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THE RELATIONSHIP BETWEEN THE SENSE OF COHERENCE, DEMOGRAPHIC CHARACTERISTICS, AND CAREER THOUGHT PROCESSES AMONG COLLEGE STUDENTS WITH DISABILITIES

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Wonsun Seo

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Date

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THE RELATIONSHIPS BETWEEN THE SENSE OF COHERENCE, DEMOGRAPHIC CHARACTERISTICS, AND CAREER THOUGHT PROCESSES AMONG COLLEGE STUDENTS WITH DISABILITIES

by

Wonsun Seo

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ABSTRACT

THE RELATIONSHIPS BETWEEN THE SENSE OF COHERENCE, DEMOGRAPHIC CHARACTERISTICS, AND CAREER THOUGHT PROCESSES AMONG COLLEGE STUDENTS WITH DISABILITIES

By

Wonsun Seo

This study examined the relationship between sense of coherence, demographic characteristics, and career thought processes among college students with disabilities based on Antonovsky's conceptual framework of sense of coherence. Participants were college students with disabilities collected through the Resource Center for Persons with Disabilities (RCPD) at Michigan State University and other universities and colleges via a listserv of the Michigan Association on Higher Education and Disabilities (MI-AHEAD). Pearson Correlation Coefficient and forward stepwise regression analyses were carried out in order to find out the relationship between sense of coherence, demographic characteristics (e.g., gender, race, and socioeconomic status), and career thought processes. Results supported that college students with disabilities who showed higher sense of coherence indicated less overall dysfunctional career thoughts, career decision-making confusion, or career-related anxiety. In addition, the relationships between sense of coherence, career thoughts, and the demographic characteristics have been found. Implications for career development professionals as well as clinical considerations of caring for college students with disabilities experiencing career-related difficulties were discussed

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I would like to express my gratitude to Mr. Michael Hudson and Ms. Virginia Martz at the Resource Center for Persons with Disabilities (RCPD) at the Michigan State University for their assistance to this project. I also wish to thank other RCPD staff members for their time and effort in seeking potential participants for this study.

I would like to thank my family members: my lovely mother in heaven, father, and older brother for their loving support during this project and throughout my life. Finally, I would like to express my heartfelt thanks to the students who participated in this study. It has been a great privilege to learn from the thoughts and feelings they chose to share about the experience of living with disabilities. I have been touched by their

strength and dignity, and I am grateful that their insights have given me an opportunity to reflect upon the way I want to live my own life.

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CHAPTER 1

INTRODUCTION

In recent years, the population of people with disabilities has been increasing and now comprises approximately 20 percent of the total population (49.7 million) in the United States (U.S. Census of Bureau, 2003). The proportion of people with disabilities has been increasing and becoming more visible in almost all social settings due to advanced medical care and the aging of the population (Smart, 2008). Furthermore, social environments such as school, work, and the community have provided people with disabilities more opportunities to participate in social activities due to disability-related legislation such as the Americans with Disabilities Act (ADA) and Rehabilitation Act of 1973. These legislative initiatives have supported disability-related services and have given people with disabilities a better opportunity to achieve their educational and vocational goals. For example, per ADA regulations, people with disabilities should not be discriminated in employment settings in terms of hiring, promotion, or termination. In addition, people with disabilities could have more equal access to academic opportunities and services in educational setting (ADA, 1990).

However, despite the passage of multiple legislative mandates, throughout the past 20 years people with disabilities have indicated that they are less likely to complete college-level education and are less likely to be employed in comparison to their counterparts without disabilities. People with disabilities are often experiencing difficulties pursuing postsecondary education and are not appropriately prepared in terms of employment or job-related decision and skills (National Organization on Disability, 1998; Stodden & Dowrick, 2000). People with disabilities demonstrated employment

status in less professional, lower paid, and less prestigious occupations. Thirty-three percent of people with disabilities live with an annual income of less than $15,000 (New Freedom Initiative, 2001).

Statement of the Problem

In order to achieve a high quality of life and vocational success, it is important for people with disabilities to have effective coping strategies. Employment status is important in determining how well an individual is able to manage their disability. For example, individuals with disabilities who were employed either full- or part-time demonstrated the greatest life satisfaction. On the other hand, those who could not work and were limited in social or academic activities reported the lowest life satisfaction ((Mehnert, Krauss, Nadler, & Boyd, 1990; Nosek, Fuhrer, & Potter, 1995).

Along with employment status, it is also important to examine the relationships between psychological traits or resources and strategies used to deal with vocational-related stressors. In order to enhance a high quality of life and successful vocational outcomes, investigating the level of psychological attributions or traits is necessary. Based on the notion that people with higher levels of positive psychological states may indicate better approaches to job-related stressful life situations, it is important to examine the relationship between the levels of psychological resources and career-related skills among people with disabilities.

Theoretical Framework for the Study

Antonovsky's Sense of Coherence (SOC): Comprehensibility, Manageability, and Meaningfulness. In stress and coping research, the pathogenic model was dominant until the 1970s. The pathogenic model views that stressors can cause disease and disrupt the

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homeostatic system of a living organism. In understanding the relationship among health, stress, and coping, the pathogenic model is derived from the traditional medical dichotomous notion that individuals will be viewed as either healthy or sick persons due to the risk factors. The pathogenic model views stressors as risk factors which should be minimized, inoculated against, or buffered in order to maintain healthy status.

However, differing from the dichotomous medical pathogenic model, Antonovsky (1987) proposed a salutogenic model in which individuals' physical or psychological state is located somewhere between health and disease continuum. Individuals have potentials for moving toward both health and disease continuum within circumstances where stressors are common and open-ended in consequences. Based on the notion that stressors are ubiquitous, successful or appropriate coping strategies for stressors have been emphasized rather than inoculating against stressors. Thus, individuals may experience either positive or negative consequences depending on how well they understand and cope with stressors. For example, individuals may experience either positive or neutral outcomes from stressors and may move towards the healthy end of the continuum if they address stressors well. In contrast, individuals may move towards the disease end of the continuum if they poorly address stressors.

Antonovsky's sense of coherence: comprehensibility, manageability, and meaningfulness, has been constructed as a psychological resource to anticipate and manage stressful situations. Sense of coherence is individual's self-reported global orientation to seeing the world as comprehensible, manageable and meaningful. Sense of coherence is viewed as a major determinant of maintaining individuals' position on the health and disease continuum and of movement toward the healthy end. Numerous

researchers have found positive relationships between the level of sense of coherence and physical or psychological stability (Cohen & Kanter, 2004; Forsberg & Björvell, 1996; Motzer & Stewart, 1996), coping capabilities (Heiman, 2004; McSherry & Holm, 1994), and employment status (Harri, 1998; Lustig & Strauser, 2002; Lustig & Strauser, 2008). Based on the findings, individuals can understand the relationships among psychological and behavioral traits, sense of coherence, and stressors to seek feasible intervention strategies to cope with stressful life situations.

According to Antonovsky (1987), sense of coherence (SOC) is composed of three elements: comprehensibility, manageability, and meaningfulness. Sense of coherence is a global orientation that expresses the extent to which an individual has a pervasive, enduring though dynamic feeling of confidence that (1) the stimuli causing from his/her internal and external environments are structured, systematical, predictable, and explicable; (2) the resources are available to an individual to meet the demands posed by these stimuli through the life; and (3) these demands are challenges, worthy of investment and engagement (Antonovsky, 1987).

Comprehensibility refers to the extent to which an individual perceives that the stimuli from internal or external environment are ordered, consistent, structured, and clear, rather than chaotic, disordered, random, accidental, or inexplicable Antonovsky, 1987).

Manageability refers as the extent to which an individual perceives that available resources are feasible or controllable, which is adequate to address the demands from the internal or external stimuli that bombard him/her (Antonovsky, 1987).

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Meaningfulness is referred as the extent to which an individual feels that life makes sense emotionally, demands deriving from living are worth investing energy, and life difficulties are challenges rather than burdens (Antonovsky, 1987).

Cognitive Information Processing Theory and Career Development

The Cognitive Information Processing (CIP) theory represents cognition as a series of stages. This theory emphasizes the roles of the three major stages of memory cognition in retrieving information, transferring it to store, and then recalling in memory. There are three main types of memory: sensory, short-term, and long-term. Individuals can organize information within their environment by acquiring the sensory memory. Individuals can understand a small amount of information based on the short-term memory. If the information is effectively connected to previous knowledge, then it is stored in long-term memory. Afterward, individuals can remember the information for a long time and utilize it (Reiser & Dempsey, 2007). Additionally, the working memory can be stored where information from the short-term and long-term memory interacts in order to find out solutions to problems (Peterson, Sampson, & Reardon, 1996). Individuals should acquire information and learn cognitive skills to eliminate a gap between their reality and desire through problem solving (Sampson, Lenz, Reardon, & Peterson, 1999). There are cognitive process components to understand decision-making. From the perception of problems to the implementation of decision, the six stages can be analyzed in order to make a decision: screens, encodes, stores, activates, retrieves, and transforms information. First, information is screened, then encoded in short-term memory. Next, it is stored in long-term memory; and then activated and retrieved, transforming into working memory which will help find a solution (Peterson et al. 1996).

Cognitive Information Processing and Career Development. A cognitive information process is considered as an effective framework to enhance the quality of career decisions. Career-related problems can be found and solved through a series of the thought process. Individuals can utilize information in order to find a solution to a career related problem. Decision-making also involves appropriate cognitive process in order to implement a plan for a solution. Due to the importance of cognition in career-decision making or problem solving, it is crucial to develop a framework to enhance decision-making skills based on cognitive information processing. The pyramid of information processing domains can be utilized in order to increase individuals' awareness of key aspects of career problem solving and decision making. The base of the pyramid includes self-knowledge and occupational knowledge. The decision making skills domain is above the self-knowledge and occupational knowledge. As an information processing skill, the CASVE is one example of how to solve a problem or make a decision. The CASVE cycle includes the sequential phases of communication (C), analysis (A), synthesis (S), valuing (V), and execution (E). Individuals can communicate career-related problems, analyze information or data, synthesize the information or data to generate alternative choices, value each alternative choice by reviewing the information or data, and execute a plan by taking actions. At the top of the pyramid is the executive processing domain which includes metacognitions. Metacognitions are select cognitive skills to solve a problem or make a decision. Self-talk, self-awareness, and monitoring/control are some examples. The three domains of the pyramid are interrelated because a higher domain affects a lower domain. For instance, negative self-talk can affect the content and functioning of the decision-making skill and knowledge domains, which can have a detrimental

influence on all aspects of problem solving (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996).

