schizophrenia, poor affect regulation and poor affective development continue to appear at greater levels in offspring of mothers with depression (Cytryn, McKnew, Bartko, Lamour and Hamovitt, 1982; Sameroff and Seifer, 1983). While negative affective outcome variables appear to be greater in children of depressed mothers compared to other psychiatric populations, other studies suggest that the children of depressed parents cannot usually be distinguished from the children of schizophrenic parents on behavioral or attentional measures (Orvaschel, Weissman and Kidd, 1980).

These detrimental effects of perceiving one's mother to be depressed have even been witnessed when non-depressed mothers have simply simulated depression. The infants of the mothers with "simulated depression" quickly exhibit high levels of distress. It should be noted that research in "simulated depression" suggests that the distressed behavior observed by the infants was selectively limited to the children of the non-depressed mothers, while the infants of the depressed mothers appeared to be rather unaffected. Results were interpreted as suggesting that infants of depressed mothers may become accustomed to flattened affect and lower activity, decreasing their distress over time (Cohn and Tronick, 1983; Field, 1984). What may be one of the least suspected findings in these studies was that the infants of clinically depressed mothers were not only negatively affected by the depressed mood of their mothers, but they also appeared to have a negative effect on the nondepressed

mothers participating in the study (Field et al., 1988). Specifically, the nondepressed mothers (blind to the infants' group) appeared to exhibit more depressed symptoms and less optimal interaction with the infants of depressed mothers.

The finding which suggests that infants of depressed mothers actually affected the non-depressed mothers in a negative way is not surprising considering the behaviors that often characterize these offspring. The types of behaviors that have been described in infants and young children of depressed mothers include; disengaged and intrusive interaction styles, withdrawn behavior, looking away, and reduced positive affect (Cohn, Matias, Tronick, Connell and Lyons-Ruth, 1986). A substantial literature has focused on these variables and how they affect relationships. Specifically, there has been research focusing on the relationship within and outside of the mother/child dyad, with both types of relationships thought to be affected by exposure to maternal depression. Within the dyad, depressed mothers and their infants have been shown to have less positive interaction (Field, 1980). Unfortunately, the reduction in positive interaction appears to generalize beyond the interactions between infants with their depressed mothers to others, including non-depressed mothers with whom the infants were not familiar. These findings suggest that the infants' depressed style of interacting with their mothers may generalize to nondepressed adults (Field et al., 1988). There is also evidence that these children have more difficulty in their relationships with their siblings and peers, specifically, children of depressed mothers have been described as exhibiting excessive rivalry with peers and siblings for attention (Weissman, Paykel and Klerman, 1972) and impatient, deviant, and withdrawn behavior in their interactions (Weintraub, Neale and Liebert, 1975).

Other behaviors that have been noted in offspring of mothers with depression that are associated with altered patterns of interactions with others include increased self-regulatory behaviors such as head and gaze aversion which are thought to develop out of a desire to reduce the negative affect that is experienced when mothers are unresponsive.

Research focusing on children of depressed mothers consistently illustrates this widespread difficulty regulating emotions. For example, children whose mothers reportchronically high levels of depression have a difficult time learning to control behavior and modulate impulses when upset (Zahn-Waxler et al., 1990). This poor modulation of emotions is exhibited in increased aggression and acting out. Specifically, Zahn-Waxler et al. (1990) report that toddlers of depressed mothers showed increased out-of-control aggression when interacting with peers and were rated higher on externalizing

problems at the age of five. These externalizing behaviors have been noted in multiple studies, often characterized by significantly higher rates of hostile behavior at home and school.These behaviors appear to persist and have been noted in studies focusing on older children also, in which offspring of depressed mothers have been found to have more adjustment problems in early and middle childhood (Hammen, 1992; Lyons-Ruth, Easterbrooks and Cibelli, 1997).

In terms of the etiology of these aberrant behaviors, there has been ongoing debate whether psychological symptoms that appear in children of depressed mothers represent genetic contribution, effects of parenting styles of the depressed mother or whether there may be modeling in terms of the child adopting traits and attributes from the depressed mother. Recent research suggests that it is likely that multiple factors contribute to psychological attributes in children of depressed mothers. Lim and colleagues (2008) interviewed children and adolescents ages 7-17 and found a direct relationship between maternal depression and increased depressive symptomatology measured using the Children's Depression Inventory and the Child Depression Rating Scale-Revised (CDRS–R) and increased anxiety symptoms, both state and trait, using the State-Trait Anxiety Inventory for Children (STAIC-T; STAIC-S). In addition, maternal depression indirectly affected these psychological variables via negative parenting (e.g. intrusiveness, neglect/ distancing, and harsh discipline). Kochanska, Kuczynski, Radke-Yarrow, and Darby-Welsh (1987) have also found that in terms of parenting, depressed mothers are less effective than nondepressed mothers in setting limits on their toddlers, and this was reflected in fewer compromise solutions to conflict solutions. Depressed mothers have also been found to be less likely to follow through when they do set limits, leading to less compliance and increased conflict between mother and child. This difficulty with compliance has been noted in a number of studies, with some noting higher rates of "passive noncompliance" associated with less mature expressions of age-appropriate interaction and autonomy (Kuczynski and Kochanska, 1990). Lastly, mothers with depression may tend to use more guilt in their interactions with the children when they are unable to persuade them to comply via more positive routes. Furthermore, evidence suggests that there are long-standing effects of these guilt-inducing behaviors.

Children of well mothers show prototypic expressions of "adaptive guilt" which is thought to involve themes of responsibility and reparation. In contrast, expressions of guilt in children of depressed mothers have been described as aberrant, distorted, and unresolved, indicating that these children

may develop different patterns of guilt expression, and likely, may be made to feel guilty for different reasons from the control children (Zahn-Waxler, Kochanska, Krupnick and McKnew, 1990).

Some have speculated that the lack of consistency in parenting that is often seen in mothers with depression may exacerbate other behaviors that are often observed in this population. Specifically, behavioral problems (such as difficulty being managed, difficulty playing with other children, and having frequent tantrums) may result from both a genetic predisposition and parenting styles that do not foster proper affect regulation (Kahn, Zuckerman, Bauchner, Homer and Wise, 2002).

However, there is evidence that suggests that not all mothers with depression exhibit these deficits in parenting (Frankel and Harmon, 1996), and that the effects of maternal depression on children can be mediated by interventions and specific parenting techniques. For example, research suggests that mothers suffering from depression who engaged in parenting education had children who fared better on certain outcome measures. Specifically, mothers enrolled in parenting education focusing on anticipatory guidance techniques, or techniques which focus on anticipating children's emerging needs at different developmental stages, are believed to have children with fewer behavioral problems during early school-age years than mothers not receiving parent education.

These mothers were described as more proactive in their parenting and appeared to exhibit less negative affect, use less guilt in their parental interactions, have more secure attachments, and appeared to be more consistent with their young children (Campbell and Cohn, 1997; Zahn-Waxler et al.,1990).

CONCLUSION

During the last decade, there has been increased interest and concern about the prevalence of maternal depression. Researchers and policy-makers alike appear to recognize the importance of this condition and the far-reaching effects that maternal depression has on children and families. While not specific to only maternal depression, the U.S. Surgeon General has pointed out that the impact of maternal mental health on children is vastly under-recognized (Office of the Surgeon General, 1999).

It becomes clear when one systematically assesses the literature that there are social and practical limitations that have made research in the area of

maternal depression and the effects on offspring difficult. One of the primary barriers for researchers in their quest to understand maternal depression and the prevalence of this condition is the fact that depression, for many, carries a stigma. When one adds the fact that there are additional expectations about motherhood, in terms of mothers themselves believing that the period of time following the birth of their child should be filled with happiness and reward compounded by society placing these same expectations on mothers, the reporting of depression during this period is likely vastly underreported (O'Reilly, 2005). There is a significant amount of literature which reports that even if mothers would discuss their postpartum depression, there are multiple barriers in terms of having them adequately assessed by their physicians. There are a number of reasons that are reported by physicians to explain the lack of screening for depression. Some physicians are not aware of appropriate screening tools. Others worry that adding depression screening to their visits will be both time-consuming and expensive and, in the worst case, they may be put in a position where they have to make decisions about how to treat mothers with depression (Baker-Ericzen, Mueggenborg, Hartigan, Howard and Wilke, 2008; Seehusen, Baldwin, Runkle and Clark, 2005). Studies have shown that a large number of pediatricians acknowledge concern about addressing depression with new mothers due to possible judgments and stigma that may be associated with maternal depression. Physicians have argued that identification and assessment may be more feasible and desired if they had services to which they could refer these mothers. However, these doctors and other researchers have highlighted the point that even when mothers are successfully identified, they may be hesitant to seek assistance due to perceived judgment (Heneghan, Morton and DeLeone, 2007; Richards, 1990).

Even in ideal situations, when mothers are successfully identified and willing to seek treatment, new barriers arise in terms of accurately diagnosing and providing the proper treatment. Research suggests that postnatal depression is complex and likely involves a variety of subtypes that should be considered when determining treatment. Watson et al. (1984) suggest that women with postnatal depression could be classified into as many as six categories with others supporting this argument given the vast etiologies of depression during the postnatal period (Cooper and Murray, 1998).

These proposed different categories of postnatal depression have widespread implications in terms of treatment and research alike. In terms of treatment, researchers have argued that, given the different types of depression in this population, personalized client-centered approaches are the most

appropriate rather than a blanket approach of drug treatment paired with talk therapy (McIntosh, 1993).

In terms of research, different types of depression, levels of pathology, and duration of symptoms have all been found to effect outcome variables in different ways. When one tries to analyze the literature systematically, it quickly becomes apparent that these variables have not been well-assessed across studies and have likely led to much of the disparity in the literature. For example, the aspect of chronicity of symptoms alone is associated with very different outcomes in the mother/child relationship depending on when the symptoms first appear and how long those symptoms persist. Many researchers argue that parenting and bonding appears especially impaired when maternal depression symptoms are chronic; this is compared to women whose symptoms may be equally long in duration but are intermittent with breaks during which depressive symptoms remit (Ashman, Dawson, and Panagiotides 2008). Similarly, while some researchers have argued that the first six months of parenting and bonding appear to be selectively involved in poor outcome for children of depressed mothers, others have argued that negative consequences of maternal depression are specifically associated with cases in which symptoms persist beyond the immediate postpartum period, specifically following the first year of life and beyond (Horwitz, Briggs-Gowan, Storfer-Isser and Carter, 2007).

There are clearly a number of other limitations that enter the picture that may be even more difficult to extricate from the outcome variables that are associated with maternal depression. Probably the most notable variable is whether mothers who report postpartum depression may have had a predisposition for depression existing before the perinatal period. The question of whether offspring of mothers with postpartum depression may have genetic predisposition for depression remains (Sullivan, Neale and Kendler, 2000). Depression in the offspring of depressed parents is generally thought to be due to an interaction between genetic factors and environmental factors, including stressors in the family and the social context (Ensminger et al., 2003). However, approximately 40–50% of the relationship between mothers' and children's depressive symptoms are thought to be due to genetic linkage (Rende et al., 1993; Kendler, 1995). If this is so, one has to wonder what the extent of this predisposition may have on bonding or other outcome measures that are independent of their mother's symptomatology during early development or whether this predisposition is specifically exacerbated by their mother's depressive symptoms. The other issue that arises when this "interaction" between genes and environment is addressed involves the

difficulty that researchers encounter when they attempt to understand this proposed 50-60% of variance that is not due to genetics. The non-genetic variables that ideally should be assessed in studies focusing on the effects of maternal depression on mother infant bonding are extensive and often difficult to assess. For example, multiple studies suggest that the negative effects of maternal depression on their offspring may be due to what we view as more direct influences, such as responding to mothers' sadness or lack of energy or their difficulty parenting (Downey and Coyne, 1990; Cummings and Davies, 1994). However, children may also exhibit negative symptoms due to secondary variables that not only affect them negatively but also contribute to their mother's symptoms. These secondary variables range from social disadvantage, economic instability, dysfunctional family dynamics, low social support, maternal daily stressors, or insufficient childcare (Belsky, 1984; Downey and Coyne, 1990). Last, but not least, is the vastly under-examined role of marital status, level of marital discord, and the father's role in both the depressed mother's life and in the offspring's quality of life. Downey and Coyne (1990) once described the spouses of depressed mothers as "shadowy figures." There are multiple studies suggesting that the mates of depressed mothers may, in many cases, contribute to the pathology of the mother and to their offspring. Specifically, research suggests that mothers with depression may select mates with mental illness who contribute to pathology in offspring and who also contribute to marital discord (Downey and Coyne, 1990). However, there is equal, if not more, empirical support to suggest that "well" fathers may actually provide a buffer between negative effects of maternal depression on the child (Keller et al., 1986; Tannenbaum and Forehand, 1994). In addition, there are a wide range of studies suggesting that many of the negative outcomes associated with maternal depression appear to be selectively associated with mother's depression, but not with paternal depression, even when the father had been diagnosed with clinical depression. For example, behavioral problems, physical injury, physical illness, and a variety of other negative outcome variables have been found to be selectively involved in maternal depression but absent in cases of paternal depression (Kahn, Brandt and Whitaker, 2004; Peisah, Brodaty, Luscombe and Anstey, 2005). While this area of research is lacking, there is enough empirical support to suggest that future research focusing on the role of the spouse in both the depressed mother's life and the life of the offspring is warranted.