Purpose of the Study

More people with disabilities are participating in postsecondary education than in the past; however, they may exhibit poor vocational success due to their limited development of job-related and career-related decision-making skills (Izzo & Lamb, 2009). In addition, many college students with disabilities did not receive career development training or the skills necessary to retain employment following secondary school (Farley & Johnson, 1999). Postsecondary education for people with disabilities provides an excellent opportunity to enhance employment; however, only 50 % of individuals with disabilities who received postsecondary education were employed (Swenson & Richards, 1999).

Research has indicated that college students with disabilities should possess and improve the necessary skills to establish vocational goals and successful outcomes through self-directed vocational decision-making and planning, career self-exploration, career self-management, and self-advocacy strategies. Such career self-determination, certainty, and job-related skills may improve successful employment outcomes among college students with disabilities (Hitchings, Lusso, Ristow, Horvath, Retish, & Tanners, 2001; Izzo & Lamb, 2009). It is necessary for college students with disabilities to obtain job-related skills such as career development, career self-decision, or career planning in order to pursue post-school success. The lack of these skills may cause major problems to achieving positive employment outcomes. By enhancing their self-determination and career decision-making abilities, college students with disabilities may obtain critical

knowledge and skills to navigate their career life and to augment their job-related skills (Izzo & Lamb, 2009).

Based on Antonovsky's (1987) notion that individuals with a higher level sense of coherence may be more likely to appropriately manage stressors, it is worthwhile to examine the effects on the abilities of college students with disabilities in stressful life events, such as career decision making, job seeking, or job maintenance. By investigating how college students with disabilities anticipate future career decisions, manage job-related stressors, and comprehend career decision processes, the students may find their strengths and abilities to deal with vocational challenges. Developing an effective and adequate career direction may be viewed as a stressful process. The process of the development of a career direction may cause college students with disabilities confusion and emotional distress such as frustration, worry, or anxiety (Peterson et al., 1991; Sampson et al., 1996). Inefficient career choices may be manifested by a lack of career-related information, emotional distress regarding potential negative outcomes, and balancing individual views with the perceptions of significant others (Sampson et al., 1996). Based on the evidence that sense of coherence has an effect on an individual's management of stressful life events, it seems reasonable that sense of coherence would also impact stressors while making career decisions.

Given the importance of career decision-making skills of college students with disabilities, it is critical to investigate the relationships between the level of sense of coherence and the career decision processes. Sense of coherence may facilitate the positive psychosocial adjustment of college students with disabilities by enhancing the ability to successfully manage job-related stressors. College students with a strong sense

of coherence may attempt to effectively address job-related stressors while choosing their career directions. In addition, based on the notion that certain demographic characteristics are associated with career making-decision or career development (Blau & Duncan, 1967; Halaby, 2003; Jerrim & Micklewright, 2009; McGoldrick & Robst, 1996; Penick & Jepsen's, 1992), it is necessary to examine the relationships between career thoughts and demographic variables of college students with disabilities in order to find out better career-related services.

This study primarily explored the impact of sense of coherence and demographic characteristics on the career thought processes of college students with disabilities. It is anticipated that the results of this investigation will provide useful guidelines for career development professionals who assist students with disabilities to better understand plausible vocational approaches to augment their ability to make career decisions. In addition, the results of this study may support the notion that sense of coherence and certain demographic variables are important psychological resources and personal characteristics in the career decision process.

Research Questions

In the current study, the effect of sense of coherence and demographic characteristics on the career thought processes of college students with disabilities was examined. In addition, the relationships of demographic characteristics on the sense of coherence of college students with disabilities were investigated.

The research questions of interest in the study were as follows:

1. What are the predictive contributions of demographic characteristics (e.g., gender, race, and mother's education level) to sense of coherence among college students with disabilities?
2. What are the predictive contributions of the sense of coherence and demographic characteristics (e.g., gender, race, and mother's education level) to career thought process among college students with disabilities?
3. What is the relationship between sense of coherence and career thought processes among college students with disabilities?

CHAPTER 2

LITERATURE REVIEW

This chapter begins by addressing Livneh's (2001) psychosocial adaptation model to chronic illness and disability (CID). The model presents courses and variables of psychosocial adaptation to CID. The following section is a review of previous studies regarding the relationships between sense of coherence as a psychological resource and constructive job-related outcomes is presented. The primary review in this study is then presented. First, the description about a traditional pathogenic model of stress management and critique of the traditional model are discussed. Introduction of Antonovsky's (1987) salutogenic model of stress management and the concept of his sense of coherence are presented next. Research findings pertaining to the relationships between sense of coherence and other personal behavioral or psychological variables are reviewed as well. This section explores the relationships between sense of coherence and several variables, such as Generalized Resistance Resources (GRRs), personal backgrounds, physical/mental disability status, coping behaviors, and employment status. Finally, a career development model for people with disabilities will be introduced then research findings pertaining to factors affecting career-related constructs for people with and without disabilities will be reviewed.

Process of Psychosocial Adaptation to Disability and Quality of Life: Livneh's Model

Livneh (2001) proposed a disability adaptation processes and its successful outcomes in his psychosocial model to chronic illness and disability (CID). His model proposes that the understanding of the process of adaptation to CID includes three idiosyncratic classifications of interacting variables: antecedent events, the process of

psychosocial adaptation, and psychosocial outcomes.

People may experience temporal stages or phases of psychosocial adaptation after they incur a disability. Antecedent events such as implicit or explicit causes or contexts within which disability occurred are directly or indirectly related to the onset of disabling conditions (e.g., biological, psychosocial, and environmental variables). After the onset of a disability, people may differently experience or react to their disabling conditions. The processes of psychosocial adaptation to CID are associated with the interrelations of the subjectively experienced reactions to the disability. Individual psychological reactions to a disability may be related to contextual variables that an individual may encounter. The contextual factors include variables related to disability itself (e.g., type and severity of symptoms, body part affected, associated functional limitations, course of condition, presence of pain, duration of condition, degree of visibility and impact on appearance, medication side effects, and impact of treatment modalities). Additionally, variables related to socio-demographic characteristics include age, sex, ethnicity, socioeconomic status, religion, education, marital status, employment status. Variables related to personality include traits, psychological characteristics, or types of coping styles and strategies used with stress, personal loss and psychological stability. Other variables are related to external environment (e.g., social isolation, restricted mobility, architectural barriers, attitudinal barriers, frequency and duration of hospitalizations, available social support systems, available economic and institutional support, financial resources, living conditions, availability of job opportunities, and accessibility of worksites). All in all, these variables that people may encounter during the process of psychosocial adaptation

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Successful outcomes, as considered indicators of quality of life, are categorized according to several psychosocial outcomes such as contextual domains (e.g., intrapersonal, interpersonal, extrapersonal), content areas (e.g., cognitive, affective, or behavioral), and sources of outcome measurement (e.g., self, significant others, or rehabilitation professional). Quality of life may be viewed as a successful adaptation or adjustment to reestablish physical and psychological stability after the onset and experience of disability. Outcome domains of successful adaptation to disabling conditions may include an intrapersonal functioning domain (e.g., health, psychological or subjective well-being, life satisfaction, self-concept or self-esteem, etc.), interpersonal functioning domain (e.g., family life, marriage, friendships and peer relations, social activities, etc.) and extrapersonal functioning domain (e.g., work activities, recreational pursuits, learning or schooling, housing, finances, etc.).

Based on the concepts related to Livneh's psychological adaptation process and outcomes of the disability, the onset of disability is an antecedent event that causes the psychosocial adaptation process to CID among people with disabilities. In turn, the presence of disability directly influences psychosocial adaptation process variables related to management of life's stressful situations, maintenance of positive psychological resources, or retention of appropriate emotional stability. More specifically, disabling conditions may impact the psychological state of people with disabilities while they encounter job-related difficulties or emotional distress derived from their disabilities. These variables during the psychological adaptation process may influence functional or contextual outcome domains of psychological adjustment. As one of critical outcome

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variables, successful employment or career-related state is viewed as an indicator of successful psychological adaptation to CID.

As one of psychological resources, sense of coherence may be an emerging indicator to manage stressful life situations in psychosocial adaptation to disability. It may have a significant impact on individuals' outcomes, specifically successful employment. Antonovsky (1987) suggested that individuals with higher sense of coherence may demonstrate better behavioral and psychological strategies to address job-related difficulties and emotional distress than individuals with lower sense of coherence. Nurse educators with higher sense of coherence demonstrated less job-related stress or emotional disturbance (Harri, 1998). Lustig and Strauser (2002, 2008) also supported the thought that individuals with higher sense of coherence showed less dysfunctional career thoughts and better career-related skills such as career decision making and management of job-related anxiety than individuals with lower sense of coherence.

Traditional Pathogenic Model of Stress Management

Until the 1970s, a pathogenic model that was based on medical understandings of living organisms was dominant in the stress management research. The pathogenic model is based on the notion that causes of disease are microbiological, medical, or chemical factors. The risk factors may disrupt the homeostatic system of a living organism, which regulates an individual's coping mechanism. Due to problems or difficulties in maintaining the homeostatic system, individuals may experience disease or disability. In the pathogenic model, the traditional medical view for disease, dichotomous perception between healthy and sick people is a fundamental assumption.

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minimized, inoculated against, or buffered. Undoubtedly, some stressors are very destructive and deteriorate health. The pathogenic model focuses on the particular disease diagnosed and promotes strategies to prevent the specific disease in individuals (Antonovsky, 1987).