CONCLUDING REMARKS

Maternal depression is a condition that has received increasing attention over the past few decades. What appears consistent in the literature is the fact that more must be done in terms of treatment and research in this population. What also appears clear in the literature is that there are multiple layers of barriers that often stand in the way of achieving research and treatment goals with this population. Multiple studies suggest that fear of stigma and embarrassment related to maternal depression may be two of the greatest barriers to getting assistance to this population. While the ideal solution to these barriers would be to reduce stigma and be accepting of maternal depression, very little progress towards this goal has been achieved over the past few decades. As researchers and policy makers work toward educating the public about maternal depression, the treating clinicians may have to focus on getting mothers to seek help for the benefit of their offspring and for the benefit of their relationship with their children. There is substantial evidence, spanning decades, that suggests that the children of depressed mothers pay a great cost in terms of their physical, cognitive, and psychological development for untreated maternal depression. There is also a wealth of literature suggesting that the maternal/child bond is typically compromised whether acutely or chronically as a result of maternal depression. It becomes quickly apparent that new attempts at intervention are needed to help get mothers and their offspring get the assistance they need. Nylen and colleagues (2006) captured the needs of this population when they wrote, "The challenge now is to devote continued attention to process and outcome variables as well as to creative manners of designing and implementing interventions such that the propensity of women and infants in need of help are able to access and receive quality mental health services."

REFERENCES

Alpern, L.,and Lyons-Ruth, K. (1993). Preschool children at social risk: Chronicity and timing of maternal depressive symptoms and child behavior problems at school and at home. *Development and Psychopathology, 5*, 371-387.

Ashman, S. B., Dawson, G., and Panagiotides, H. (2008). Trajectories of maternal depression over 7 years: Relations with child psychophysiology

and behavior and role of contextual risks. *Development and Psychopathology, 20*, 55-77.

Baker-Ericzen, M. J., Mueggenborg, M. G., Hartigan, P., Howard, N., and Wilke, T. 2008). Partnership for Women's Health: A new-age collaborative program for addressing maternal depression in the postpartum period. *Families, Systems, and Health, 26*, 30-43.

Beardslee, W. R., Bemporad, J., Keller, M. B., and Klerman, G. L. (1983). Children of parents with major depressive disorder: A review. *American Journal of Psychiatry, 54,* 1254-1268.

Beardslee, W. R., Keller, M. B., and Klerman, G. L. (1985). Children of parents with affective disorders. *International Journal of Family Psychiatry, 6*, 283-299.

Beck, C. T. (1998). A checklist to identify women at risk for developing postpartum depression. *Journal of Obstetric, Gynecologic, and Neonatal Nursing, 27,* 39-46.

Beck, C. T., and Gable, R. K. (2000). Postpartum Depression Screening Scale: Development and psychometric testing. *Nursing Research,49,* 272-282.

Belsky, J. (1984). The determinants of parenting: A process model. *Child Development, 55,* 83-96.

Brockington, I. F. and Kumar, R. (1982). *Motherhood and mental ill*ness. London: Academic Press.

Brown, G. W. and Davidson, S. (1978). Social class, psychiatric disorder of mothers and accidents to children. *Lancet, 1,* 378.

Chilcoat, H. D. and Breslau, N. (1997). Does psychiatric history bias mothers' reports? An application of a new analytic approach. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*, 971-979.

Cohn, F., Matias, R., Tronick, E.Z., Connell, D., and Lyons-Ruth, D. (1986). Face-to-face interactions of depressed mothers and their infants. In E Z Tronick and T Field (Eds.), *Matemal depresston and infant disturbance* (pp 31-45) San Francisco Jossey-Bass.

Cohn, J. F., and Tronick, E. Z. (1983). Three-month old infants' reaction to simulated matemal depression. *Child Development, 54*, 185-193.

Cooper, P.J., Murray, L. (1998). Postnatal depression. *BMJ, 316,* 1884-1886.

Cummings, E. M., and Cicchetti, D. (1990). Towards a transactional model of relations between attachment and depression. In M. T. Greenberg, D. Cicchetti, and E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 339-372). Chicago: University of Chicago Press.

Davis, E. P., Glynn, L. M., Schetter, C. D., Hobel, C., Chicz-Demet, A., and Sandman, C. (2007). Added Prenatal exposure to maternal depression and cortisol influences infant temperament. *Journal of the American Academy of Child and Adolescent Psychiatry, 46 (6)*, 737-746.

Dawson, G., Frey, K., Self, J., Panagiotides, H., Hessl, D.,Yamada, E., et al. (1999). Frontal brain electrical activity in infants of depressed and nondepressed mothers: Relation to variations in infant behavior. *Development and Psychopathology, 11*, 589-605.

Dietz, P., Williams, S., Callaghan, W., Bachman, D., Whitlock E., Hornbrook, M. (2007). Clinically identified maternal depression before, during, and after pregnancies ending in live births. *American Journal of Psychiatry, 164 (10)*, 1515-1520.

Downey G., and Coyne, J. C. (1990). Children of depressed parents: An integrative review. *Psychological Bulletin, 108*, 50-76.

Ensminger, M. E., Hanson, S. G., Riley, A. W., and Juon, H. (2003). Maternal psychological distress: Adult sons' and daughters' mental health and educational attainment. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*, 1108-1115.

Evans, S. L., Reinhart, J. B., and Succop, R. A. (1972). Failure to thrive. *Journal of the American Academy of Child Psychiatry, 11*, 440-457.

Fendrich, M., Warner, V., and Weissman, M. M. (1990). Family risk factors, parental depression, and psychopathology in offspring. *Developmental Psychology, 26*, 40-50.

Field, T. (1980) Interactions of high-risk infants. Quantitative and qualitative differences In D. B. Sawin, R. C. Hawkins, L. Walker, and J. Penticuff (Eds.), *Current Perspectives on psychosocial risks dunng pregnancy and early infancy* (pp. 120-143). New York: Brunner/Mazel.

Field, T. (1984) Early interactions between infants and their postpartum depressed mothers. *Infant Behavior and Development, 7*, 527-532.

Field, T., Diego, M., Dieter, J., Hernandez-Reif, M., Schanberg, S., Kuhn, C., Yando, R., and Bendell, D. (2004). Prenatal depression effects on the fetus and the newborn. *Infant Behavior and Development, 27*, 216-229.

Field, T., Healy, B., Goldstein, S., Perry, S., Bendell, D., Schanberg, S., Zinunerman, E. A., and Kuhn, C. (1988). Infants of depressed mothers show "depressed" behavior even with nondepressed adults. *Child Development, 59*, 1569-1579.

Field, T., Diego, M.., Hernandez-Reif, M., Yanexy, V., Gil, K., Schanberg, S., Kuhn, C., and Gonzalez-Garcia, A. (2004). Prenatal predictors of maternal and newborn EEG. *Infant Behavior and Development, 27*, 533-536.

Garmezy, N. and Devine, V. (1984). Project competence: The Minnesota studies of children vulnerable to psychopathology. In N. F. Watt, E. J. Anthony, L. C. Wynne, and J. E. Rolf (Eds.): *Children at Risk for Schizophrenia* (pp. 289-309). Cambridge: UK: Cambridge University Press.

Goodwin, R. D., Fergusson, D. M., Horwood, L. J. (2004). Asthma and depressive and anxiety disorders among young persons in the community. *Psychological Medicine, 34,* 1465-1474.

Green, M. (1994). Diagnosis, management, and implications of maternal depression for children and pediatricians. *Current Opinion in Pediatrics, 6,* 525-529.

Gunnar, M. R., Malone, S., and Fish, R. D. (1984). Psychobiology of stress and coping in the human neonate studies of adrenocortical activity response to stress. In T. Field, P. M. McCabe, and N. Schneiderman (Eds.), *Stress and coping* (pp. 179-196). Hillsdale, N. J.: Erlbaum.

Gunning**,** M., Conroy, S., Valoriani, V**.** Figueiredo, B., Kammerer, M. H., Muzik, M., Glatigny-Dallay, E., and Murray, L. (2004). Measurement of mother–infant interactions and the home environment in a European setting: Preliminary results from a cross-cultural study. *The British Journal of Psychiatry, 184,* 38-44.

Hammen, C., Burge, D., Burney, E., and Adrian, C. (1990). Longitudinal study of diagnoses in children of women with unipolar and bipolar affective disorder. *Archives of General Psychiatry, 47,* 1112-1117.

Hay, D. F. (1997). Postpartum depression and cognitive development. In L. Murray and P. Cooper (Eds.), *Postpartum depression and child development* (pp. 85-110). New York: Guilford Press.

Heneghan, A. M., Silver, E. J., Bauman L. J., Westbrook L. E, and Stein R. E. (1998). Depressive symptoms in inner-city mothers of young children: Who is at risk? *Pediatrics 1998*; 102:1394.

Heneghan**,** A. M., Morton, S., DeLeone, N. L. (2007). Pediatricians' attitudes about discussing maternal depression during a pediatric primary care visit. *Added Child: Care, Health and Development, 33 (3),* 333-339.

Hopkins J., Marcus, M., Cambell, S. B. (1984). Postpartum depression a critical review. *Psychological Bulletin, 95,* 498-515.

Horwitz, S. M., Briggs-Gowan, M. J., Storfer-Isser, A., and Carter, A. J. (2007). Prevalence, correlates, and persistence of maternal depression. *Journal of Women's Health, 16 (5),* 678-691.

Hyman, C. A. (1978). Non-accidental injury. *Health Visitors, 51,* 168-172.

Jones, N. A., Field, T., Fox, N. A., Davalos, M., Lundy, B., and Hart, S. (1998). Newborns of mothers with depressive symptoms are physiologically less developed. *Infant Behavior and Development, 21 (3),* 537-541.

Kahn, R. S., Brandt, D., and Whitaker, R. C. (2004). Combined effect of mothers' and fathers' mental health symptoms on children's behavioral and emotional well-being. *Archives of Pediatric and Adolescent Medicine, 4*(158) 721-729.

Kahn, R., Wise, P., Finkelstein, J., Bernstein, H., Lowe, J., and Homer, C. (1999). The scope of unmet maternal health needs in pediatric settings. *Pediatrics,* 103, 576-581.

Kahn, R. S., Zuckerman, B., Bauchner, H., Homer, C. J., and Wise, P. H. (2002). Women's health after pregnancy and child outcomes at age 3 years: A prospective cohort study. *American Journal of Public Health, 92,* 1312-1318.

Keller, M.B., Beardslee, W.R., Dorer, D.J., Lavori, P.W., Samuelson, H., and Klerman, G.R. (1986). Impact and severity and chronicity of parental affective illness on adaptive functioning and psychopathology in children. *Archives of General Psychiatry, 43*, 930-937.

Kemper, K.J. (1994). Family psychosocial screening: should we focus on high-risk settings? *Developmental and Behavioral Pediatrics, 15*, 336-341.

Lewinsohn, P. M., Olino, T. M., and Klein, D. N. (2005). Psychosocial impairment in offspring of depressed parents. *Psychological Medicine, 35,* 1493-1503.

Lieb, R., Isensee, B., Hofler, M., Pfister, H., and Wittchen, H. (2002). Parental major depression and the risk of depression and other mental disorders in offspring: A prospective longitudinal community study. *Archives of General Psychiatry, 59*, 365-374.

Lim, J., Wood, B. L., and Miller, B. D. (2008). Maternal depression and parenting in relation to child internalizing symptoms and asthma disease activity. *Journal of Family Psychology, 22*, 264-273.

Lundy, B.L., Jones, N. A., Field, T., Nearing, G., Davalos, M., Pietro, P.A., Schanberg, S., and Kuhn, C. (1999). Prenatal depression effects on neonates. *Infant Behavior and Development, 22(1),* 119-129.

Luoma, I., Koivisto, A. M., Tamminen, T. (2004). Fathers' and mothers' perceptions of their child and maternal depressive symptoms. *Nordic Journal of Psychiatry, 58,* 205-211.

McLennan, J. D., and Offord, D. R. (2002). Should postpartum depression be targeted to improve child mental health? *Journal of the American Academy of Child and Adolescent Psychiatry, 41,* 28-35.

Miller, B. D. and Wood, B. L. (2003). Emotions and family factors in childhood asthma: Psychobiological mechanisms and pathways of effect. In E.S. Brown (Ed.), *Social and Psychological Factors and Psychosomatic Syndromes* (pp.131-160) Dallas: Karger.

Murray, L., and Cooper, P. J. (2003). Intergenerational transmission of affective and cognitive processes associated with depression infancy and the pre-school years. In I. Goodyear (Ed.), *Unipolar depression: A lifetime perspective* (pp. 17-46). Oxford, England: Oxford University Press.

Murray, C. J. L., and Lopez, A. D. (1996). *The global burden of disease: A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020.* Cambridge, MA: Harvard University Press.

Narayanan, I. (1987). Early mother–infant interaction: Global perspectives and developing country concerns. *Journal of Tropical Pediatrics, 33,* 120-123.

NICHD Early Child Care Research Network. (1999). Chronicity of maternal depressive symptoms, maternal sensitivity, and child functioning at 36 month. *Developmental Psychology, 35 (5),* 1297-1310.

Nylen, K. J., Moran, T. E., Franklin, T. L., and O'Hara, M. W. (2006). Maternal depression: A review of relevant treatment approaches for mothers and infants. *Infant Mental Health Journal, 27 (4),* 327-343.

O'Brien, L.M., et al. (2004). Postnatal depression and faltering growth: A community study. *Pediatrics, 113,* 1242-7.

O'Reilly, A. (Ed.). (2004). *From Motherhood to Mothering*. Albany: State University of New York Press.

Office of the Surgeon General. (1999). *Mental health: A report of the Surgeon General.* Rockville, MD: Office of the Surgeon General.

Orvaschel, H., Weissman, M. M., and Kidd, K. K. (1980). The children of depressed parents; The childhood of depressed patients; Depression in children. *Journal of affective disorders, 2,* 1-16.

Peisah, C., Brodaty, H., Luscombe, G., and Anstey, K. (2004). Children of a cohort of depressed patients 25 years later: Psychopathology and relationships. *Journal of Affective Disorders, 82,* 385–394.

Peisah, C., Brodaty, H., Luscombe, G., and Anstey, K. (2005). Children of a cohort of depressed patients 25 years later: Identifying those at risk. A*ustralian and New Zealand Journal of Psychiatry, 39,* 907–914.

Porges, S. W., McCabe, P. M., and Yongue, B. G. (1982). Respiratory-heart rate interactions: Psychophysiological implications for pathophysiology and behavior. In J. T. Cacippo and R. E. Petty (Eds.), *Perspectives in cardiovascular psychophysiology* (pp. 233-260). New York, NY: Guilford.

Richards, J. P. (1990). Postnatal depression: A review of recent literature. *British Journal of General Practice, 40*, 472-476.

Schwebel, D. C. and Brezausek, C. M. (2008). Chronic maternal depression and children's injury risk. *Journal of Pediatric Psychology, 1-9.*

Seehusen, D. A., Baldwin, L., Runkle, G. P., Clark, G. (2005). Are family physicians appropriately screening for postpartum depression? *The Journal of the American Board of Family Physicians, 18,* 104-112.

Shalowitz, M. U., Berry, C. A., Quinn, K. A. and Wolf, R. L. (2001). The relationship of life stressors and maternal depression to pediatric asthma morbidity in a subspecialty practice. *Ambulatory Pediatrics, 1*, 185-193.

Sharp, D., Dale, F.H., Pawlby, S., Schmucker, G., Allen, H., and Kumar, R. (1995). The impact of postnatal depression on boy's intellectual development. *Journal of Child Psychology and Psychiatry, 36*: 1315-1336.

Stewart, R. C. (2007). Maternal depression and infant growth: A review of recent evidence. *Maternal and Child Nutrition, 3 (2),* 94-107.

Tannenbaum, L. and Forehand, R. (1994). Maternal depressive mood: The role of the father in preventing adolescent problem behaviours. *Behaviour Research and Therapy, 32*, 321-325.

Tennes, K., Downey, K., and Vemadakis, A. (1977). Urinary cortisol excretion rates and anxiety in normal 1-year-oId infants. *Psychosomatic Medicine, 39*,178-187.

Timko, C., Cronkite, R. C., Swindle, R., Robinson, R. L., Turrubiartes, P., and Moos, R. H. (2008). Functioning status of adult children of depressed parents: A 23-year follow-up. *Psychological Medicine, 38*, 343-352.

Tronick, E.Z., and Gianmo, A.F. (1986). The transmission of maternal disturbance to the infant. In E.Z. Tronick and T. Field (Eds.), *Matemal depression and infant disturbance.* San Francisco: Jossey-Bass.

Wamboldt, M. Z., Fritz, G., Mansell, A., McQuaid, E. L., and Klein, R. (1998). Relationship of asthma severity and psychological problems in children. *Journal of American Academy of Child and Adolescent Psychiatry, 37,* 943-950.

Watson, J. P., Elliott, S. A., Rugg, A. J., Brough, D.I. (1984). Psychiatric disorder in pregnancy and the first postnatal year. *British Journal of Psychiatry, 144*, 453-462.

Waxmonsky, J., Wood, B. L., Stern, T., Ballow, M., Lillis, K., Cramer-Benjamin, D., Mador, J., and Miller, B. D. (2006). Association of depressive symptoms and disease activity in children with asthma: Methodological and clinical implications. *Journal of the American Academy of Child and Adolescent Psychiatry, 45*, 945-954.

Weintraub, S., Neale, J. M., and Liebert, D. E. (1975). Teacher ratings of children vulnerable to psychopatholgy. *American Journal of Orthopsychiatry, 45*, 839-845.

Weissman, M. M., Gammon, G. D., John, K., Merikangas, K. R., Warner, V., Prusoff, B. A., and Sholomskas, D. (1987). Children of depressed parents: Increased psychopathology and early onset of major depression. *Archives of General Psychiatry, 44*, 847-853.

Weissman, M. M., Paykel, E. S., and Klerman, G. L. (1972). The depressed woman as a mother. *Social Psychology, 7*, 98-108.

Weissman, M. M., Prusoff, B. A., Gammon, G. D., Merikangas, K. R., Leckman, J. F., and Kidd, K. K. (1984). Psychopathology in the children (ages 6-18) of depressed and normal parents. *Journal of American Academy of Child Psychiatry, 23*, 78-84.

Weissman, M. M. and Siegel R. (1972). The depressed woman and her rebellious adolescent. *Social Casework, 53*, 563-570.

Welner, Z., Welner, A., McCrary, M. D., and Leonard, M. A. (1977). Psychopathology in children of inpatients with depression: A controlled study. *Journal of Nervous and Mental Disorders, 164*, 408-413.

Williams, O. B. and Corrigan, P. W. (1992). The differential effects of parental alcoholism and mental illness on their adult children. *Journal of Clinical Psychology, 48*, 406-414.

World Health Organization. *A message from the Director General.* 2001. Available from: URL: http://www.who.int/whr/2001/ dg_message/en /index.html.

Zahn-Waxler, C., Iannotti, R. J., Cummings, E. M., and Denham, S. (1990). Antecedents of problem behaviors in children of depressed mothers. *Development and Psychopathology, 2*, 271-291.

Zahn-Waxler, C., Kochanska, G., Krupnick, J., and McKnew, D. (1990). Patterns of guilt in children of depressed and well mothers. *Developmental Psychology, 26*, 51-59.

Zelner, R. and Rice, J. (1988). School-aged children of depressed parents: A blind and controlled study. *Journal of Affective Disorders, 15*, 291-302.

Zuckerman, B. S., and Beardslee, W. R. (1987). Maternal depression: A concern for pediatricians. *Pediatrics, 79*, 110-117.

Zuckerman, B., Stevenson, J., and Bailey, V. (1987). Stomachaches and headaches in a community sample of preschool children. *Pediatrics, 79 (5)*, 677-682.

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Chapter 5

INDIVIDUALS WITH EATING DISORDERS AND STRESS

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ABSTRACT

Individuals with eating disorders experience a high degree of stress. The combination of not having learned adaptive coping strategies and being exposed to challenging situations can render people vulnerable to experiencing stress and developing mental health problems. Some people may turn to problematic coping strategies such as dissociation, substance abuse, and problematic eating [Hansel, and Wittrock, 1997]. There is a high prevalence of traumatic histories and problematic coping skills to manage stressful situations in individuals with eating disorders.

This manuscript will review the literature on stress and coping in individuals with eating disorders. Binge eating, purging, and food restriction will be discussed in the context of self-regulatory process.

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Issues related to comorbidities will be addressed, and promising stress control strategies will be discussed.

The role of CBT, reflective activity, and mindfulness in regulatory process, stress reduction, and control will be discussed [Luck, Waller, Meyer, Ussher, and Lacey, 2005].

INTRODUCTION

Research suggests that individuals with eating disorders experience a high degree of stress. Individuals with eating disorders show difficulties self-regulating and coping with their emotions. Difficulties in regulating and coping can create a greater vulnerability to stressful life events that have been associated with the commencement of anorexia [Miller and Redlick, 2003]. It is known that stress may lead to health-impairing habits and behaviours. Behavioural reactions to stressors include actions to remove or escape the source of stress or reactions aimed at palliating the negative emotional consequences. Individuals may discern behaviours that are damaging to their health. Or, in certain circumstances, the stress of illness may cause illness behaviour that influences the course of the illness. The eating disturbances such as anorexia nervosa (AN), bulimia nervosa (BN) and binge eating disorder (BED) seem to fit generally with this paradigm. While eating disordered behaviours such as binge eating, purging, and food restriction can reduce stress temporarily, there is no question that these behaviours nevertheless increase stress because as a result of these behaviours, individuals may suffer from esophageal reflux, hypertension and hypotension, impaired neuromuscular function, anemia, kidney malfunction, liver damage, low body temperature, orthostatic hypotension, pancreatitis, peptic ulcers, osteopenia, osteoporosis, seizures, cardiovascular problems, blood sugar disturbance, cramps, constipation, dehydratation, abdominal distress, edema, insomnia, hyperactivity, infertility, fatigue, depression, anxiety, mood swings, and others [Courbasson, 2005; Mehler and Anderson, 1999; Sidiropoulos, 2007]. These serious negative effects of disordered eating behaviour on physical health, mental health and growth have encouraged researchers to understand what initiates the practice of disordered eating. It is widely cited that psychosocial stress plays a role in the onset and maintenance of eating disorders and that there is an association between stressful life events and disordered eating behavior [Loth, van den Berg, Eisenberg, and Neumark-Sztainer, 2008]. Moreover, the physical illnesses and mental health problems that result from eating disordered behaviours weaken these individuals' ability to withstand

stressors and increase the likelihood that they further engage in eating disordered behaviours. Often, they blame themselves for engaging in eating disordered behaviours and feeling unable to adequately respond to stressors. Consequently, these individuals are caught in an endless vicious cycle of eating disordered behaviours, dysfunctional cognitions, negative emotions, problematic choice of action, eating disordered behaviours and so on.

Binge eating, purging, and restricting have reinforcing qualities. These behaviours provide a distraction from the stressors, which allow these individuals to experience a release of emotions, sensations, and cognitions they feel they cannot bear. These eating disordered behaviours act as a "vacation" from the stressful world they experience and they feel unable to stop the eating disordered behaviours. Many of these individuals even turn to substance abuse [Courbasson and Schelkanova, 2008; Klopfer and Woodside, 2008]. The eating disorder then becomes both their best friend and worst enemy. Such individuals avoid social events so they can engage in their disordered eating habits. It is of note that most social events include food and alcohol which contain calories which they fear as they are terrified of gaining weight. Then they also withdraw because they experience shame associated with their behaviours. This isolation increases loneliness and depression, which further deplete their resources to face stressors.

However, studies involving the role played by stress in eating disturbance have been inconclusive. In laboratory studies, there is evidence to suggest that stress can lead to increased or decreased consumption depending on the type and duration of the stressor. Other researchers have observed an association between increased life stress and bulimia. It has been argued that these findings might offer some explanation of why many individuals with bulimia experience more frequent episodes after each successive bout, and why stressful experiences can so easily bring about reappearances of episodes in patients who had abstained from bulimic behaviour for at least 6 months. The role played by life stress has been recognized as a possible precipitator to eating disturbed or disordered behaviour. In the literature, the types of situations which have been cited as precipitators are interpersonal conflict such as stressful job situations; parental and marital conflicts; and unfulfilling relationships. Most studies have dealt with adolescent female subjects, who are a high-risk population for this type of behaviour. It is cited that the identification with traditional feminine gender roles is associated with stress and risk factors for psychological conditions which includes eating disorders. A study by Mussap [2007] suggests that the stress of confirming to feminine role is associated with various unhealthy body change attitudes and

behaviours. Stressors such as the fear of being unattractive, fear of being assertive, fear of not being in an emotional relationship and fear of being not sufficiently nurturant have been linked to eating concern and dietary restraints and bingeing and purging in women.

TYPES OF STRESS

One hypothesis deserving investigation is that individuals with bulimia may be exposed to more potential stressors than other individuals. In a study by Greenberg [1986], individuals with bulimia reported experiencing significantly more life events during the last month and perceived the impact of the life changes to be greater than those without bulimia. Onset of bulimia also appears to be correlated with the occurrence of a greater number of potentially stressful events for normal weight bulimics and for bulimic anorexics**.**

Although some studies suggest that particular types of potentially stressful precipitating factors are associated with bulimia, no evidence exists that these types of stressors are experienced uniquely by women who develop bulimia. Instead, the types of events and conditions reported to be associated with bulimia appear to be relatively normative. Pyle, Mitchell, and Eckert [1981] found that outpatients with bulimia associated the onset of bulimic behavior both with voluntary dieting and with traumatic events, most notably loss or separation, change in sexual relations or behaviour, and interpersonal conflict. Yet, Johnson, Stuckey, Lewis, and Schwartz [1982] found that of 31 women with bulimia they sampled, only 13% reported either interpersonal conflict, loss, or separation as triggers for the onset of their disorder. With regard to the maintenance or perpetuation of bulimic behaviour, clinical and self-report data indicate that individuals with bulimia frequently implicate social stressors as the instigators of discrete binge eating episodes. Such potential social stressors include difficult interpersonal interactions, being teased about weight, and emotional distress**.** These social stressors have been linked to low levels of self-esteem. More specifically, studies have reported an association between stress, self-esteem, poor coping skills and eating disorders. Shea and Pritchard [2007] suggest that self-esteem maybe lowered by stressors experienced in daily lives, which in turn, as previously noted, may be linked to the onset and maintenance of specific subtypes of eating disorders. Low self-esteem makes one more prone and less responsive to stress (engaging in immature coping techniques) causing detrimental effects on one’s mental- and physical health.

Certainly such events, when they do occur, fall within the normal range of experience for both young men and young women. In evaluating studies examining these associations, it is important to consider what is normative for a given age and developmental stage in the life cycle before attributing unique effects to certain types of potential stressors. Given the fact that the events and conditions reported in all these studies are not highly unusual and do not seem limited to a particular type, it seems more likely that individual intervening variables determine how potential stressors are associated with bulimia. An interactive explanation drawing in mediational components is necessary in order to determine why individuals with bulimia react with disordered eating behavior to events that many people experience.