Critique of Traditional Pathogenic Model

Due to the assumption that causes of disease are microbiological or medical factors, the pathogenic model may overlook total life events or circumstances of individuals who experience problems and may fail to consider the etiology of the individuals' total state of health. In addition, the pathogenic model appears to focus on one particular aspect causing disease rather than understanding other aspects of a living organism. This concept tends to overlook the total state and life story of individuals, which can include personal, environmental, or other aspects of one's life. Furthermore, the dichotomous notion that individuals may be either healthy or sick due to risk factors seems to focus on an inevitably small and narrow understanding about human behavior and is inappropriate to comprehend total life events of individuals. Moreover, a view on the causes of stressors posited by the pathogenic model focuses solely on medical or biological factors, thus neglecting the importance of environmental or contextual aspects of individuals. Non-physiological factors, such as psychological (e.g., personality or distinctive psychological attributes) and social functioning (e.g., familial or vocational aspects) are not considered (Antonovsky, 1987). Thus, Antonovsky (1987) proposed a new paradigm called the salutogenic model in understanding and managing life stressors, focusing on health, well-being, or successful adaptation rather than disease or problems by comprehending individuals' entire life circumstances.

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Salutogenic Model of Stress Management

According to Antonovsky's (1987) salutogenic model, individuals have potentials for moving toward both health and disease state. Based on the notion that risk factors and events, which can cause stressful situations, are ubiquitous, successful coping strategies for risk factors have been focused. Rather than the healthy or sick person dichotomous pathogenic model, the salutogenic model views that individuals are on a health and disease continuum within circumstances where stressors are common and open-ended in consequences. It has also been important for individuals to address stressors or tension in order for the positive outcomes of stress. For example, individuals may experience either positive or neutral outcomes from stressful events and may move towards the healthy end of the continuum if they address stressors well. In contrast, individuals may move towards the disease end of the continuum if they poorly address stressors. The salutogenic model proposed that people may be located somewhere between the health and disease continuum and that the location of each person on this continuum should be critical to study. The salutogenic model emphasized individuals' different factors that can promote the individuals' move toward the healthy end of the continuum. Thus, in dealing with stressors, it appears to be important how individuals cope with a given stressor.

In terms of etiology and diagnosis of stressors, salutogenic orientation emphasizes the understanding about the entire personal story of individuals by viewing location on a continuum, rather than small microbiological or chemical factors that may cause a particular disease. Thus, the salutogenic model concentrates more on overall problems and stressors related to active adjustment, such as overall environment or contexts of the individuals (Antonovsky, 1987).

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Transactional Stress Management Model

Differing from a unidirectional, static, antecedent-consequent model, the transactional model views the cause of stress as the individual and the environment. Transactional model explains the cause of stress and stress management between an individual and the environment through their relationship in a dynamic and mutually reciprocal context. On the basis of the transactional coping model, stressors may be viewed as resulting from an imbalance between one's demands and internal or external resources to attain those demands. Stressors may also be provoked when pressure exceeds one's personal capabilities to address the tension or strain (Lazarus & Folkman, 1984).

It is important that individuals should identify factors central to his/her stress to appropriately control and effectively manage stressful events. In addition, individuals should identify and select effective stress management intervention to directly address the factors. Lazarus and Folkman (1984) stated that effective stress management is developed by understanding a transaction between an individual and his/her environment. According to the transactional model, stressors may cause different consequences depending on how stressor is appraised and how an individual evaluates his/her internal or external resources to manage the stressor. Thus, analysis of an individual's perception and cognition about stress is essential to understanding and evaluating their behavior and to responding to the stressor. For instance, an individual appraises a stressor as positive or

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challenging rather than negative or destructive. If he/she perceives that he/she possesses sufficient and adequate resources to cope with the stressor, the stressor may not cause negative consequences. Thus, individuals can effectively manage stressors by modifying their negative perception about stressors to positive and enhancing their confidence and capabilities to deal with the stressors.

Antonovsky's Sense of Coherence: Comprehensibility, Manageability, and Meaningfulness

Antonovsky's salutogenic model emphasizes the importance of a specific personal characteristic (i.e., sense of coherence). Numerous research findings have shown strong conceptual and empirical links between sense of coherence and salutogenic outcomes (Cohen & Kanter, 2004; Forsberg & Björvell, 1996; Heiman, 2004; McSherry & Holm, 1994; Motzer & Stewart, 1996).

Antonovsky (1987) stated that the abilities to manage life difficulties or stressors may be determined by a set of beliefs about the life that form the sense of coherence. A sense of coherence is a personal psychological assumption, belief, or perspectives that the world is perceived as orderly, manageable and meaningful. Sense of coherence is considered as a strong determinant of moving toward the healthier end on a health and disease continuum. Individuals with a high sense of coherence may show the ability to anticipate stressors, mobilize available resources, and eventually appropriately manage stressors (Antonovsky, 1987). Sense of coherence has three components: comprehensibility (the cognitive component), manageability (the instrumental component), and meaningfulness (the motivational component).

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Comprehensibility is the extent to which the world is perceived as making cognitive sense. It is cognitive perspectives on which decisions are structured in an orderly manner and whether the future is predictable, chaotic, or random.

The manageability component is the extent to which people perceive resources at their disposal as adequate to meet the demands posed by the stimuli. These are not just their own personal internal resources but also the external resources from others.

The meaningfulness component refers to the motivational aspect and is emotional counterpart of comprehensibility. It can be a driving force to achieve challenges or tasks while individuals confront with difficult life situations (Antonovsky, 1987).

Relationships of the three components of the sense of coherence: Comprehensibility, manageability, and meaningfulness. Individuals with higher comprehensibility may demonstrate that they will consider the future stimuli as predictable, orderable, or explicable. For instance, people with higher comprehensibility may make sense of adverse life events, such as death, war, or failure. Individuals with higher manageability may tend to not feel victimized by unfair life events. Such people may think that unpleasant life events do occur; however, they may have abilities to cope with the situations without endless emotional distress. Individuals with higher meaningfulness may indicate that they are more willing to encounter the challenges and search for meaning in it by doing his/her best to overcome the challenges under stressful life situations such as the death of a loved one, the onset of disease or disability, or unemployment. Among the three components, the motivational element of meaningfulness appears to be most critical. High comprehensibility or high manageability will be temporary without high meaningfulness. The component of

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meaningfulness will be lessened if individuals' resources are not at their disposal. Such people also experience difficulties in coping with stressors (Antonovsky, 1987).

Other Theoretical Concepts Related to Sense of Coherence

Theorists proposed personal characteristic variables similar to sense of coherence which are critical to the stress management processes. These include self-efficacy (Bandura, 1977), locus of control (Rotter, 1966), and problem solving (Heppner & Krauskopf, 1987). These psychological resources may show buffering properties in dealing with stressors.

Self-efficacy. Bandura (1977) proposed that self-efficacy is individuals' judgment of their capabilities to organize and execute behavior required to achieve certain performance and to manage prospective situations. Self-efficacy is the belief that one has the power and abilities to manage certain circumstances. One's sense of self-efficacy can be considered as an important factor for an individual to attain goals, tasks, or challenges. Individuals with high self-efficacy may engage in more healthy or positive-related activities under stressful situations; however, individuals with low self-efficacy may keep bad thoughts or feelings for a long time such as fear, anxiety, or hopelessness. Perceived self-efficacy is associated with a person's perception of their ability to reach a goal. Individuals with high self-efficacy who believe they can perform well encounter difficult task with feelings of mastery rather than avoid them. In preventing stressors and contributing to health and well-being, enhancement of perceived self-efficacy and capabilities for successful task performance is viewed as important. In relation to the three components of sense of coherence, self-efficacy conceptually incorporates the

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manageability element due to its emphasis on capabilities to execute and manage a course of actions to attain performance. However, the sense of coherence concepts of comprehensibility and meaningfulness are neglected in self-efficacy. In addition, self-efficacy is concerned with predicting behavior outcomes through abilities to manage the actions so it may be understood as a belief about behavioral capacity and emphasizes task-specific competence (Antonovsky, 1991).

Locus of Control. Locus of control can be either internal locus or external locus (Rotter, 1966). Internal locus is when individuals believe that they can control their life, whereas in external locus individuals believe that their lives can be controlled by the environment, higher power, or other people. Individuals with high internal locus of control may consider that they can primarily affect life events or circumstances through their own behaviors or actions. These individuals may be more likely to demonstrate abilities to monitor their behaviors, to exert an influence on others, and to actively search for information and knowledge regarding the situations. On the other hand, individuals with high external locus of control understand the results of life events to be determined by powerful others, fate, or chances.

Similar to Antonovsky's (1987) notion that individuals may place somewhere between health and disease continuum, an internal or external locus of control also can be a continuous characteristic. Locus of control is a bi-directional psychological conceptualization; that is, individuals can move from an internal to external locus of control and individuals can not reside within both an internal and external direction. Similar to sense of coherence, the type of individuals' locus of control may be influenced by social contact or environment. In addition, conceptually, locus of control is concerned

with predicting behavior and is highly associated with a belief about the link between behavior and consequences as the comprehensibility and manageability component of sense of coherence. Individuals who accept both positive and negative outcomes and consequences as the result of their own behaviors are considered internal whereas individuals who consider others to have influence over both positive (e.g., luck) and negative (e.g., others' fault) results are considered external. Finally, locus of control and sense of coherence are considered to be general and enduring psychological constructs and personal characteristics to deal with difficult life events (Antonovsky, 1991).

In terms of differences between sense of coherence and locus of control, sense of coherence consists with three components: comprehensibility (cognitive component), manageability (behavioral component), and meaningfulness (existential component). The three components altogether formulate an individual's general psychological and behavioral mechanism to deal with life difficulties. However, locus of control can be determined either internal or external depending on how individuals comprehend and react to life events. For example, individuals with a higher sense of coherence showed more positive coping mechanisms than individuals with a lower sense of coherence. Antonovsky (1987) also stated that each component of sense of coherence should be interpreted and comprehended altogether and should not be separately measured or understood. However, on the other hand, locus of control has two one-dimensional directions: internal and external. For instance, in the situation of a car accident, an individual with internal locus of control may think that he or she is responsible for the accident; whereas, an individual with external locus of control may think that others are responsible or that he or she is experiencing uncontrollable things such as fate or luck.

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Problem solving action. According to Heppner and Krauskopf (1987), problem solving refers to a goal-directed sequence of cognitive, emotional, and behavioral response to adapt to internal or external tasks. Problem solving may be viewed as cognitive, affective, a behavioral regulatory, and operational response to cope with events or challenges. The primary purpose of problem solving is to avoid problems by utilizing successful and unsuccessful activities as well as conscious and unconscious activities. Real life problem solving may be considered as highly complicated, dynamic, or interactive process due to its nature of interrelations and non-linearity. For example, problem solving can be complicated interrelations between initial and subsequent responses to problems, alteration of initial concept, engagement of multiple decision-making behavior, or change in goal-seeking activities over time.

In adapting problems, it may be essential how individuals utilize and process information and knowledge and attempt to control their cognition, affect, and behavior. Thus, it is crucial to utilize information-based knowledge in relation to encoding new information, retrieving knowledge from memory, and utilizing the knowledge to attain performance or goals. Utilization of one's information and knowledge to accomplish goals is highly complex processes and may entail a course of action such as encoding, goal setting, developing plans and pattern matching, and action. As four primary problem solving activities, encoding refers to how individuals initially process information and knowledge when it comes to information system. Goals are a set of organized behavioral actions for purpose of adaptation to internal or external environmental challenges or demands. Pattern matching refers to retrieving information and knowledge from the memory to implement responses to solve problems. Finally, problem solving action is a

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set of diverse activities to carry out plans or find out solutions. As a cognitive process, encoding involves perceptual and integrative processes representing one's own world and the meaning or understanding about certain situations in one's world.

The comprehensibility component of sense of coherence may be a similar cognitive process in which individuals view or understand stressful events or future challenges. In addition, in order to attain goals, individuals may involve in successful information gathering and synthesizing processes by regulating cognition, affect, and behavior. Individuals may apply practical and manageable course of action throughout these problem solving processes. Therefore, the establishment of tangible, specific, and possible goals to respond internal or external demands is associated with the manageability component of sense of coherence. Further, goal-setting may serve as constant behavioral motivation and activation and provide the meaning of problem solving action. Goal-setting may organize a course of problem solving action, stimulate behavior to find out solution, and be interrelated with the meaningfulness of sense of coherence.

Findings Pertaining to the Relationships between Sense of Coherence and Other Variables

Previous studies investigating influences of sense of coherence (SOC) on personal behavioral or psychological variables will be reviewed. The salutogenic outcomes and levels of sense of coherence have been examined in relation to different personal attributes, for example, physical and mental stability among patients (Milberg & Strang, 2004), coping abilities among people with disabilities (Flannery & Flannery, 1990; Morrison & Clift, 2006; Renck & Rahm, 2005), psychological adjustment among

refugees (Ying & Akutsu, 1997), stress management among elderly individuals (Elovainio & Kivimaki, 2000), financial support among employees (Lundberg, 1998), and management of job-related stressors among college students (Lustig & Strauser, 2008).

Generalized resistance resources. According to Antonovsky (1987, p.19), "Generalized Resistance Resources (GRRs) provide individuals with set of life experiences characterized by consistency, participation in shaping outcome, and an under-load-overload balance." GRRs such as money, employment status, religious faith, and social support (e.g., support from family, friends, or community) may provide individuals with life experiences that can lead an individual to derive order and sense out of chaos. Such kinds of life experiences may build up sense of coherence.

In the studies about the relationship between the level of SOC, social support, and coping styles, SOC was positively correlated with family support (Heiman, 2004) and with social support (Engelhard, Van Den Hout, & Vlacyen, 2003; Skärsäter, Langius, Ågren, Häggström, & Dencker, 2005; Soderfeldt, Soderfeldt, Ohlson, Theorell, & Jones, 2000).

The informal caregivers of cancer patients in advanced palliative home care were investigated for primary elements of Antonovsky's two components of the sense of coherence: comprehensibility and manageability (Milberg & Strang, 2004). Primary factors enhancing comprehensibility included open information, symbolic information, basic life assumptions and previous knowledge. Resources to facilitate manageability contributed to enhanced abilities to deal with power, support, competence and accessibility from social togetherness. Even in the stressful and burdening environment

for the informal caregiver, positive psychological state and strength (e.g., comprehensibility and manageability) were retained through open information, previous knowledge, power, support, competence, and accessibility.

In a study on evaluations of programs of supported education for 148 students with long-term mental health problems, students with lower SOC indicated statistically significant positive gains after being involved in the supported education program and peer support. Learning effects (e.g., feeling of regular academic achievement) based on supported education can reduce symptoms of mental health problems and increase positive learning effects (Morrison & Clift, 2006).

A study examining the relationships of stress, physical and emotional reactions to stress, quality of life, and prediction of SOC among 596 male and female college students indicated that the level of SOC of males was most affected by family relationships and that of females was most affected by emotional health. For males, SOC was positively associated with emotional health and quality of life whereas SOC was negatively related to stress from parental relationships and friendships. For females, the positive relationships of SOC were associated with emotional and physical health and quality of life and indicated a negative relationship with stress from friendships (Darling, McWey, Howard, & Olmstead, 2007).

Renck and Rahm (2005) examined the relationships between levels of SOC and support from fellow colleagues among 81 women with a history of early childhood sexual abuse. Women who had a positive relationship to fellow workers reported a significant predictor of SOC and a supportive network of fellow workers appeared to significantly contribute to the development of SOC level.

Ying and Akutsu (1997) investigated the relationships of sense of coherence and resistance deficits and resources to the psychological adjustment of five Southeast Asian refugee groups (713 Vietnamese, 492 Cambodians, 551 Laotians, 231 Hmong, 245 Chinese-Vietnamese). By measuring levels of happiness and demoralization of the Southeast Asian refugees, the direct and indirect contribution of SOC, resistance deficits, and resistance resources to predictors of psychological adjustment were investigated. Sense of coherence was found to be the most significant predictor of psychological adjustment and happiness. Overall, higher education, mastery of the English language, and employment were significant predictors of high levels of happiness and SOC. Vietnamese and Cambodian refugees who arrived at the United States during early adolescence indicated a significant level of happiness. On the contrary, Southeast refugees who experienced resistance resource deficits such as a greater loss of social status due to immigration into the United States, rejection from the mainstream American culture, or trauma due to separation from family reported a lower level of happiness and SOC.

Elovainio and Kivimaki (2000) studied the relationships between the psychological and social resources and prediction of subjective well-being among 348 participants in Finland that were over 75 years of age. Participants reported that a high level of SOC and quality social relationships were strongly associated with subjective well-being.

A study on the SOC in 385 adults with cerebral palsy (CP) revealed that the most important predictive factors in relation to the level of SOC were educational level, marital status, and life satisfaction. Individuals with CP who had competitive employment

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demonstrated a stronger SOC and experienced more meaningful life (Jahnsen, Villien, Slraghelle, & Holm, 2002).

Cohen (1997) examined the relationship between sociodemographic factors and GRRs such as religion, age, economic situation and education and the level of SOC. Among 74 participants (47 of them divorced women and 27 women from two-parent families), affiliation with a high-status social group, higher education, and marriage contributed to the level of SOC. However, there were no relationships between religiosity/spirituality and the level of SOC.

People in higher socio-economic status have a stronger SOC (Fok, Chair, & Lopez, 2005; Lundberg & Nyström Peck, 1994). As income levels increased, the SOC increased, and other psychosomatic symptoms such as depression decreased (Konttinen, Haukkala, & Uutela. 2008). In a cross-sectional study of about 10,000 children in the five Nordic countries, factors associated with parental SOC in relation to child chronic health conditions were investigated. Parents with lower SOC were common in lower socio-economic class compared to the higher social class. Parents who worked as unskilled workers showed about 60% higher odds of having poor SOC compared to higher-salaried employees. Low-income parents showed poor SOC compared to high-income counterparts. Parents with low education indicated poorer SOC compared to high-educated parents (Groholt, Stigum, Nordhagen, & Kohler, 2003). In relation to social class, individuals who worked in unskilled positions indicated the lowest SOC whereas senior white-collar workers showed the highest (Lundberg, 1998).

Personal backgrounds. Personal backgrounds such as age, gender, early experience, and socio-demographic conditions may have a different influence on the level

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of SOC. Antonovsky (1987) stated that SOC will develop and be stable until about 30 years of age. Middle-aged individuals showed the strongest SOC and individuals who were over 65 showed the weakest SOC (Harri, 1998; Lundberg, 1998; Lundberg & Nyström Peck, 1994). However, Larsson and Kallenberg (1996) found that individuals between 30 and 40 years old showed lower SOC than individuals 50 years old or older, and the level of SOC has increased as the age of individuals has increased.

In Renck and Rahm's (2005) study of 81 women with a history of childhood sexual abuse, the women between the ages of 20-29 reported the lowest SOC compared to the groups of women of ages between 30-39, 40-49, and 50-59 years. The women between the ages of 50-59 years reported the highest level of SOC compared to the other women.

Among 4,305 participants in Nilson's study of school aged adolescents with alcohol-related behavioral problems, the 16-year-old boys reported the highest SOC, compared to the 19-year-old boys and both the 16- and 19-year-old girls (Nilsson, Starrin, Simonsson, & Leppert, 2007).

Harri (1998) found that the level of SOC was significantly increased among 477 nurse educators in Finland when they had more freedom to choose their teaching field. Nurse educators' opinions about their work and other background were positively related to SOC, such as interaction in the working community, joy of work, workload, negative stress, symptoms of diseases, evaluation of own competence, balance between work and leisure time, own health, and use of drugs.

In relation to childhood background and the level of SOC, the level of SOC of 4,390 adults aged 25- 75 was moderately related to dissension in the childhood family.

However, childhood family size (a large number of siblings such as four or more), and the experience of a broken home (e.g., the loss of one or both biological parents due to divorce or death) were not related to SOC later in life. This suggested that the relationships between childhood conditions and the level of SOC were not associated in later life (Lundberg, 1997).