COPING STRATEGIES, EATING DISTURBANCES, AND SELF-REGULATION

The concept of cognitive appraisal can come in two basic forms: primary and secondary appraisal. Primary appraisal refers to the evaluation of the stressor, that is, an event can be appraised as irrelevant, benign/positive or stressful. An irrelevant stressor would be an event that appears to have no impact on the subject's well-being. A benign/positive stressor would be an event that is appraised as preserving or enhancing the subject's well-being. An event that involves harm, loss or threat would be appraised as stressful. Secondary appraisal refers to the subject's ability to use their stress resistance resources to overcome short-term reaction to the immediate stressor. It has been recognized that the appraisal processes shape the meaning of any encounter, whether it is perceived as stressful and how it can be dealt with. Coping initiated in response to primary and secondary appraisal. Several investigators have suggested that a deficit in coping skills or general problem-solving inadequacies may render eating-disturbed individuals less able to deal effectively with stress, and that eating-disturbed behaviour may be a manifestation of maladaptive coping styles.

Individuals with eating disorders may have difficulty dealing with stress because they have not learned adaptive coping strategies, and as a consequence experience more stress than other individuals (i.e., rather than experience more potentially stressful events). It has been suggested that individuals with bulimia may lack a full repertoire of coping responses to select from and consequently they rely extensively on too limited a number of strategies. It has been noted that although individuals with bulimia reported the

use of more coping strategies than controls, they concurrently reported less efficacy of their coping strategies in handling stress. This may suggest a deficit in the usage of coping styles rather than a lack of availability. Recent empirical evidence suggests that individuals with bulimia adopt less active coping styles, as do individuals with anorexia. Coping with a stressful situation has been considered in terms of defense mechanisms or defense styles. A `mature defense style' is defined as behaviours that involve anticipation, humour and suppression. An ‘immature defense style' is defined as behaviours such as dissociation and passive aggression. Mature defense styles have been found to predict good health adjustment and mental health, and an immature defense style has been found to be associated with personality disorder and poor adult adjustment. Individuals with disturbed eating have more immature defense styles than non-eating disturbed subjects. It has also been noted that immature defense styles are used more frequently by normal weight bulimic subjects than restricting anorexic subjects [Schmidt, Treasure, Tiller, and Blanchard, 1992]. The role of dissociation as a defense mechanism in `eating-disturbed' subjects has also been investigated in the literature. Dissociation is most often used when an individual is faced with a stressful and inescapable situation, where the individual detaches him or herself from the situation.

Individuals with bulimia may appraise potential stressors differently from other individuals, perhaps as being more stressful, less controllable, less predictable, or less desirable. Some evidence indicates that individuals with bulimia engage in more frequent binge eating during situations that are perceived as more stressful. Appraisal influences responses to potential stressors and may lead to dysfunctional coping. An event may be appraised differently, for instance, depending on the context in which it occurs; should it occur concurrently with other potentially stressful life events, chronic stressors, or daily hassles, its perceived effect may be exacerbated.

Some evidence suggests that individuals with bulimia may experience coping deficits. It may be that when chronic and life event stressors act in combination with dieting, women who have poor coping skills to deal with their difficulties may be most vulnerable to developing bulimia. If individuals with eating disorders have difficulty in mediating stress because the problematic eating and/or restricting they engage in puts them more vulnerable to react to emotions. In addition, their lack adaptive coping skills, such deficits may arise in one or both of the following ways. First, they may actually have an insufficient number of adequate coping skills and thus be unable to respond self-protectively to stress. Second, they may have adequate coping skills in their repertoire, but lack the personal resources that enable them to utilize their

skills effectively. It has been hypothesized that individuals with bulimia may have difficulty ameliorating the impact of stress because they do not cope well, and may consequently experience more stress than other individuals (i.e., rather than more numerous potential stressors). They may lack a full repertoire of coping responses to select from; consequently, they rely extensively on too limited a number of strategies.

Individuals with bulimia, similar to binge eaters and depressed subjects, were characterized by a passive coping style and an inability to express their feelings. Johnson and Larson [1982] have reported that in general bulimics tend to be more passive than normal controls. Shatford and Evans [1986] showed that the coping strategies used by women with bulimia (e.g., avoidance and emotion-focused) tended to be less effective in attenuating stress than the active responses used by those without bulimia (e.g., problem-focused). Their model also suggested that experiencing many environmental stressors and/or depression may lead an individual to resort to coping mechanisms that are ineffective in ameliorating the impact of stress. Consequently, the stress is more apt to result in the expression of bulimic or other disordered behavior.

Individuals with bulimia may perceive themselves as not being in control. Under potentially stressful conditions, they may appraise the situation as more stressful than others do, they may feel that they do not have the personal resources to face the challenging situation, feel unable to control the environment, and respond to such threatening feelings by binge eating. It has also been suggested that individuals with bulimia utilize binge eating and purging, rather than other strategies, as their primary coping response to stress and as one way of managing their emotions when conditions in the environment seem out of their control.

Another coping strategy is cigarette-smoking. A study by George and Waller [2005] demonstrated that overall motivation to smoke was higher in women with eating-disorders than women with mood-disorders and their strongest motivator for smoking was coping with stress. The women with eating-disorders showed similar levels of dependence on smoking to the women in the mood-disordered group, but tended to have a lower desire to give up smoking. It is possible that the belief that cigarettes can control weight gain may have been a factor in their lower desire to stop smoking.

In considering the prevalence of both traumatic histories and problematic coping styles in patients, it is important to note the interrelationship between the two. A substantial vein of research has demonstrated a relationship between childhood traumatic experience and dissociative coping styles in

adulthood (H. J. Irwin, 1998; H. J. Irwin, 1996; Perrott, Morris, Martin, and Romans, 1998; Romans, Martin, Morris, and Herbison, 1999). Furthermore, Romans et al. (1999) found that severity of reported child sexual abuse was directly related to the degree of immaturity in the coping style of undergraduate students.

Basurte, Diaz-Marsa, Martin, and Carrasco (2004) found that a history of trauma in eating disorder patients is associated with greater impulsiveness and presence of borderline personality traits, both of which are implicated in coping. Results of the dexamethasone suppression test in those individuals demonstrated hypothalamus, pituitary-adrenal (HPA) axis hyperactivity.

Of the eating disorder subtypes, as measured by the Eating Disorder Inventory-2, bulimia, specifically purging behaviour, has been found to be most strongly linked to childhood trauma. This trend was supported by Brewerton (2007) in an extensive review of the long-term effects of childhood sexual trauma. The trend was further supported by Borman (2004) in a study of 146 undergraduate males and females. While they failed to demonstrate a general link between childhood abuse and elevated disordered eating patterns, history of abuse predicted elevated Bulimia subscale scores.

Troop and colleagues [1994] investigated 24 AN patients, 66 BN patients and 30 control subjects in order to investigate how women diagnosed with an eating disorder dealt with self-nominated stressors. The study reported that AN and BN patients used more avoidance when dealing with stress compared to the general population. In addition, BN patients used more wishful thinking and avoided social support compared to the general population. It is important to note here that avoidance and denial are associated with increased distress. The data provides evidence that women diagnosed with an eating disorder showed lower levels of problem-focused coping and increased levels of self-blame. This study confirms prior research suggestion that individuals with eating disorders experience a high degree of stress.

REDUCING STRESS

To help enhance the individuals with eating disorders' ability to respond to stressors adaptively, it is important to address the eating disorders [American Psychiatric Association, 2000; Courbasson, 2007; Fairburn, andBrownell, 2002; National Institute for Clinical Excellence, 2004]. It is also important to address relevant deficits these individuals have. With assertiveness training, they can learn to assert themselves so that they can ask

for what they need competently and refuse unwanted requests. With cognitive behavioural therapy and mindfulness training, they can learn to accept imperfection hence they can try to face stressors instead of turning to binge eating, purging, and restricting food. They can be taught to challenge their dichotomous cognition and to build a balanced yet structured lifestyle. They can be trained to build mastery in their lives by doing more of what they are good at, and gradually increase the complexity of the situations they face with progressively less coaching from a therapist. Additionally, they can be taught self-soothing techniques [Coué, 2007; Courbasson, 2007; Rappoport, 2002]. With repeated exposure to successfully resolved situations, acceptance of imperfection and support they can be better equipped to face stressors.

While problematic eating behaviours such as binge eating and purging can decrease stress momentarily, other more adaptive techniques can effectively decrease the impact of stressors on both short and long terms. Mindfulness meditation can improve well-being. More recently, mindfulness-based treatment approaches have been successfully utilized to treat anxiety, depressive relapse, eating disorders, psychosis, and borderline personality disorder. Mindfulness-based interventions appear particularly well suited to address disordered eating behaviours. mindfulness-based eating awareness training (MB-EAT). MB-EAT [Kristeller and Hallett, 1999] was developed by integrating elements from mindfulness based stress reduction (MBSR) program and cognitive behavioural therapy (CBT) with guided eating meditations. The program draws on traditional mindfulness meditation techniques, as well as guided meditation, to address specific issues pertaining to shape, weight, and eating-related self-regulatory processes such as appetite and both gastric and taste-specific satiety. Dialectical behavioural therapy (DBT) which uses several elements of mindfulness has shown benefit in reducing binge eating. Empirical support for MBCT applied to BED is preliminary but encouraging. The strongest predictor of improvement in eating control in the original study was the amount of time participants reported engaging in eating-related meditation, rather than general meditation.

To date, only one study [Kristheller and Hallett, 1999] had examined the efficacy of mindfulness therapy in eating disorders, specifically binge eating disorder. Although preliminary, the results suggest that mindfulness treatment may be a promising approach to both binge eating symptoms and the anxiety and depression that is frequently associated with binge eating disorder. Meditation techniques may modify the deregulated processes associated with BED in several ways. Although there are many variations, the basic elements are to maintain a relaxed focus on a single object of attention, and when that

attention shifts to another object, to simply return it to the original object. Mindfulness meditation techniques emphasize the ability to bring focused, yet detached, awareness to all objects of attention, while maintaining a non-judgmental, self-accepting attitude. As a relaxation technique, meditation may decrease both emotional and physiological reactivity in such disorders as essential hypertension. By promoting awareness of physiological signals, meditation may increase the ability to recognize and respond to normal satiety cues. As a way of improving self-acceptance, it may decrease the relative appeal of binge eating as an escape mechanism and facilitate general therapeutic change.

With its emphasis on being in the moment, letting go of judgment and tuning to sensations and emotions, mindfulness allow individuals to develop an awareness of themselves, mental flexibility, and mindfully plan to resolve problems and set realistic goals with can reduce the likelihood of responding without thinking and having to cope with problematic outcome of them reacting to the environment maladaptively.

CONCLUSION

This manuscript focused on reviewing the literature on stress and coping in individuals with eating disorders. Studies have noted that there seems to be a high prevalence rate of stress in individuals with eating disorders, who unfortunately show poor self-regulation and coping skills with their emotions. This makes these individuals more vulnerable to stressful life events that are known to play significant roles in the onset of eating disorders. Research suggests that appraisal plays a bigger role in the stress that one experiences rather than the actual event. It is the interaction of a lack of coping strategies and challenging situations that make people prone to experiencing stress and degrading mental health. It depends on the coping strategies that one develops that will predict how one overcomes stress or struggles with it, in turn affecting one's mental health. Individuals with eating disorders have been reported to engage in problematic or poor coping skills to deal with stress that affects their illness in many ways. However, studies involving the role played by stress in eating disturbance have been inconclusive with some studies reporting an increase in consumption and others in a decrease in consumption. Problematic eating habits have shown to reduce stress, but the results are short-term and have detrimental effects on one's health. However, there are

therapies offered such as mindfulness-based intervention that can produce long-term beneficial effects of coping with stress.

REFERENCES

American Psychiatric Association Work Group on Eating Disorders. (2000). Practice guideline for the treatment of patients with eating disorders (revision). American Journal of Psychiatry, 157(1), 1-39.

Basurte, E., Diaz-Narsa, M., Martin, O., and Carrasco, J. L. (2004). [Traumatic childhood background, impulsiveness and hypothalamus-pituitary-adrenal axis dysfunction in eating disorders. A pilot study]. *Actas Espanolas De Psiquiatria, 32*(3), 149-152.

Bennett, D. A. and Cooper, C. L. (1999). Eating disturbance as a manifestation of the stress process: a review of the literature. *Stress Med. 15,* 167-182.

Borman, S. I. (2004). The relationship between perceived trauma and disordered eating in college men and women. *Dissertation Abstracts International,* vol.66-01B, p.

Brewerton, T. D. (2007). Eating disorders, trauma, and comorbidity: Focus on PTSD. *Eating Disorders, 15*(4), 285-304.

Cattanach, L. and Rodin, J. (1988). Psychosocial Components of the Stress Process in Bulimia *lnternational Journal of Eating Disorders, 7,* 75-88.

Courbasson, C.M.A. (2007) Disordered eating and substance use interconnections. In Canadian perspectives on women's substance use. Centre for Addiction and Mental Health and British Columbia Centre of Excellence for Women's Health. Pp. 407-414.

Courbasson, C.M.A., and Schelkanova, I. (2008). Women and addictions: Body weight and shape concerns as barriers to recovery from substance use disorders. Let's address these issues in treatment and recovery now! Journal of Drug Addiction, Education, and Eradication, 4, 3-4.

Courbasson, C.M.A., and Smith, P.D. (2005). Eating disorders and substance abuse. In W. Skinner, J.C. Negrete, and Smith, P. (eds), Treating addiction and mental health problems concurrently: A practical guide for helpers. Centre for Addiction and Mental Health. Pp. 249-268.