Physical and mental disability status. Researchers found that SOC has been positively related to physical and psychological health indicators (Antonovsky, 1993; Flannery & Flannery, 1990; Larsson & Kallenberg, 1996; Lundberg, 1997; Pallant & Lae, 2002). Following a critical illness, patients with a higher SOC may be more likely to actively formulate their own health outcomes and demonstrate a significant positive correlation between the level of SOC and quality of life (Fok et al., 2005).

Among 67 individuals with diabetes (35 of them with type 1 diabetes and 32 with type 2 diabetes), those with a stronger SOC demonstrated better adherence to self-care behaviors and had lower psychological distress (Cohen & Kanter, 2004). Similarly, Hong Kong Chinese individuals with higher SOC who received insulin treatment reported the lower level of fear of hypoglycaemia. However, the relationships between the use of insulin as a treatment and the level of SOC were not significantly correlated. Seventy-two individuals with lower or higher SOC showed no significant difference in difficulties in managing diabetes (Shiu, 2004).

A study involving 149 people with chronic coronary heart disease who survived cardiac arrest reported that SOC explained additional variance in quality of life after controlling personal factors, such as poor health vulnerability, perceived social support, or self-esteem. The level of SOC appeared to additionally enhance estimation of quality

of life and showed a direct effect on life satisfaction of individuals with coronary heart disease (Motzer & Stewart, 1996).

Soderberg, Lundman, and Norberg (1997) studied the influence of SOC on subjective perception about physical and mental stability. Thirty women with fibromyalgia (FM), a chronic pain syndrome that has a considerable impact on an individual's daily life, reported many symptoms. However, they perceived themselves as feeling quite well and experiencing an SOC in life, despite severe physical and mental problems. Although women with FM might experience problems with intimate relationships, participation in recreational activities, and performing household duties, the FM women with a stronger SOC perceived greater well-being than those with a weaker SOC. Further, the FM women with a strong SOC indicated more hopeful, free, and valuable perspectives than the women with a weak SOC.

In Forsberg and Björvell's (1996) study, the perception of psychological well-being and the level of SOC in a group of patients with gastro-intestinal cancer were examined. Among 69 patients with gastro-intestinal cancer one year after surgery, the cancer patients with a higher SOC perceived their well-being better than patients with a lower SOC.

Carstens and Spangenberg (1997) examined the relationship between severe depression and the salutogenic construct of SOC. Fifty patients with depressive disorder completed the Sense of Coherence scale and the Beck Depression Inventory. The results revealed significant negative correlations between scores on Depression and scores on the Sense of Coherence scale and that there was an inverse relationship between depression and SOC.

In a study about the level of SOC in early pregnancy, crisis support, symptom severity of posttraumatic stress disorder (PTSD), and depression after pregnancy loss, pregnant women with a stronger SOC showed more psychological resilience to symptoms of PTSD and depression after pregnancy loss. Among 1,372 pregnant women, SOC in early pregnancy was negatively related to PTSD after pregnancy loss and SOC was linked negatively to depressive symptoms both before and after pregnancy loss (Engelhard et al., 2003).

For individuals with obsessive-compulsive disorder (OCD), they appeared to strengthen the extent and durability of positive outcomes to treatment by reducing vulnerability to life stress and chronic symptoms. Individuals with OCD might maximize the level of SOC and facilitate positive psychological outcomes by participating in SOC-inducing cognitive behavioral therapy (Joachim, Lyon, & Farrell, 2003).

In a cross-sectional study about parental SOC of 10,000 children in the five Nordic countries, parents of children with chronic health conditions such as diabetes, epilepsy or psychiatric/nervous problems had approximately 2-5 higher odds of having poor SOC compared to parents of children without a specific diagnosis (Groholt et al., 2003).

A study was conducted on three school-aged groups of children: children with very few somatic complaints, children with many somatic complaints, and children with functional abdominal complaints who received clinical outpatient services. In this study both the second and third groups of children indicated more negative emotional functions such as negative moods, symptoms of depression, difficulty in emotion differentiation and communication problems. They also showed lower levels of SOC compared to their

counterparts with few somatic complaints. Moreover, children with many somatic complaints demonstrated a higher sense of negative emotion (e.g., sadness, anger, or fear) (Jellesma, Rieffe, Terwogt, & Kneepkens, 2006).

Renck and Rahm (2005) studied women with a history of childhood sexual abuse and the relationships between their personal resources and the level of their SOC. Eighty-one women experienced a range of difficulties due to childhood sexual abuse such as anxiety attacks, nightmares, or difficulty sleeping and they participated in self-help groups. Overall, women who experienced childhood sexual abuse showed extremely low levels of SOC, compared with normative data presented by Antonovsky, such as Czech cancer patients, American undergraduates, and young Israeli adults with cerebral palsy. The women who endured more than ten years of sexual abuse indicated a weaker SOC. Women who experienced sexual abuse in early childhood reported a lower SOC than women with a later onset.

In a study by Nilsson et al. (2007), 4,305 adolescents were examined to find the relationship between SOC with alcohol-related behavioral problems. Adolescents with a strong SOC reported that they were protected, to a large degree, from alcohol-related behavioral issues despite frequent intoxication. Conversely, adolescents with a weaker SOC demonstrated the highest alcohol-related behavioral problems and more frequent alcohol intoxication. The odds ratio for experiencing alcohol-related problems was between 42 and 56 times higher among adolescents with a weaker SOC.

Ekblad and Wennstrom (1997) tested the relationships between the SOC subscale for meaningfulness and psychiatric symptoms in a multicultural immigrant and refugee sample of 33 volunteer patients at a psychiatric outpatient clinic. The SOC subscale for

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meaningfulness was positively correlated with the present and optimal level of function and was negatively associated with total trauma symptoms, anxiety, and depression. Also, participants with a low mean score on SOC subscale meaningfulness reported two times the risk of having anxiety symptoms.

In a study about stability of SOC over time after trauma, 26 individuals with severe multiple traumas showed unstable SOC scores and some indicated large variations. However, individuals with multiple traumas who showed a strong level of SOC indicated higher levels of life satisfaction. Conversely, individuals with a weak SOC were related to psychological distress, anxiety, and depression (Snekkevik, Anke, Stanghelle, & Fugl-Meyer, 2003).

Lustig (2005) examined the relationships between SOC and adjustment to physical disabling conditions. Forty-eight people with spinal cord injury (SCI) showed that their level of SOC was associated with quality of life. Individuals with SCI who showed a weak SOC indicated a positive correlation with non-adaptive psychological states of adjustment (i.e., shock, anxiety, depression, internal anger, and external hostility) and a negative correlation with adaptive psychological aspects of adjustment (i.e., adjustment and acknowledgment). In contrary, individuals with SCI who showed a strong SOC reported a negative correlation with non-adaptive aspects of adjustment and a positive correlation with adaptive aspects of adjustment.

Coping behaviors. As one of the important factors, coping skills can critically address stressful life situations. Sense of coherence is the degree to which one expects the world to be orderly, to be manageable, meaningful, and influences one's stress management. Although Antonovsky (1987) stated that

sense of coherence is not a coping strategy in itself, he postulated that individuals with a high sense of coherence may be more likely to effectively choose appropriate coping behavior. Thus, individuals with a greater sense of coherence are more likely to respond to a stressor with adaptive strategies, thereby increasing a positive outcome and minimizing the chance of detrimental effects on health and well-being (Antonovsky, 1987; Pallant & Lae, 2002). Sense of coherence is understood as a global orientation that facilitates individuals' effective cognitive and behavioral reaction to various stressors encountered in life (Antonovsky, 1987).

Heiman (2004) investigated the relationships between levels of SOC and strategies to cope with stressors among 261 college students. The SOC was negatively correlated with life stress such as academic stress, work stress, and daily life stress. The SOC was positively correlated with task-oriented coping and negatively with emotional strategies and with avoidance coping. Similarly, for 5,026 school-aged adolescents from grades 6, 8, and 10, the effect of SOC on the relationships between academic stress and subjective health complaints (e.g., headache, backache, and abdominal pains) was investigated. Participating school-aged children consistently indicated that stress-preventive, stress-moderating, and main health-enhancing routines had effects on SOC (Torsheim, Aaroe, & Wood, 2001).

McSherry and Holm (1994) examined the relationships between the level of SOC and individuals' psychological and/or physiological responses to a stressful situation. One thousand undergraduate students were assessed for SOC level and then completed a battery of questionnaires before and after a stressful situation. Among low, middle, and

high SOC groups, participants with a low SOC exhibited significantly more stress, anxiety, and anger throughout the experiment than did either middle or high SOC counterparts. In addition, participants with a low SOC were less likely to believe they possessed the personal resources necessary to cope with the stressful situations in comparison to participants with a high SOC. Also, low SOC participants' coping behaviors were significantly less approach-oriented than those of either middle or high SOC counterparts.

Bishop (1993) investigated the role of SOC as a resource in dealing with life stress. A sample of 186 Singaporeans indicated that individuals with a lower SOC showed more deleterious effects on the physical health than individuals with a higher SOC. For individuals with a lower SOC, the stresses and strains of daily life appeared to have a negative impact on health status. However, for individuals with a higher SOC, no particular relationships between stress and strains of daily life were found. Individuals with a higher SOC indicated the same health status regardless of reported stress.

In a study exploring the relationships of patients' SOC and coping abilities following a critical illness, a significant positive correlation between the level of SOC and patients' coping abilities was found. Patients with a stronger SOC coped more effectively and appropriately with life events and were more able to seek the best coping resources (Fok et al., 2005).

Shiu (2004) explored the relationships between SOC and coping behaviors to diabetes. For 72 patients under insulin treatments, participants with higher SOC perceived less fear of hypoglycaemia than counterparts with lower SOC. The SOC may be an indicator of better emotional adjustment, well-being, effective nursing intervention,

and emotional coping modality for individuals with diabetes.