Coué, E. (2007). Self Mastery Through Conscious Autosuggestion. Cosimo, Inc., 2007.

Fairburn, C., and Brownell, K.D., (2002) (Editors). Eating Disorders and Obesity: A Comprehensive Handbook. A Revised and Expanded Second Edition . East Sussex: Psychology Press.

George, A. and Waller, G. (2005). Motivators for Smoking in Women with Eating Disorders. *European Eating Disorders Review, 13,* 417–423.

Greenberg, B. R. (1986). Predictors of binge eating in bulimic and nonbulimic women. *International* Journal of *Eating Disorders, 5,* 269-284.

Hansel, S., and Wittrock, D. (1997). Appraisal and Coping Strategies in Stressful Situations: A Comparison of Individuals Who Binge Eat and Controls. *International Journal of Eating Disorder, 21*(1), 89-93.

Irwin, H. J. (1996). Traumatic childhood events, perceived availability of emotional support, and the development of dissociative tendencies. *Child Abuse and Neglect, 20*(8), 701-707.

Irwin, H. J. (. (1998). Affective predictors of dissociation II: Shame and guilt. *Journal of Clinical Psychology, 54*(2), 237.

Johnson, C., and Larson, R. (1982). Bulimia: An analysis of moods and behavior. *Psychosomatic Medgne,* 44, 34141.

Johnson, C. L., Stuckey, M. K., Lewis, L. D., and Schwartz, D. M. (1982). Bulimia: A descriptive survey of 316 cases. *International]ourna1* of *Eating Disorders, 2,* 3-16.

Klopfer, K., and Woodside, B. (2008). Substance Abuse in Women With Bulimia Nervosa. *Psychiatric Times, 25*(12).

Kristeller, J. L. and Hallett, C. B. (1999). An exploratory study of a meditation-based intervention for binge eating disorder. *Journal of Health Psychology,* 4, 357 - 63.

Loth, K., van den Berg, P., Eisenberg, M., and Neumark-Sztainer, D. (2008). Stressful Life Events and Disordered Eating Behaviors: Findings from Project EAT. *Journal of Adolescent Health*, 43,514-516.

Luck ,A., Waller, G., Meyer, C., Ussher, M., and Lacey, H. (2005). The Role of Schema Processes in the Eating Disorders. Cognitive Therapy and Research, 29(6), 717-732.

Mehler, P.S., and Anderson, A.E. Eating disorders: A guide to medical care and complications. Baltimore, MD: John Hopkins University Press; 1999.

Miller, S. P. and Redlich, A. D. (2003). The Stress Response in Anorexia Nervosa. *Child Psychiatry and Human Development, 33, 296-306.*

Mussap, A. (2007). Short Communication: the relationship between feminine gender role stress and disordered eating symptomatology in women. *Stress and Health, 23,* 343-348. National Institute for Clinical Excellence (NICE). Core interventions in the treatment and management of anorexia nervosa, bulimia nervosa, and binge eating disorder. London: British Psychological Society; 2004.

Perrott, K., Morris, E., Martin, J., and Romans, S. (1998). Cognitive coping styles of women sexually abused in childhood: A qualitative study. *Child Abuse and Neglect, 22*(11), 1135-1149.

Pyle, R. L., Mitchell, J. E., and Eckert, E. D. (1981). Bulimia: A report of *34* cases. Journal *of Clinical Psychiatry, 42.* 60-64.

Rappoport, A. (2002). How psychotherapy works: The concepts of control-mastery theory. *Bulletin of the American Academy of Clinical Psychology, 8*(2), 10-14.

Romans, S. E., Martin, J. L., Morris, E., and Herbison, G. P. (1999). Psychological defense styles in women who report childhood sexual abuse: A controlled community study.

Schmidt, U., Treasure, J., Tiller, J. and Blanchard, M. (1992). The role of life events and difficulties in the onset of eating disorders. *Neuroendocrinol. Letters, 14*, 256-270.

Shatford, L. A., and Evans, D. R. (1986). Bulimia as a manifestation of the stress process: A LISREL causal modeling analysis. *International* Journal *of Eating Disorders, 5*, 451-473.

Shea, M., and Pritchard M. (2007). Is self-esteem the primary predictor of disordered eating? *Personality and Individual Differences, 42*, 1527-1537.

Sidiropoulos, M. (2007). Anorexia Nervosa: The physiological consequences of starvation and the need for primary prevention efforts. *McGill Journal of Medicine, 10*(1), 20-25.

Troop, N., Holbrey, A., Trowler, R., and Treasure, J. (1994). Ways of Coping in Women with Eating Disorders. *The Journal of Nervous and Mental Disease, 182*(10), 535-540.

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Chapter 6

EXTENDING THE STRESSOR-STRAIN PERSPECTIVE: A REVIEW AND ELABORATION OF THE POSSIBILITY TO REVERSE CAUSALITY IN ROLE STRESS MODELS

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ABSTRACT

Although the current state of role stress research has to a large extent determined significant consequences, we highlight that the field do not acknowledge the complexity of role relationships, especially occasions of reverse causality.

In opening a dialogue, we discuss the possibility to an extension of the stressor-strain paradigm, that is the dominant perspective in role stress research, from explaining linear causal chains of detrimental consequences of role stress to instead researching reversed causality relationships with alternatives theories. Although we concur with previous findings, we elaborate upon the fact that what have long been

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indicated as important consequences of role stress may also be antecedents to role stress.

This paper examines theoretical implications of questioning causality, review typical causal role stress models and outline some method implications for using a cross-lagged design for researching reversed causality of the current role stress consequences.

INTRODUCTION

Role stress research has developed significantly over the last decades. In the seminal work of Kahn, Wolfe, Quinn, Snoek and Rosenthal, (1964) and that of Katz and Kahn (1978) we learnt that conflicting, ambiguous and overloading expectations on a role could give rise to the experience of role stress for a focal person. Much work thereafter has focused on extending our knowledge about better understanding the antecedents and consequences of such stress. The interest for role stress as a concept grew rapidly into multiple research disciplines. When reviewing the literature, one find role stress studies to be published in outlets related to for instance psychology, sociology, management and organization. This rapid growth and fast spread over a number of disciplines have rendered numerous contextually tied and dependent antecedents to role stress. Examples of antecedents that has received conceptual as well as empirical support for being antecedents of role stress are self-role congruence (Chassin, Zeizz, Cooper and Reaven, 1985), role clarity (Fry, Futrell, Parasuraman and Chmielewski, 1986), occupational prestige (Crouter, Bumpus, Maguire and McHale, 1999), enjoyment in life (Stoner and Hartman, 1990), consideration (Singh, 1993), behaviour problems (Gaugler, Davey, Pearlin and Zarit, 2000), the ability to understand and predict events in the environment (Tetrick and LaRocco, 1987), bureaucratic complexity (Fleming, 1966), financial health of an organization (Stoner and Hartman, 1990), culture distance (Gong, Shenkar, Luo and Nyaw, 2001), organizational distance (Miles, 1977), and management control systems (Jaworski, Stathakopoulos and Krishnan, 1993), just to mention a few from a huge laundry list of antecedents that has been used in previous research. This wide diversity is not the case for the results of role stress. Interestingly, there is a high consistency regarding the consequences of role stress. In a recent meta-analytic review we found eight commonly studied consequences of role stress: such as increases in emotional exhaustion, depersonalization, tension, and propensity to quit, while reductions in personal accomplishment, job

satisfaction, organizational commitment, and performance (Örtqvist and Wincent, 2006). These have been widely used across roles and contexts.

As we conclude in this paper, these role stress consequences have almost been assumed to be included in any role stress model, regardless role or context. One prominent reason is perhaps the solid basis of the stressor-strain paradigm that is currently the most dominant perspective in role stress research to explain role stress and its subsequent consequences (see Day and Livingstone, 2001; Lambert and Lambert, 2001; Tetrick and LaRocco, 1987; Tetrick, Slack, Da Silva, and Sinclair, 2000). The paradigm emphasizes that role stress triggers a chain of negative but interconnected reactions that could be captured in the above set of constructs that has been primarily used as role stress consequences. Although role stress is often the starting point in models, ordered sequences suggest that causally connected reactions include individuals' increased exhaustion and reduced satisfaction when experiencing role stress.

In this paper, we make a point in that existing role stress research and its findings contain some noteworthy shortcomings. Although the field has matured in terms of pinpointing significant consequences, many of the studies do not acknowledge the potential complexities in role relationships, especially failing to provide any evidence of causality or acknowledgment of reverse causality. Schaufeli, Maslach, and Marek (1993), among others, have argued for the importance of examining more complex role stress models, including for instance models of reverse causation. We concur with their arguments and suspect that what have long been indicated as important consequences of role stress may also, in fact, be antecedents to role stress. The absence of a focus on reverse causation is understandable, as a majority of research designs have been cross-sectional, not longitudinal. Meta-analytic reviews reveal that less than a handful of the published journal articles on role stress have even collected longitudinal data (Jackson and Schuler, 1985; Örtqvist and Wincent, 2006). Of these, few have attempted to determine causalities between role stress and consequences, and a limited focus has been directed toward the examination of potential reverse causalities. To our present knowledge, there have been no studies that have researched this area explicitly to accurately reveal whether reverse causalities exist among role stressors and prominent consequences. In response to these shortcomings, this paper outlines that it may be worthwhile to address this limitation and that it is other perspectives than the stressor-strain paradigm that could be used for doing this job. It is our belief that research that consider reverse causality may help opening the role stress field to new and potentially interesting research programs that are more

dynamic, as well as lead to models that enable the answering of more questions than prior role stress research has accomplished so far.

A Brief Review of the Typical Causal Models of Role Stress Research

The current role stress literature and the models tested are much developed and based upon the stressor-strain paradigm, and thereby on straightforward stepwise causal thinking with no arguments of reversed causation or feedback influences. In many cases, the models acknowledge a wide variety of antecedents, but a limited number of role stress consequences. For example, Senatra (1980) modelled a mediation model where he inserted ten antecedents to role stress related to job characteristics (for instance tolerance of error, decision timeliness, and adequacy of authority) and where role stress in turn influenced three commonly adopted consequences in form of tension, satisfaction and propensity to leave. Another approach emphasizing the detrimental side and commonly studied consequences can be exemplified by the study of Pearlin, Aneshensel and Leblanc (1997) which modelled a process starting with primary stressors (as including the role stress construct role overload among others) leading to secondary stressors (as for instance work strain) to outcomes (depression). As many other role stress models, their model is moderated by other contingency factors. In this case it is background characteristics and situational context.

Another approach in role stress research has been the focus on revising constructs in known causal chains over proposing alternative logics for role stress relation to its antecedents and consequences. This is evident in the work summarized by Kemery, Mossholder and Bedeian (1987), where three competing models starting with role conflict and role ambiguity are presented and tested. All these models were based upon established notations in the role stress literature. The first two models are proposed to lead to job satisfaction and physical symptoms, which in turn leads to turnover intentions. The difference between the first model and the second model was that the second model took a relationship between job satisfaction and physical symptoms into consideration. The third model viewed role conflict and role ambiguity to cause job satisfaction which causes physical symptoms, which in turn causes turnover intentions. While undoubtly important contributions delineating inconsistencies in prior work, much effort has sustained on arguments on single relationships or construct in the stressor-strain perspective rather than

proposing alternative perspectives through which the nature and relations of role stress could be understood differently.

In the literature on role stress we find at least some twenty proposals related to stressor-strain perspective which suggests mediation models to understand role stress. In these models we generally find role stress to mediate some contextually derived antecedents on detrimental consequences which have earned attention in previous studies on role stress. A rather standard structure in those models is represented in the one developed by Goldstein and Rockart (1984) who proposes that leadership characteristics influence job satisfaction through the mediating effects of role conflict and role ambiguity. Another example is the study of Teas (1983) where role stressors (conflict and ambiguity) mediated several variables influence over job satisfaction. The antecedents in this model included consideration, initiation of structure, feedback, participation, and experience. There are many other suggestions of similar partial and full mediation models where role stressors play key parts to understand detrimental effects in work and family settings. Usually, these models are based upon a three step approach where role stress is mediating some outcome variable.

There are also a number of models which suggest the causal links to extend the commonly developed three steps as included in the mediation models above presented. For instance, Bauer and Green (1994) proposed a model consisting of pre-entry variables (such as for instance preview of information), accommodation (including among other variables the role stress facets of role ambiguity and role conflict), activities (such as professional involvement and current research activities), outcomes (such as for instance submissions, publications) and control variables. The model starts with pre-entry which is hypothesised to influence accommodation, activities and outcomes. Activities are hypothesised to influence accommodation and outcomes, while accommodation is hypothesised to influence outcomes. In common with the commonly outlined mediation models, also the slightly more complex models (in terms of numbers of causal links) suggests that role stress is much linked to outcomes in a causal chain leading to detrimental consequences of a priori experienced role stress antecedents.

In many cases, the models acknowledge a wide variety of antecedents, but a limited number of role stress consequences. In quite some models the main question being studied is where in a causal chain role stress is exactly positioned and thus whether role stress have mediating influences of other constructs. For example, Gong, Shenkar, Luo and Nyaw (2001) constructed a model that explains performance losses from role stress, were role stress facets

(role conflict and role ambiguity) are partial mediators for variables such as formalization, objective gap, dominance, contract completeness (which was influenced by formalization and objective gap) and culture distance. Communication, autonomy, age, experience, education and tenure were all proposed to influence the two role stress facets but not directly performance. In some cases it is also a question whether some detrimental consequence mediate the influence that role stress has on yet another negative consequence. An example is Behrman and Perreault (1984) who proposed a model where role characteristics influences role stress which influences individual differences that in turn influences job outcomes. Here, role stress was also modelled to have a direct relationship to job outcomes, i.e. putting individual differences as a partial mediator in the model. Role characteristics were here comprised by communications frequency, closeness of supervision, influence over standards, innovativeness required, integration required and role stress was consistent of role ambiguity and role conflict. Individual differences in the models were hours worked per week, sales experience, locus of control and need for achievement. Job outcomes were the two widely studied consequences: job performance and job satisfaction.

An overall observation from a review of the role stress literature is that the perhaps most studied consequences of role stress is reduced performance, satisfaction and/or variables capturing loss of commitment. An often occurring variable between those steps is exhaustion or some facet of burnout. An example is Lee and Ashforth (1993) who presented a four stage model that included role stress and burnout. In the fist stage, variables such as social support, direct and indirect control were included. These variables influenced job demands (role stress and time spent with others) and cognitions (helplessness) in the second stage where variables such as affect (life and job satisfaction) and demographic characteristics (age) were also included. The third stage is the burnout dimension and consists of emotional exhaustion and helplessness. The fourth stage consists of psychological withdrawal (professional commitment and turnover intentions) and other burnout dimensions (depersonalization and personal accomplishment). In a similar structure, Posig and Kickul (2003) proposed a model explaining how the three burnout dimensions (emotional exhaustion, depersonalization and diminished personal accomplishment) are proposed to influence individual and organizational consequences such as job satisfaction, intent to leave, tense/nervous at work. Emotional exhaustion was modelled as triggered by job/role demand stressors (role conflict, quantitative role overload, role ambiguity) and individual demand stressors (work involvement) while their

relation to emotional exhaustion was moderated by the availability of coping resources (such as supervisor support). Depersonalization was proposed to be influenced by impersonal, controlling, dehumanizing factors (as participation) while diminished personal accomplishment was proposed to be caused by unappreciated, ineffective, inadequate factors (career progress, opportunities). The burnout dimensions were also proposed to be directly influenced by the availability of coping resources (such as supervisor support).

In order to further illustrate the academic dialogue in role stress research, we below outline one of the more commonly replicated models in role stress research – the one provided by Bedeian and Armenakis (1981) This model, which is illustrated in Figure 1 below has for example been replicated by Kemery, Bedeian, Mossholder and Touliatos (1985), Netemeyer, Johnston and Burton (1990). Of particular interest has been to test the steps in the model and the order of the detrimental consequences that role stress is ought to have. An example of how the model has been reworked is to go to the study by Schaubroeck, Cotton and Jennings (1989) who inserted organizational commitment between job satisfaction and turnover intention (as conceptually overlapping propensity to leave), and also inserted participation, role overload and social support as antecedents, and starting-point of the model. As well, they redirected a number of the paths in the model.

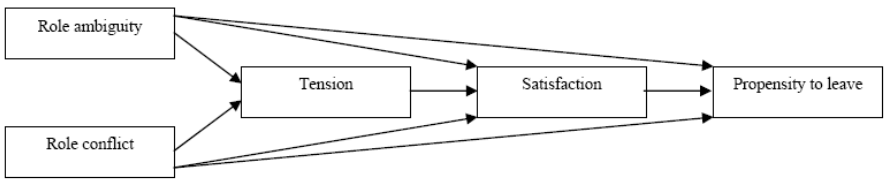

Figure 1. Causal model of role stress (Bedeian and Armenakis, 1981).

Similar yet related consequence focused models have been presented by others. Dubinsky, Michaels, Kotabe, Un Lim and Moon (1992) presented a causal model indicating how role stress can lead to decreased organizational commitment. This model is presented in Figure 2. As evident, this model posits that job performance is suggested to have a more prominent role than tension, which is the focus of the Bedeian and Armenakis model presented in Figure 1.

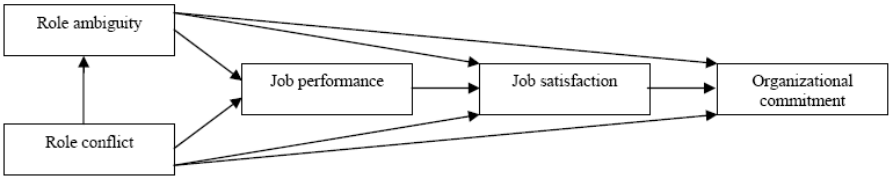

Figure 2. Causal model of role stress (Dubinsky, Michaels, Kotabe, Un Lim and Moon, 1992).

THEORY IMPLICATIONS OF QUESTIONING CAUSALITY

We next turn to addressing how role stress researchers could pursue another path by questioning causality. One theoretical origin that could be used for questioning causality could be following the theories of loss spirals and conservation of resources (Hobfoll, 1989, 2001), to assert that reverse causation also can occur between the role stress construct and consequences such as for instance performance or satisfaction type of measures at the one hand and tension or exhaustion on the other.

Traditionally explanations for relationship between role stress, tension and performance would have been explained such that role stress influences tension, defined as the negative psychological experience based on job-related anxiety, as role stress have been argued to be noxious stimuli that are likely to lead to experiences of discontent or disillusions with work (Walker, Churchill, and Ford, 1975).

In that way job tension has been assumed to be triggered from role stress experiences since it reflects a psychological reaction of discomfort. Job performance – the degree to which employees execute their job tasks, responsibilities, and assignments adequately (Dubinsky, Michaels, Kotabe, Un Lim and Moon, 1992) – arguments for being a consequence much deals with that inconsistent demands (role conflict) can lead to ineffectiveness due to incompatible demands. Role ambiguity is also negatively related to job performance. This is because it is hard to perform any role well when there is uncertainty about how time and effort should be allocated. The same negative relationship should be evident for role overload, as it is difficult to perform well without adequate resources for fulfilling role expectations.

Conservation of resources theory can propose a reversed causation as it asserts that "people strive to obtain and maintain that which they value (their

'resources')" (Taris, Schreurs, and Schaufeli, 1999, p. 229) and predicts negative outcomes with loss or threats to these valued resources.

Under this particular theory, the loss of valued resources can give rise to a process of loss spirals, wherein each loss is derived from and then results in depletion of resources to be used in confronting the next threat or loss (Hobfoll, 2001).

Loss spirals are based on the idea that people who lack resources are susceptible to losing even more resources. Thus, an approach trying to question the causality of the most commonly used role stress consequences would based upon this theory argue that while role stress is usually argued to influence tension type of measure or exhaustion and drive dissatisfaction and reduce performance, an individual's experience of increased tension and reduced performance could as well be argued to increase levels of his or her experienced role stress. Thus, we encourage scholars to look beyond the stressor-strain perspective that has thus far dominated the role stress literature, emphasizing stress as a starting point for among other things tension and performance.

Determining the existence of reciprocal causation can expand the role stress literature in new directions and allow scholars to more fully comprehend the mechanisms of role stress. This would imply revising the direction of the arrows in the existing role stress models.

METHOD IMPLICATIONS

Although such an approach and agenda to introduce a new perspective questioning and trying to modifying the role of consequences in role stress could push the boundaries of current role stress research, we notice that it also challenges the conventional analytical techniques used in this particular domain of research. To test for the possibility of reverse causation and to further develop the body of knowledge on the complexity of role stress, we recommend a longitudinal data design and the adoption of a cross-lagged design. Although other research domains have undertaken a similar approach no single study has yet used this approach for role stress. The use of a cross-lagged design has several advantages. Foremost, the design is suitable for examining causalities among a set of constructs. However, the method also considers lagged effects in relationships, which suits the slow-developing process perspective—as presented by Hobfoll (1989) and others—that may be needed to find support for how increased exhaustion and reduced satisfaction

influence role stress. In order to expect influences from some consequences like exhaustion on role stress, we may need to consider a time lag, i.e. that effects on role stress do not appear immediately. Thus, we find this particular analytical approach suitable for extending the current scope of the role stress literature to incorporate additional theory that has not been drawn from in relation to role stress specifically.

Figure 3 illustrates four models that could be compared in order to evaluate causality and the arguments of reversed causality we have elaborated upon previously. The models represented in the figure are: (1) a stability model including relationships of the two measurement points for each construct, (2) a regular causation model, which asserts how role stress at the first measurement influences performance and tension at the second measurement, (3) a reverse causation model, which examines the influence of performance and tension at time 1 on role stress at time 2, and (4) a reciprocal causation model, which combines the regular and reverse causation as modeled in model two and three. Obviously, performance and tension is only two constructs that could be evaluated in a list of other possible detrimental consequences that have been utilized in prior role stress research.

In testing these models empirically, we suggest researchers to follow the general guidelines for SEM tests.

This means we suggest scholars to evaluate measurement models and psychometric properties of the study constructs before testing the structural equation models (Anderson and Gerbing, 1988). This is something that is not always done in the current role stress literature. Moreover, we would like to highlight that Figure 3 is a simplified illustration, because it may be relevant to study the separate role stress constructs role conflict, role ambiguity, and role overload in isolation and not aggregated as it is illustrated below.

To assess causality, one alternative for role stress researchers could be to compare the four competing models using a nested model design. First, one should compare the four models as depicted in Figure 3. Evaluation of the competing models can be based on a chi-square difference test and assessment of absolute and relative fit of our theoretical models by chi-square tests and evaluate the models with other tests of the competing models such as the goodness-of-fit index, normed fit index, and comparative fit index.

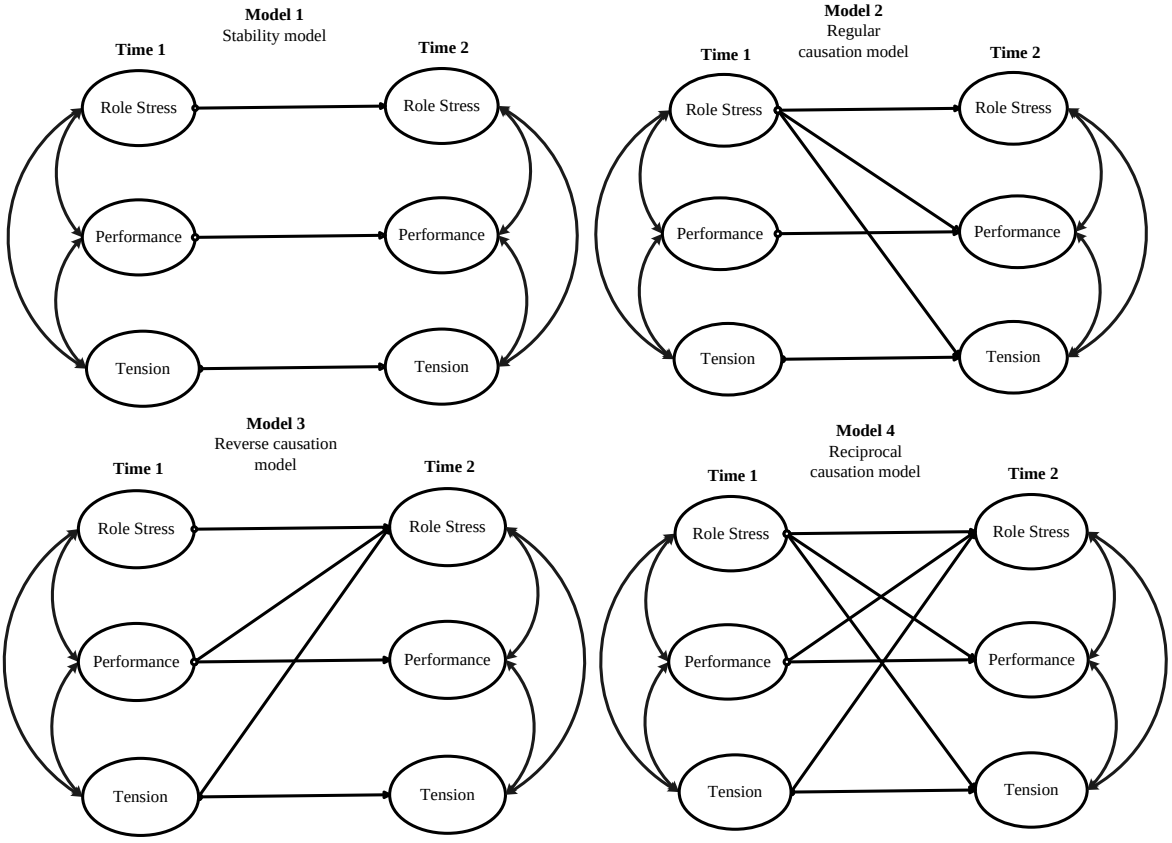

Figure 3. Representation of Competing Causation Models.

This would provide an indication of which model that represents the data best. In a second step, researchers should then assess the significance of the relationships. This technique would provide additional insights into causal influences of role stress and whether the currently used role stress consequences also could be role stress antecedents.

CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

This paper illustrates and exemplifies some possibilities to extend the role stress literature which has today much focused upon determining detrimental consequences. We hope that our effort which attempts to highlight that current role stress research fail to acknowledge that there could be opposite directions of the widely tested influences of role stress on detrimental consequences and as such possibilities detecting reversed causality, i.e. that what are commonly argued to be role stress consequences also could be antecedents.

Acknowledging this possibility, we see a chance to extend the stressor-strain paradigm in which most research related to role stress draw from and thus the use of alternatives theories for modelling role stress relationships.

Notwithstanding the contributions of prior work, to which we also subscribe to and agree, our discussion only attempts to foster a dialogue for researching alternative paths in future role stress research. We hope our discussion will stimulate such efforts.