Rena, Moshe, and Abraham (1996) assessed the relationships of the adjustment to disability and the levels of SOC between two groups of participants: 80 individuals with disabilities and 72 of their spouses. In this study, individuals with disabilities experienced some form of paralysis. For both groups, SOC was significantly related to disability adjustment. Individuals with disabilities and spouses with a strong SOC indicated better adjustment status by managing tension well. They also reported that the level of SOC was a different characteristic to cope with disability-related issues regardless of level of severity. In addition, for each group, the contribution of the three components of SOC was slightly different. Individuals with disabilities might contribute a meaningful and comprehensive perception and their spouses might contribute more manageability perception as their role of a care-giver. This finding suggested complementary interrelationships that lead to successful adjustments to disabilities as a team.

For people with schizophrenia, a psychoeducational approach based on the theoretical concepts of SOC was considered to be effective treatment interventions. By retaining the level of SOC through psychoeducational process, individuals with schizophrenia could enhance SOC and augment coping or adjustment capacities. They can effectively mediate stress and tension caused by stressful events. In the treatment of schizophrenia, psychoeducational approach may represent GRRs such as knowledge and strategies to prevent the negative effect between stressors and the resulting tension; thereby obtaining sufficient information to increase the three components of SOC (Landsverk & Kane, 1998).

Employment status. Antonovsky (1987) stated that the SOC is a global cognitive

style used when individuals manage stressful situations. It may be also relevant to employment situations where individuals may experience job-related stressors or problems. In a job-related context, individuals with a strong SOC may better deal with stressors than individuals with a low SOC (Antonovsky, 1987).

A sample of 477 nurse educators in Finland indicated that favorable opinions about working status were positively associated with the SOC score, such as interpersonal relationships, joy of work, stress feelings, and workload (Harri, 1998). Finnish employees, who perceived their employment conditions as worsening, reported a decrease in SOC scores. Employees who perceived their organizational climate as good, with job security, reported higher SOC scores than counterparts who did not (Feldt, Kinnunen, & Mauno, 2000).

Soderfeldt et al. (2000) conducted a study to find out the relationships between the level of SOC and the working model of high job demand and low job control in employees of social-welfare and social-insurance agencies in Sweden. In assessment of negative job effects, individuals with a higher SOC reported better management of job-related stressors than counterparts with a lower SOC.

Economic support, such as financial support, was correlated to the level of SOC. Higher economic support and financial assets correlated to higher levels of SOC (Cohen, 1997). Larger monthly salaries correlated to stronger levels of SOC (Larsson & Kallenberg, 1996). In a representative sample of 6,790 Canadian labor workers, employees in unskilled occupational position and low household income showed a lower level of SOC in both the males and females (Smith, Breslin, & Beaton, 2003). A Swedish sample of 3,949 persons who were 25-75 years old indicated that workers and farmers

tended to show a greater risk of having lower SOC compared to white-collar workers and the self-employed (Lundberg & Nyström Peck, 1994).

During unemployment, the hardships and strains of finances and relationships had a significant negative impact on the level of SOC. Starrin, Jonsson, and Rantakeisu (2001) examined the relationships between levels of SOC and financial issues during unemployment. They found that individuals under financial or relational difficulties during unemployment indicated a substantially lower SOC among 1,249 participants. Further, individuals who were exposed to an economic problem reported more shaming experiences. This indicated that individuals during unemployment may experience not only economic worries but also emotional distress.

Lustig and Strauser (2002) investigated the impact of SOC on the career thought processes of a sample of 145 college students. Participants completed the Sense of Coherence Scale and the Career Thoughts Inventory (CTI). A negative medium of relationships between SOC and CTI Total and three subscale scores (Decision Making Confusion, Commitment Anxiety, and External Conflict) were found. They supported that college students with a stronger SOC indicated less dysfunctional thoughts while they decided career directions and selected occupations.

In Lustig and Strauser's (2008) other study exploring the relationships between SOC and career thought processes, 52 individuals with disabilities who received assessment services at a university-based assessment center were examined. Participants with disabilities who show a stronger SOC indicated that they were more likely to effectively cope with problems or difficulties while searching for a job and making a career decision. They were more likely to persevere in the career decision-making

process and less likely to experience psychological distress during the process.

Strauser and Lustig (2003) investigated the moderating effect of SOC on work adjustment in a sample of 145 college students. Participants with a higher SOC were more likely to have more developed work personalities and work habits, more likely to accept work assignments and work roles, and better able to respond appropriately to authority figures and get along with coworkers than participants with a lower SOC.

Ecological Model of Career Development for People with Disabilities

According to Szymanski and Hershenson (1998), career development is determined by the dynamic interaction of five constructs: individual, contextual, mediating, environmental, and outcome constructs with the processes: congruence, decision making, developmental, socialization, allocation, chance, and labor market forces. The career development model is viewed as ecological because it deals with the dynamic interactions of individuals and their environments. The model can be utilized in order to assist career development professionals or counselors in interpreting theories related to people with disabilities and conceptualizing the career development of people with disabilities.

Individual constructs include the personal, physical and psychological attributes directly connected to the individual. They include gender, race, physical and mental abilities or disabilities (e.g., work competencies, predispositions, or limitations), or job interests. People with disabilities demonstrate the aspect of disability as an individual attribute. Context constructs are the aspects of an individual's current or past situation that are external to the individual. They include socioeconomic status, educational and vocational opportunity structures. For people with disabilities, this group of constructs

also includes disability-related legislation (e.g., the Americans with Disabilities Act of 1990). Mediating constructs are the individual, cultural, and societal beliefs that have an influence on the interaction of individuals with their environments. Individual mediating constructs include the personal beliefs about abilities, behavior patterns, or potential outcomes. Examples are self-concept, work personality, self-efficacy, locus of control, sense of coherence, or adjustment to disability. Cultural mediating constructs are the individual's beliefs based on a larger cultural structure. Examples are worldview, cultural and religious beliefs, or cultural views on disability. Societal mediating constructs include aspects of societal beliefs that affect a dynamic individual-environment interaction. Examples include stereotypes, social discrimination/prejudice against people with disabilities, or attitudes toward people with disabilities. Environmental constructs include various conditions of work environments. Examples include disability-related access and accommodations. Outcome constructs are the behaviors or states that stem from the interactions of the other factors (e.g., persistence or job satisfaction). The five constructs interact with each other. For example, the context of individuals with disabilities influences the interaction of the mediating constructs (e.g., positive psychological resources) and environmental constructs (e.g., disability-related accommodations) in relation to outcomes (e.g., job satisfaction).

In addition to constructs, the model also deals with processes: congruence, decision making, developmental, socialization, allocation, chance, and labor market forces. Congruence is the relative match or mismatch of individuals with their environments. Decision making is the process by which individuals consider career-related alternatives and formulate decisions. The developmental process is the systematic

changes over time that are interwoven with characteristics and perceptions of the individual. Socialization is the process by which individuals learn work and life roles influenced by parents' occupation or socioeconomic status. Allocation is the process by which societal gatekeepers (e.g., parents, teachers, or vocational counselors) use external criteria to exclude individuals from specific directions. Chance is the occurrence of unforeseen events or encounters. Labor market forces are the economic and business conditions that affect individual and organizational opportunities (e.g., global economic crisis, downsizing, or changing technology). The three of the processes: congruence, decision making, and development are primarily related to internal characteristics or actions of the individuals. The other four are primarily external to the individual.

It is critical to understand that most of the elements in the model are highly interrelated. For instance, constructs within each group are highly related with each other. The social mediating constructs of attitudes towards disability are related to the outcome constructs of job satisfaction. In addition, constructs and processes also are related to each other. Career development professionals who interact with people with disabilities should consider numerous interrelated constructs and processes, such as the contexts of their personal lives, working environments, and various internal or external processes (e.g., labour market forces, socialization, and career decision-making). Thus, career counseling for people with disabilities should concentrate on the interaction between the other constructs and processes (Szymanski & Hershenson, 1998; Szymanski & Vancollin, 2003).

Findings Pertaining to Career-related Constructs among People with and without Disabilities

Previous studies investigating career-related constructs for people with and without disabilities will be reviewed. The career-related internal and external constructs have been examined in relation to different personal attributes of people with and without disabilities. For instance, personal demographic characteristics, personal physical or mental abilities, skills from job-related training or program, psychological resources, cultural characteristics, cultural/racial attitudes toward disability, or societal attitudes toward disability have been documented (e.g., Bolton & Akridge's, 1995; Conyers & Szymanski, 1998; Duvdevany & Rimmerman, 1996; Dziekan & Okocha, 1993; Lustig & Strauser, 2008; Trevino & Szymanski, 1996)

Gender. Female workers were more likely to be mismatched compared to male counterparts with regard to education and job placement. Females showed disadvantages in terms of career selection or engagement in employment activities due to traditional gender roles within the community and family such as the primary wage earner of the husband in many families, sacrifice in job search of the wife, etc. Thus, Females were more likely than males to receive lower wages (McGoldrick & Robst, 1996). In the study to examine perceptions of career barriers among a sample of 99 people with disabilities from the state VR orientation programs, gender was related to perceptions of career barriers. Female participants indicated more career-related difficulties or barriers than male counterparts due to gender discrimination in employment setting (Fabian, Ethridge, & Beveridge, 2009).

However, researchers also found that there were no relationships between gender and career constructs (Kleiman et al., 2004; Lustig & Strauser, 2002; Patel, Salahuddin, & O'Brien, 2008; Sampson et al., 1996). In a study investigating influential factors to predict career decision-making self-efficacy among several variables, such as gender, acculturation, social support, peer support, socioeconomic status, and racism, 85 Vietnamese adolescents indicated that gender was not a significant predictor (Patel et al., 2008).

Sampson et al. (1996) completed a study that measured the relationships between individuals' gender and levels of dysfunctional career thoughts by utilizing the Career Thoughts Inventory (CTI). According to Sampson et al. (1996), the CTI was designed to assess dysfunctional career thoughts that tend to be common across individuals' demographic groups. They found no relationship between gender and career thoughts for participants' total scores on the Career Thoughts Inventory. Lustig and Strauser (2002) also found no relationships between participants' gender and levels of dysfunctional career thoughts by surveying 156 students. Similarly, a study utilizing a total of 192 university students enrolled in a career-planning class indicated that there was no relationship between gender and overall dysfunctional career thoughts (Kleiman et al., 2004).