REFERENCES

Anderson, J. C., and Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*, 411 - 423.

Bauer, T.N., and Green, S.G. (1994). Effect of newcomer involvement in work-related activities: A longitudinal study of socialization. *Journal of Applied Psychology*, 79(2), 211-223.

Bedeian, A.G., and Armenakis, A.A. (1981). A path-analytical study of the consequences of role conflict and ambiguity. *The Academy of Management Journal*, 24(2), 417-425.

Behrman, D.N., and Perreault, W.D. Jr. (1984). A Role Stress Model of the Performance and Satisfaction of Industrial Salespersons. *Journal of Marketing*, 48(4), 9-21.

Boles, J. S., Johnston, M. W., and Hair Jr., J. F. (1997). Role stress, work-family conflict and emotional exhaustion: Inter-relationships and effects on some work-related consequences. *Journal of Personal Selling and Sales Management, 17*(1), 17-28.

Chassin, L., Zeiss, A., Cooper, K., and Reaven, J. (1985). Role perceptions, self-role congruence and marital satisfaction in dual-worker couples with preschool children. *Social Psychology Quarterly, 48*(4), 301-311.

Crouter, A. C., Bumpus, M. F., Maguire, M. C., and McHale, S. M. (1999). Linking parents' work pressure and adolescents' well being: Insights into dynamics in dual earner families. *Developmental Psychology, 35*(6), 1453-1461.

Day, A. L., and Livingstone, H. A. (2001). Chronic and acute stressors among military personnel: Do coping styles buffer their negative impact on health? *Journal of Occupational Health Psychology, 6*, 348-360.

Dubinsky, A.J., Michaels, R.E., Kotabe, M., Lim, C.U., Moon, H-C. (1992). Influence of Role Stress on Industrial Salespeople's Work Outcomes in the United States, Japan, and Korea. *Journal of International Business Studies*, 23(1), 77-99.

Fleming, W. G. (1966). Authority, efficiency, and role stress: Problems in the development of east African bureaucracies. *Administrative Science Quarterly, 11*(3), 386-404.

Fry, L. W., Futrell, C. M., Parasuraman, A., and Chmielewski, M. A. (1986). An analysis of alternative causal models of salesperson role perceptions and work-related attitudes. *Journal of Marketing Research, 23*(2), 153-163.

Gaugler, J. E., Davey, A., Pearlin, L. I., and Zarit, S. H. (2000). Modeling caregiver adaptation over time: The longitudinal impact of behavior problems. *Psychology and Aging, 15*(3), 437-450.

Goldstein, D.K., and Rockart, J.F. (1984). An Examination of Work-Related Correlates of Job Satisfaction in Programmer/Analysts. *MIS Quarterly*, 8(2), 103-115.

Gong, Y., Shenkar, O., Luo, Y., and Nyaw, M-K. (2001). Role conflict and ambiguity of CEOs in international joint ventures: A transaction cost perspective. *Journal of Applied Psychology, 86*(4), 764-773.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*, 513-524.

Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology: An International Review, 50*, 337–421.

Jackson, S. E., and Schuler, R. S. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior And Human Decision Processes, 36*, 16-78.

Jaworski, B. J., Stathakopoulos, V., and Krishnan, H. S. (1993). Control combinations in marketing: Conceptual framework and empirical evidence. *Journal of Marketing, 57*(1), 57-69.

Kahn, R. L., Wolfe, D., Quinn, A., Snoek, J. D. and Rosenthal, R. (1964). *Organizational Stress: Studies In Role Conflict And Role Ambiguity*. New York: John Wiley and Sons.

Katz, D., and Kahn, R. L. (1978). *The Social Psychology Of Organizations*, 2nd edition. New York, Wiley.

Kemery, E.R., Bedeian, A.G., Mossholder, K.W., and Touliatos, J. (1985). Outcomes of Role Stress: A Multisample Constructive Replication. *The Academy of Management Journal*, 28(2), 363-375.

Kemery, E.R., Mossholder, K.W., and Bedeian, A.G. (1987). Role Stress, Physical Symptomatology, and Turnover Intentions: A Causal Analysis of Three Alternative Specifications. *Journal of Occupational Behaviour*, 8(1), 11-23.

Lambert, V. A., and Lambert, C. E. (2001). Literature review of role stress/strain on nurses: An international perspective. *Nursing and Health Sciences, 33*, 161-172.

Lee, R.T., and Ashforth, B.E. (1993). A Further Examination of Managerial Burnout: Toward an Integrated Model. *Journal of Organizational Behavior*, 14(1), 3-20.

Miles, R. H. (1977). Role-set configuration as a predictor of role conflict and ambiguity in complex organizations. *Sociometry, 40*(1), 21-34.

Netemeyer, R.G., Johnston, M.W., and Burton, S. (1990). Analysis of role conflict and role ambiguity in a structural equations framework. *Journal of Applied Psychology*, 75(2), 148-157.

Oliver, R. L., and Brief, A. P. (1977). Determinants and consequences of role conflict and ambiguity among retail sales managers. *Journal of Retailing, 53*(4), 47-59.

Örtqvist, D. and Wincent, J. (2006). Prominent consequences of role stress: A meta-analytic review. *International Journal of Stress Management, 13*, 399-422.

Pearlin, L.I., Aneshensel, C.S., and Leblanc, A.J. (1997). The Forms and Mechanisms of Stress Proliferation: The Case of AIDS Caregivers. *Journal of Health and Social Behavior*, 38(3), 223-236.

Posig, M., and Kickul, J. (2003). Extending our understanding of burnout: Test of an integrated model in nonservice occupations. *Journal of Occupational Health Psychology*, 8(1), 3-19.

Schaubroeck, J., Cotton, J.L., and Jennings, K.R. (1989). Antecedents and Consequences of Role Stress: A Covariance Structure Analysis. *Journal of Organizational Behavior*, 10(1), 35-58.

Schaufeli, W. B., Maslach, C., and Marek, T. (Eds.). (1993). *Professional Burnout: Recent Developments In Theory And Research*. Washington, DC: Taylor and Francis.

Senatra, P.T. (1980). Role Conflict, Role Ambiguity, and Organizational Climate in a Public Accounting Firm. The Accounting Review, 55(4), 594-603.

Singh, J. (1993). Boundary role ambiguity: Facets, determinants, and impacts. *Journal of Marketing, 57*(2), 11-31.

Stoner, C. R., and Hartman, R. I. (1990). Work-home role conflict in female owners of small business: An exploratory study. *Journal of Small Business Management, 28*(1), 30-38.

Taris T. W., Schreurs P. J. G., and Schaufeli W. B. (1999). Construct validity of the Maslach Burnout Inventory-General Survey: a two-sample examination of its factor structure and correlates. *Work and Stress, 13,* 223-237.

Teas, R.K. (1983). Supervisory Behavior, Role Stress, and the Job Satisfaction of Industrial Salespeople. *Journal of Marketing Research*, 20(1): 84-91.

Tetrick, L. E., and LaRocco, J. M. (1987). Understanding, prediction, and control as moderators of the relationships between perceived stress, satisfaction, and psychological well-being. *Journal of Applied Psychology, 72*(4), 538-543.

Tetrick, L. E., Slack, K. J., Da Silva, N., and Sinclair, R. R. (2000). A comparison of the stress-strain process for business owners and nonowners: Differences in job demands, emotional exhaustion, satisfaction, and social support. *Journal of Occupational Health Psychology, 5*(4), 464-476.

Walker, O.C. Jr., Churchill, G.A. Jr., and Ford, N.M. (1975). Organizational Determinants of the Industrial Salesman's Role Conflict and Ambiguity. *Journal of Marketing*, 39(1), 32-39.

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Chapter 7

ROLE STRESS IN FLEXIBLE AND CREATIVE ROLES: SOME SUGGESTIONS ON HOW TO IDENTIFY POSITIVE CONSEQUENCES

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ABSTRACT

In this paper we illustrate that much of the traditional role stress research has related to quite static roles in role taking systems where effects of role stress typically have been viewed as detrimental (i.e., the stressor-strain perspective). We suggest a brighter picture in that role stress can have positive consequences when roles are constructed to have enough flexibility, freedom and creativity to allow for pertinent coping alternatives. In relation to this perspective, we present three approaches for examining the nature of stress and for evaluating whether role stress can have positive consequences given certain role characteristics.

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INTRODUCTION

In a review of the literature (see Örtqvist and Wincent, 2006) we acknowledged that role stress originally and commonly defined by role conflicts and role ambiguities has reached a mature stage with over 300 published studies since its interception in the early 1950s. The studies spans a multitude of role contexts and scientific disciplines, but put much focus on work related and professional roles such as that of social service caseworkers (Smith and Brannick, 1990) and prison camp officers (Grusky, 1959) to mention a few. In the roles that have been studied in previous research, studies have consistently found role stress to have detrimental consequences. Numerous studies have established role stress to lead to both dysfunctional psychological and physical effects. These effects include reduced satisfaction, increased tension, burnout syndromes, depressions, frustration, and subsequent role withdrawal intentions. These negative experiences and effects much subscribes to the classic and dominant perspective of stress research, the stressor–strain perspective. The main implications with regard to this perspective would be that role stress is tied to unpleasant role experiences, and thus dysfunctional for job accomplishments (Schaubroeck, Cotton, and Jennings, 1989). The stressor-strain perspective and the findings related to this perspective have not much acknowledged the fact that reactions are role dependent and as such is likely to vary across roles, neither have they provided detailed suggestions or ideas of how role stress can provide positive effects (see e.g. Bacharach, Bamberger, and Conley, 1991; Behrman and Perreault, 1984; Dubinsky, Michaels, Kotabe, Lim, and Moon, 1992; Johnston, Parasuraman, Futrell, and Black, 1990; Schaubroeck, Cotton, and Jennings, 1989; Kemery, Bedeian, Mossholder, and Touliatos, 1985).

Without questioning the importance of prior work, we notice a lack of adherence to today's working conditions and especially to the work roles that are characterised by higher degrees of freedom, flexibility and creativity, such as the roles of inventors, sole proprietors, artists, and painters. Indeed, these roles are commonly occurring in the present society and a substantial amount of people are engaged in them at workplace. Importantly, these are different to many of those roles previously studied, which mostly refers to highly structured quite static roles in role taking systems (such as bankers, accountants) not allowing for the same high extent of flexibility and freedom in roles that are made rather than assigned by organizational authority. Based upon the observation that meta-analytic reviews have found a considerable variability in the correlations of role stress and outcomes (see for instance

Jackson and Schuler, 1985; Abramis, 1994; Tubre, Sifferman, and Collins, 1996) such that role stress may not entail overly detrimental consequences in at least certain professions (Galletta and Heckman, 1990), we believe at least of portion of these differences relate to role characteristics whereby one may pose that the experience of role stress is not necessarily as detrimental for certain roles.

The aim of this paper is to elaborate upon possibilities for finding positive effects of role stress. Although prior role stress literature has indicated the potential to acknowledge not only detrimental effects of role stress, there is limited theoretical knowledge about what mechanisms that could possible be used for extending role stress research into finding positive outcomes. There is also a clear restriction of methodological arguments for how to identify potential positive consequences of role stress. We here explore a set of arguments suggesting that finding at least some positive influences of role stress may be possible if studying roles that can be characterized by freedom, creativity and flexibility – role characteristics that could be found in numerous working conditions in the society of today. In much of the previous studies on role stress focus has been directed to roles that to a large extent has been restricted in terms of flexibility, creativity and freedom related to cope with role stress such that the experience of role stress, at least to a certain extent, would be overly challenging for the individual where there is no or little room for fighting the stressors effectively. Instead, more loosely defined roles such as the sole proprietor, experiencing for example role ambiguity, defined as the perceived lack of information with respect to stakeholders' priorities, expectations, and evaluation criteria (Kahn et al., 1964), could use the authority tied to the role to resolve the ambiguity with the stakeholder, or even take a break, reflect and come back to solve the ambiguity faced, whereas the police facing role ambiguity may have much less possibility for effective solving the demands or challenges at hand as authority to resolve ambiguity is not related to the role and where stakeholder interaction may be insufficient for resolving ambiguity and achieving task performance. The same situation could apply to inventors or other roles that are less restricted for obtaining effective coping of role stress. Although there is no reason to doubt that more unstructured roles should also be susceptible to role stressors in form of conflicts, ambiguities and overloads, the fact that they at the same time are equipped with substantial degree of latitude and flexibility to cope with such stressors could open up for different and possibly other outcomes than previous role stress literature has acknowledged. We posit it is highly likely that these less restricted role characteristics can constitute a basis for

expending extra effort and energy at own premises. This could allow for possibilities to transfer positive and motivating components of stressors on performance. The reason is that whether individuals experience role stress as positive or negative is role dependent and strongly linked to the possibility of successful coping defined as the thoughts and behaviors used to manage the internal and external demands of situations perceived as stressful in a specific role (Cavanaugh, Boswell, Roehling, and Boudreau, 2000).

The reason for experiencing something positive when effectively coping with stress is because of the fact that the most productive way to cope is to overcome role stress, and the experience when doing so is likely a positive outcome or consequence for the individual (Podsakoff et al., 2007).

Although some previous efforts exists and some efforts has been previously made to find at least not so unpleasant influences of role stress, we believe that many of the roles studied today can open up the study of finding positive influences of role stress.

Such a perspective is not totally unconnected to previous findings in the role stress literature. Contrary to the dominant perspective undertaken in previous research, both Jones (1993) and Marks (1977) reported that dealing with role conflicts can contribute energy rather than drain energy. Further supporting such a more positive view on role stress is the study of Seiber (1974) who suggested that role conflict can contribute to good mental health by reducing for instance boredom. Also the studies made by authors such as Edwards and Cooper (1988), Singh (1998), Singh, Goolsby and Rhoads (1994) and Babakus, Cravens, Johnston and Moncrief (1999) indicate that current knowledge can be extended from a solely negative perspective on role stress to also touch upon positive aspects.