Geographic Location. Geographic location often limits the exposure or exploration of many youth to a variety of career opportunities. In Ali and McWhirter's (2006) study, 338 rural Appalachian high school students indicated that they experienced barriers related to educational and vocational opportunities, such as lack of financial

resources and information about postsecondary education. The educational and vocational disadvantages affected their self-efficacy beliefs and outcome expectations.

Personal Career-related Skills. In Bolton and Akridge's (1995) study, a meta-analysis was conducted by the Arkansas Rehabilitation Research and Training Center. They analyzed the data of 10 skill-based interventions serving 220 clients with disabilities and summarized the results of 15 experimental studies of 10 small-group skills training interventions developed for vocational rehabilitation clients. They found that these skills programs showed a strong effect in changing individual career constructs such as career exploration or preparation.

Krieshok, Hecox, Wettersten, and Ulven (2000) conducted a study with 35 veterans with disabilities seeking vocational assistance. In the study, participants' efficacy related to job search and job decision-making behaviors was targeted using résumé preparation and vocational feedback programs. They found that participants demonstrated the effectiveness of job-related preparation skills through the programs.

Conyers and Szymanski (1998) investigated the effectiveness of a 10-hour, 4-session, integrated career decision-making intervention on 18 college students with physical disabilities. They found that the intervention showed significant impact on participants' career decision-making and self-efficacy belief and confirmed the effectiveness of the intervention.

Enright (1997) tested the effectiveness of a 3-week, 12-hour career development program for 38 underemployed or unemployed people with disabilities. Data from qualitative interview indicated that the program enhanced most participants'

psychological strength relevant to career decision or development, such as self-esteem and confidence.

Ericson and Riordan (1993) investigated the efficacy of career skills training interventions derived from psychoeducational program in order to measure rehabilitation potential of persons with end-stage renal disease. Based on the comparison of 16 workshop participants and 12 no-treatment control participants, they found that the career workshops enhanced levels of career maturity, adaptive behavior, and desirable rehabilitation behaviors of the participants.

Personal Psychological Resources/Strengths. Individuals who showed higher levels of psychological resources (e.g., self-efficacy, internal locus of control, sense of coherence, etc.) demonstrated better abilities to deal with career-related difficulties or stressors. Studies have been documented to examine the relationships between personal psychological resources and career-related decision-making or development (Antonovsky, 1987; Duvdevany & Rimmerman, 1996; Lustig & Strauser, 2008).

Gushue et al. (2006) examined the relationship between the career decision-making self-efficacy, vocational identity, and career exploration activities in a sample of 72 African American high school students. They found that students with higher levels of career decision-making self-efficacy demonstrated better defined career interests and vocational goals. They also actively engaged in activities related to career exploration.

Lustig and Strauser (2008) examined the impact of sense of coherence on the career thought processes among 52 individuals with disabilities. Findings revealed that participants with a stronger sense of coherence indicated less dysfunctional career thoughts while they decided career directions and selected occupations.

Locus of control for individuals with disabilities has been explored. In a sample of 200 Israelis with work-related disabilities, Duvdevany and Rimmerman (1996) found that individuals with an internal locus of control showed more favorable attitudes to work than individuals with an external locus of control.

Young and his colleagues (2001) examined family influences on the career development process of 20 Euro-Canadian and Chinese Canadian parents and their high school age children. By monitoring an individualized family career development project over a 6month period, they found that the career-related conversations were effective when the parents and their children shared vocational goals, openly communicated, and discussed applicable strategies to accomplish their goals. In addition, more successful projects were associated with the adolescents' self-esteem or autonomy in career planning. The children showed better skills related to making decisions or planning when they were independent from their parents and the parents were taking a leadership role in the projects.

Socioeconomic status/Parental Education Level. An individual's current socioeconomic status is embedded in family economic background or parental educational levels. Career-related decisions or vocational directions of children or students can be associated with their socioeconomic status directly and indirectly through academic activities in school settings (Blau & Duncan, 1967). Among factors related to familial backgrounds, an advantaged socioeconomic status was considered as a salient predictor of individuals' career-related value, quality, and development (Halaby, 2003).

School-aged students from economically challenged familial backgrounds tended to show difficulties developing a career identity due to interference with the parental

expectation related to their own career objectives. Education levels of parents showed an influential factor to academic achievements or career directions of adolescents and students. More educated mothers were more likely to spend much time and efforts into the production function of their children's cognitive achievements. The more educated the mother, the more efficient her use of time spent with the child. Due to high aspirations and expectations in terms of vocational and academic achievements, a well educated mother can act as a role model for her children (Jerrim & Micklewright, 2009).

Kotrlik and Harrison (1989) examined the career decision making patterns of 3,858 high school students in Louisiana. They focused on the relationship between participation in vocational education and influence on student career decisions. Findings indicated that parents' education level, particularly mother's expectation and education level, were the most influential factor for students' participation in the vocational program and career decisions.

Blustein et al. (1997) examined factors related to career decision-making or exploration during school-to-work transition. By interviewing 45 employed young men and women, they found that tangible familial assistance such as financial support was influential and led emotional stability.

In Mau and Mau's (2006) study, factors that contributed to persistence in aspirations of teaching careers were examined among 10th grade students. By analyzing the National Educational Longitudinal Survey (NELS), they found that students who demonstrated a strong persistence in aspirations of teaching career came from a higher family socioeconomic and a higher parental education level.

Ali and McWhirter (2006) investigated the relationship between postsecondary aspirations and vocational/educational self-efficacy, perceived educational barriers, and sources of support among 338 (182 male, 156 female) 11th-grade rural Appalachian high school students. Results indicated that socioeconomic status was a significant factor predicting the post- secondary pathways. Students from lower socioeconomic family backgrounds were not provided adequate information about financial aid or postsecondary education. A lack of information, guidance, and financial resources was major challenges affecting self-efficacy for pursuing postsecondary education of students from lower socioeconomic status.

Differing from the traditional notion that familial socioeconomic status can have influence on individuals' career development or career decision, a recent study by Bosco and Bianco (2005) indicated that the lifestyle selection between career and work was understood based on complex socialization process rather than socioeconomic variable alone. The study investigated the influential impact of a familial socioeconomic variable and maternal work pattern on the lifestyle balance between career and family. Among 574 Generation Y college students, they found that lifestyle choices of female students and spousal lifestyle choices of male students were significantly associated with their maternal work patterns. However, it appeared that a familial socioeconomic variable alone was not an appropriate predictor of lifestyle choices.

Patel et al. (2008) examined various factors predicting career decision-making self-efficacy, such as gender, acculturation, social support, peer support, socioeconomic status, and racism among 85 Vietnamese adolescents. Socioeconomic status was not a

significant predictor; however, peer support was predictive of career decision-making self-efficacy.

Johnson, Buboltz, and Nichols (1999) conducted a study to examine the impact of family functioning and dynamics on career development in a sample of 230 college students. Findings indicated that parents' educational level was not related to participants' vocational identity. They stated that family dynamic functioning dimensions were stronger predictors of vocational identity than socioeconomic status.

Social support/Familial Support. Psychosocial supports have been considered as mitigating factor of career-related difficulties. Psychosocial supports promote positive development, contribute to resiliency, and have implications for interventions (Antonovsky, 1987; Kenny, Blustein, Chaves, Grossman, & Gallagher, 2003). The perceptions of career barriers were also mitigated by social support factors (Fabian et al., 2009). Similarly, assistance or existence of significant others such as peers, teachers, relatives, and parents were viewed as influential factors for children, school adolescents, and young adults when they explored future career directions and made career-related decisions (Bidwell & Plank, 2000). For instance, Whiston and Keller (2004) examined research findings related to influences by family on individuals' career development and occupational choice by conducting a comprehensive review of the research published since 1980. They investigated how families could have a positive influence and facilitate career development based on the notion that individuals were most likely to seek assistance with career decisions from family members. The findings indicated that the relationship between children and their parents was the influential and persistent effect on

their career development. The career development of adolescents can be affected by familial assistance from their parents than by parental education levels or job status.

Blustein et al. (1997) sought to enhance an understanding of the school-to-work transition among a diverse sample of 45 employed young men and women (aged 18-29) who have been in the transition. They identified individual and contextual factors relevant to the school-to-work transition. Young adults' attachment to their parents enhanced their engagement in active explorations and development for their career and led them to take risks in career exploration.

O'Brien (1996) examined a host of familial and maternal relationship variables which were associated with the career development of 282 female high school seniors. She contended that young school-aged women who experienced a moderate degree of attachment to their mothers relied on their mothers to assist in addressing their personal and academic issues. Further, young school-aged women who also shared similar beliefs and attitudes with their parents evidenced very strong career self-efficacy beliefs and moderate levels of both career orientation and realism.

In order to identify factors that influenced students' career development, Fisher and Griggs (1995) conducted retrospective interviews with 11 African-American and 9 Latino juniors and seniors (12 females and 8 males) who had identified successful academic achievements and acted on their vocational plans. Among a number of personal, social, and institutional factors which the participants identified, they unanimously indicated that parental support was a major factor in their career development. Specifically, participants identified reinforcing the desire to learn, providing opportunities for career interests and choices, and maintaining high expectations as the

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most beneficial parenting behaviors. Other members at home, such as siblings and extended relatives, also influenced their career development in similar ways. In addition, other important factors included goal orientation, strong self-confidence, influence of role models at home and school, desire to be a role model, challenging high school curriculum, and internships/work experience.

In Schultheiss, Palma, Predragovich, and Glasscock's (2002) study, the researchers examined 15 college students' perceptions of sibling relational influence on career exploration and decision making. Throughout an empirically based semi-structured interview, the researchers found that siblings had positively influenced the students' career development and career path by providing multidimensional social support. Specifically, the students reported that their siblings provided assistance in social integration, self-esteem support, and informational support related to career development. They also indicated that the supports from their siblings had a positive influence, particularly during periods of career or educational transitions.