We next elaborate upon and extend these efforts by outlining three alternatives for finding positive influences of role stress in flexible and creative roles. For sake of simplicity, we focus our examples on the role of the inventor.

RESEARCH APPROACHES OPENING UP FOR POSITIVE CONSEQUENCES OF ROLE STRESS

In an attempt to stimulate further research in this area and for finding positive outcomes from stressors in these roles, we draw upon a set of foundational mechanisms from frameworks which have been proposed in previous stress research, but which have not been applied in role stress and

especially not on such flexible and creative work roles as described in the present study.

Such frameworks could be the ones proposed by Yerkes and Dodson (1908) in form of Yerkes-Dodson Law, Selye's (1956, 1973) work on distress and eustress, or Karasek's (1979) job demand-control model to mention a few.

We continue by presenting how some of the frameworks can assist in opening up for different ways to identify positive consequences of role stress and hence constitute a basis for researching a more brighter side of role stress in more unstructured work roles.

WHEN THE POSITIVE OF ROLE STRESS IS HIDDEN IN CURVILINEAR REPRESENTATIONS OF DATA

The very early perspective with implications for stress research is that which have come to be called the Yerkes-Dodson Law (Yerkes and Dodson, 1908). Yerkes-Dodson Law argued a relationship between the strength of arousal stimulus (compare stress) and task performance, in such a way that increasing stress would be beneficial to performance until some optimum level is reached, after which performance will decline.

This law has been tested with some different form of stress constructs. For instance, Xie and Johns (1995) established nonlinear effects when they examined the relationship between job complexity and mental health problems. Singh (1998) studied nonlinear relationships of role stress on job performance, satisfaction, commitment, job tension, and turnover intentions in a sample of salespeople from large established firms (i.e., Fortune 500 companies).

This study found no evidence of nonlinear relationships between any of three examined role stressors (role conflict, role ambiguity, and role overload) on performance, satisfaction, commitment or turnover intentions. However, the study did reveal a significant nonlinear relationship between role ambiguity and tension such that low levels of ambiguity reduces tension, but that higher levels would lead to increases of tension.

Several have suggested for future studies to examine the applicability of the Yerkes-Dodson Law in studies of role stress (see for instance Beehr, Jex, Stacy and Murray, 2000) even though most of the past studies have failed to find convincing empirical support for this law in relation to examinations of role stress.

We do concur that future studies should reinvestigate this law and suggest that the present failure to produce clear empirical evidence can be due to that much of the performed tests focused on work roles related to role taking systems (i.e., such as salespeople in Fortune 500 companies; Singh, 1998) where coping alternatives to stressors were low and therefore even low levels of stressors appeared as detrimental.

In future attempts, we do recommend for researchers to replicate these designs in samples belonging to role making systems, including such roles as inventors, sole proprietors and other roles which contain higher degrees of freedom, flexibility and creativity.

WHEN PARTIAL MEDIATION SEPARATES THE NEGATIVE FROM THE POSITIVE

Selye defined stress as "non-specific response of the body to a demand" (Selye, 1973) and argued stress reactions to be potential to divide into eustress (a form of pleasant stress) and distress (a form of unpleasant stress). Selye thus argued that stressors influence stress experiences through the filter of the individual exposed to the stressor. Given the right make-up of beliefs, expectations, life experiences etc. a person would interpret stressors as eustress and thus excitement, joy and elation. Others, lacking this make-up, would instead experience distress in form of panic, avoidance and flight syndromes. Entering roles that are open, flexible and much driven by own motivation and incentives, there is much pointing to that also this perspective could contribute to finding positive effects of role stress.

The notion of two forms of stress (a positive and a negative) co-existing suggests that the consequence of stress not only lies in the level of stress but rather in the type of stress. Hence, locating positive aspects of stress can not be done by examinations at different stress levels. Rather, a pertinent design would be to locate effects through the inclusion of variables mediating the stress to performance relationship. Such an approach would try to partial out the negative (or positive) effects of role stress by including a mediating variable that capture coping failures using variables such as exhaustion. This perspective has gained some interest in previous literature. For instance, Fogarty, Singh, Roads and More (2000) found some initial empirical support for different types of stressors when partialing out effects through mediating variables. We do expect these effects to be more obvious and stronger in roles which are flexible and creative compared to what Fogarty and co-authors

found for accounting personnel, which was the sample they used for their research. As such, we suggest that including mediating variables can help locate and differentiate distress effects from eustress effects, especially where mediators are selected to partial out effects of distress or eustress.

WHEN IT IS ALL ABOUT THE INTERACTION FOR UNDERSTANDING PERFORMANCE

A third way of distinguishing the effects of stress on performance would be to interpret role stress through the model as proposed by Karasek (1979) entitled the job demand-control model. This model presupposes that the interaction of control over the environmental situation and job demands determines an individuals health and active behavior (Karasek and Theorell, 1990; Theorell and Karasek, 1996). When a work role is characterized by high demands and low control a person would experience high strain and demarcates the worse consequences in terms of health for an individual (i.e., the job strain hypothesis). On the contrary, when a work role combines high demands (yet still reachable) with high control the individual has latitude enough to enable coping strategies. As such, this situation enables an active behaviour to resolve demanding jobs and has thus been related to a better performance, a sense of mastery and self-efficacy (i.e., the active learning hypothesis).

Also for this perspective, we expect to see much use of finding positive influences when being exposed to role stress. Given that the person has enough control (and coping possibilities) to meet the sources of role stress it is likely that one could experience positive outcomes. This likelihood would increase in roles characterised by flexibility and many coping possibilities like for innovators and for painters.

There are several ways in which this model can be implemented and tested in a framework consisting of role stress. Spector (1987) proposed and tested the interactive effect of control on role stress (i.e., role conflict, ambiguity, and overload), where the assumption was that high levels of stress would be associated with poor health and negative affect given low control. The empirical data failed to support this assertion in a sample of clerical workers at a major US university. While Spector argued that the self-reports might portray the reason for this finding there may also be that the selection of a highly structured role, such as that of the clerical, for the sample constitutes the reason. We hence propose a replication of Spectors study performed in a

different role to evaluate whether these findings may be related to role characteristics and coping abilities. We do also propose an alternative for how to test the thoughts of Karasek (1979) by examining interaction effects of role stressors.

It would be possible to portray the dimension of demand by leves of role overload, and simultaneous the dimension by the inversed score of role ambiguity. As such, one method for examining positive consequences of role stress in flexible and creative roles goes through controlling for the negative aspects of role ambiguity, where overload (i.e., demand) is viewed as positive as long as there are no ambiguities (i.e., high control) for performance.

CONCLUDING REMARKS

The dominant perspective in role stress research has been the stressor-strain perspective. This perspective has shown great value for understanding and explaining the detrimental consequences of role stress in quite static roles in role taking systems. Without questioning the contributions of this perspective, we suggest that it may be a bit limited in explaining the relationship between role stress and performance in roles which are characterized by having enough flexibility, freedom and creativity to allow for pertinent coping alternatives.

Instead, we do identify, suggest and describe three distinct ways in which potential positive consequences of role stress can be modelled and tested in empirical studies for such roles. We suggest for further research to empirically evaluate these models and compose competing tests for these explanations to illustrate a) whether positive consequences of role stress truly exist in mentioned roles, and b) to examine the nature of role stress such that for instance if it is a matter of degree or kind (compare the Yerkes-Dodson Law to the discussion about eustress and distress, or the job demand-control model).

REFERENCES

Abramis, D. J. (1994). Work role ambiguity, job satisfaction, and job performance: Meta-analysis and review. *Psychological Reports*, *75*, 1411-1433.

Babakus, E., Cravens, D. W., Johnston, M., and Moncrief, W. C. (1999). The role of emotional exhaustion in sales force attitude and behavior relationships. *Journal of the Academy of Marketing Science, 27*(1), 58-70.

Bacharach, S. B., Bamberger, P., and Conley, S. (1991). Work-home conflict among nurses and engineers: Mediating the impact of role stress on burnout and satisfaction at work. *Journal of Organizational Behavior, 12*(1), 39-53.

Beehr, T. A., Jex, S. M., Stacy, B. A. and Murray, M.A. (2000). Work stressors and coworker support as predictors of individual strain and job performance. *Journal of Organizational Behavior, 21*, 391-405.

Behrman, D. N. and Perreault, W. D. Jr. (1984). A role stress model of the performance and satisfaction of industrial salespersons. *Journal of Marketing, 48*(4), 9-21.

Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., and Boudreau, J. W. (2000). An empirical examination of self-reported work stress among U.S. managers. *Journal of Applied Psychology, 85*, 65–74.

Dubinsky, A. J., Michaels, R.E., Kotabe, M., Lim, C.U., and Moon, H-C. (1992). Influence of role stress on industrial salespeople's work outcomes in the United States, Japan, and Korea. *Journal of International Business Studies, 23*(1), 77-99.

Edwards, J. and Cooper, C. (1988). Research in stress, coping and health: theoretical and methodological issues. *Psychological Medicine, 18*, 15–20.

Fogarty, T.J., Singh, J., Rhoads, G.K., and Moore, R.K. (2000). Antecedents and consequences of burnout in accounting: Beyond the role stress model**.** *Behavioral Research in Accounting, 12*, 31-67.

Galletta, D. and Heckman, R. (1990). A role theory perspective on end-user development. *Information Systems Research, 1*(2), 168-187.

Grusky, O. (1959). Role conflict in organization: A study of prison camp officials. *Administrative Science Quarterly, 3*, 452-472.

Jackson, S. E. and Schuler, R. S. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes, 36*, 16-78.

Johnston, M. W., Parasuraman, A., Futrell, C. M., and Black, W. C. (1990). A longitudinal assessment of the impact of selected organizational influences on salespeople's organizational commitment during early employment. *Journal of Marketing Research, 27*(3), 333-344.

Jones, M. L. (1993). Role conflict: Cause of burnout or energizer? *Social Work, 38*(2), 136-141.

Kahn, R. L., Wolfe, D., Quinn, A., Snoek, J. D. and Rosenthal, R. (1964). *Organizational Stress: Studies In Role Conflict And Role Ambiguity*. New York: John Wiley and Sons.

Karasek R. and Theorell, T. (1990). *Healthy Work: Stress, Productivity, And The Reconstruction Of Working Life*. New York: Basic Books.

Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for jobredesign. *Administrative Science Quarterly, 24*, 285-308.

Kemery, E. R., Bedeian, A.G., Mossholder, K. W., and Touliatos, J. (1985). Outcomes of role stress: A multisample constructive replication. *Academy of Management Journal, 28*(2), 363-375.

Lazarus, R. S. and Folkman, S. (1984). *Stress, appraisal, and coping*. Springer, New York, NY.

Lepine, J. A., Podsakoff, N. P., andLepine, M. A. (2005). A meta-analytic test of the challenge stressor – hindrance stressor framework: An explanation of the inconsistent relationship among stressors and performance. *Academy of Management Journal, 48*, 764-773.

Marks, S. R. (1977). Multiple roles and role strain: Some notes on human energy, time and commitment. *American Sociological Review, 42*, 921-936.

Örtqvist, D. and Wincent, J. (2006). Prominent consequences of role stress: A meta-analytic review. *International Journal of Stress Management, 13*, 399-422.

Podsakoff, N. P., Lepine, J. A., and Lepine, M. A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behavior: A meta-analysis. *Journal of Applied Psychology, 92*(2), 438-454.

Schaubroeck, J., Cotton, J. L., and Jennings, K. R. (1989). Antecedents and consequences of role stress: A covariance structure analysis. *Journal of Organizational Behavior, 10*(1), 35-58.

Sieber, S. D. (1974). Toward a theory of role accumulation. *American Sociological Review, 39*, 567-578.

Selye, H. (1956). *The Stress Of Life*, New York: McGraw Hill.

Selye, H. (1973). The evolution of the stress concept. *American Scientist, 61*(6), 692-699.

Singh, J. (1998). Striking a balance in boundary-spanning positions: An investigation of some unconventional influences of role stressors and job characteristics on job outcomes of salespeople. *Journal of Marketing, 62*(3), 69-86.

Singh, J., Goolsby, J. R., and Rhoads, G. K. (1994). Behavioral and psychological consequences of boundary spanning burnout for customer service representatives. *Journal of Marketing Research, 16,* 558-569.

Smith, C. S., and Brannick, M. T. (1990). A role and expectancy model of participative decision-making: A replication and theoretical extension. *Journal of Organizational Behavior, 11*(2), 91-104.

Spector, P. E. (1987). Interactive effects of perceived control and job stressors on affective reactions and health outcomes for clerical workers. *Work and Stress, 1*(2), 155-162.

Theorell T. and Karasek R. A. (1996). Current issues relating to psychosocial job strain and cardiovascular disease research. *Journal of Occupational Health Psychology, 1*, 9-26.

Tubre, T. C., Sifferman, J. J., and Collins, J. M. (1996). Jackson and Schuler (1985) revisited: A meta-analytic review of the relationship between role stressors and job performance. Paper presented at the annual meeting of the Society for Industrial and Organizational Psychology, San Diego, CA.

Xie, J. L. and Johns, G. (1995). Job scope and stress: Can scope be too high? *Academy of Management Journal, 38*, 1288-1309.

Yerkes, R. M. and Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurology and Psychology, 18*, 459-482.

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