Trevino and Szymanski (1996) studied about the career development among people with disabilities by using a qualitative approach. Ten adult Hispanics with disabilities receiving services from regional or state vocational agencies indicated that they had a strong motivation to work and that their motivation was influenced mostly by their family members. All of the ten individuals indicated having a family member that significantly influenced how they perceived work in their lives, developmental work motivation, and the meaning of work. Most participants reported receiving strong support from families and ethnic community to manage psychosocial and vocational issues after

the onset of disability. Essentially, family and community were the disability services for most of these individuals.

Gomez et al. (2001) studied the relationships of family factors pertaining to career development of 20 Latina-Americans throughout qualitative interviews. They concluded that the career development and career path of the Latinas could be influenced by culture, family background, and sociopolitical conditions. The participants indicated that a strong reliance on family members for support and communication, a gender role socialization process (e.g., gender-traditional expectations), and familial aspirations regarding educational and occupational pursuits were the most influential aspects in career direction. Due to the emphasis on familial values in the Latino/Latina culture, the participants reported that they relied heavily on their families for support when they were expected to choose career opportunities.

Juntunen et al. (2001) conducted qualitative interviews with 18 Northern Plains American Indians to examine the family influences and the meaning of careers among this population. Findings indicated that the relationships between family influences and the career development processes of American Indians were associated with the individuals' educational level. Among participants with postsecondary education, family assistance was considered a significant influence in the career development processes. Specifically, these individuals reported that their parents and extended family members assisted them in making the decision to enter college or pursue particular occupations. The participants who did not have postsecondary education indicated that lack of family support from significant others discouraged them from working or pursuing a postsecondary education.

Pearson and Bieschke (2001) investigated how 14 African American women in the midpoint of their careers perceived their family's influence on their career development. By utilizing semi-structured interviews, the researchers attempted to learn what factors had helped them succeed in their educational and vocational pursuits. Among the factors related to the participants' career development, the most influential variables included family emphasis on education, family relationships, esteem support, family financial resources, gender role socialization, and work values. In terms of family relationships, many of the participants emphasized both supportive relationships in the nuclear family and influential relationships among their extended family in their career development.

Chung, Baskin, and Case (1999) examined the relationships between family variables and career development of 6 African-American males. Utilizing personal interviews, they found two major family factors that influenced the career development of the participants working in a variety of fields. First, financial support from their family and role modeling from their father appeared to influence the career development of these participants. Second, parental support for achieving educational and career goals was considered as a significant factor.

Familial/Parental Characteristics. There are numerous research findings to examine the relationships between individuals' career constructs and familial or parental characteristics, such as family size, mother's occupational status, or parenting style (Kracke, 1997; Penick & Jepsen, 1992; Rosenthal & Hansen, 1981).

Trusty, Watts, and Erdman (1997) attempted to identify familial variables that could predict parental involvement in adolescents' career development. Based on the

analyses of parent questionnaire data from the National Education Longitudinal Study (NELS) of 1988, certain family variables (e.g., family composition, family size, and family socioeconomic status) were found to be of neither statistical nor practical significance.

Rosenthal and Hansen (1981) studied the relationship between maternal employment and young adolescents' self-concept, school achievement, vocational development, and the perceptions of their parents. Among a sample of 555 junior high students, participants whose mothers worked outside the home did not have significantly different levels of vocational maturity or vocational development than their counterparts with homemaking mothers.

Kracke (1997) examined the influence of parental education and parental attitudes towards adolescents' career exploration in 236 German 9th-grade students. He found that parental attitudes such as trustworthiness, openness to adolescents' issues, and concern with promoting career exploration correlated positively with the career exploration of the students. In addition, the results indicated that the degree of individuation in the adolescent-parent relationship related positively to vocational exploration.

Penick and Jepsen (1992) found that perceptions held by 215 students and their parents regarding family functioning were significant predictors of the adolescents' vocational identity. Findings indicated that familial system maintenance styles (e.g., democratic family styles, authoritarian family styles, locus of control, and enmeshment) and familial relationship styles (e.g., expressiveness and conflict communication styles) contributed to the prediction of the adolescents' vocational identity. Among the familial system maintenance styles, children from more enmeshed family background showed

more difficulty in accomplishing career-related tasks. Furthermore, they found that familial system maintenance and relationship styles were significantly more influential in vocational identity than gender, socioeconomic status, and educational achievement.

In a study with 93 11th-grade students in Israel, Mannheim and Seger (1993) found a relationship between mothers' and children's work values. Maternal demographic characteristics such as socioeconomic status, occupation, and sex role orientation were not significantly related to the students' work values. The development of the students' work values seemed to be influenced by relational factors with their mothers. Psychological maternal variables such as attitudes and expectations and parenting styles appeared to be more influential than demographic variables (e.g., maternal employment).

Ethnicity/ Culture. According to Rumberger (1981), people of color or workers from culturally minority groups received significantly lower wages compared to White workers. Minority workers were also more likely to experience a career mismatch than their White counterparts. Racial minority groups can experience difficulties while engaging in the job search or decision-making due to risks such as low levels of education which lead to low paying jobs and high rates of poverty, lack of transportation, geographic inaccessibility, or financial constraints. For instance, migrant work is particularly common among Hispanics in the United States. This type of work often causes disability on the job and seriously impedes career development of Hispanics. In addition, the migrant work limits access to educational and career opportunities (Trevino & Szymanski, 1996).

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In Luzzo and McWhirter's (2001) study, ethnic minorities indicated more career barriers than their non-minority counterparts. Among 168 female and 118 male undergraduate students who completed a measure of perceived educational and career-related barriers and a measure of coping efficacy, female participants and ethnic minorities demonstrated significantly more career-related barriers than did male participants and European American students, respectively. Ethnic minorities also exhibited more perceived educational barriers and lower self-efficacy for coping with perceived career-related barriers compared to their European American counterparts.

By interviewing 10 Hispanics with disabilities, Trevino and Szymanski (1996) found career decision or development of participants was strongly motivated by their familial and cultural community support. Findings indicated that culture emerged as an important consideration in relation to career decision-making or career development for individuals with disabilities.

Dziekan and Okocha (1993) examined access and acceptance rates of public vocational rehabilitation services for cultural minority and majority individuals with disabilities. Data analysis from 63,774 individuals who applied for services during 1985-1989 revealed that cultural minority individuals with disabilities were accepted for public vocational services at lower rates than majority applicants.

However, Wheaton (1995) examined acceptance rates for public vocational rehabilitation services for European-Americans and African-Americans with disabilities. By exploring the proportions of each racial/ethnic group accepted for services to determine any inequities, he found that there were no statistically significant differences between the groups.

Lopez and Ann-Yi (2006) examined the contributions of career-related barrier and social support perceptions, barrier-related coping beliefs, and career decision-making self-efficacy beliefs to the prediction of career indecision in three racial/ethnic groups of college women: White, African-American, and Hispanic women. Findings indicated that there were no racial/ethnic differences across scores on most of the key measures. There was a difference only in anticipated career barriers among the three groups. African American women anticipated more career-related barriers than either their White or Hispanic counterparts.

Fouad and Byars-Winston (2005) introduced career counseling from a cultural perspective and conducted a meta-analysis research study that investigated the relationship between cultural perspectives and vocational choice variables. Among ethnic minority groups, a difference in perceptions of career opportunities and barriers was found. However, they found that race/ethnicity differences did not greatly affect career aspirations and career decision-making.

Societal Environment/Attitudes. A negative social environment will adversely influence the quality life and successful economic independence for people with disabilities. People with disabilities should overcome counteractive societal barriers to achieve a healthy mental state, feelings of adequacy, healthy familial and social relationships, better living situations, and suitable employment. Career development professionals should be aware that prejudicial and discriminatory social environments affect the psychosocial rehabilitation and successful employment of people with disabilities. Cultural and religious characteristics are also associated with societal attitudes toward disabilities or certain physical or mental symptoms. For instance,

Koreans appear not to disclose their depressive symptoms due to a highly stigmatizing and threatening view about mental disabilities. Family members usually attempt to hide the fact that there are persons with mental disabilities in their families because they can provoke reservation or fear from others. Thus, many Koreans may underutilize mental health services (Pang, 1998; Park & Bernstein, 2008).

Many Indians do not seek mental health services related to psychological or psychiatric disabilities and attempt to conceal family members with mental illness due to strong societal stigma attached to mental disabilities (Conrad & Pacquiao, 2005).

In Japanese culture, people with family members with intellectual disabilities may attempt to conceal them from being known by others outside of the family due to disadvantages or stigma of having family members with the disabilities (Tachibana & Watanabe, 2004).

Asian Indians may show negative attitude toward people with disabilities due to religious beliefs about disability. Asian Indians believe in divine punishment and are not willing to accept the disability given by gods as a religious or spiritual practice. They also believe that a good person should overcome life difficulties or disabilities inflicted by gods to show their psychological strength (Parashar, Chan, & Leierer, 2008).

Summary

Differing from the traditional pathogenic model of stress management, Antonovsky's salutogenic model presented a new paradigm of appraising and managing stressful life situations. Antonovsky's salutogenic view was developed from information indicating that stressors are ubiquitous and result in either positive or negative influence depending on how well individuals address stressful events. If individuals appropriately

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address stressors, they will move toward the health end on a health and disease continuum. Conversely, if individuals poorly manage stressors, they will experience negative consequences and move toward the disease end on a health and disease continuum. As a powerful determinant of maintaining and measuring individuals' position on a health and disease continuum, sense of coherence refers a global orientation to seeing life is predictable, manageable, and meaningful. Since Antonovsky proposed the salutogenic model and sense of coherence, numerous research have been conducted to measure the relationships between the level of SOC and other psychological or behavioral variables in the field of psychology, medicine, nursing, social work, and counseling. Plentiful studies have indicated positive relationships between the levels of SOC and healthy psychological and behavioral traits. This has proposed feasible intervention strategies for individuals who experience difficult life situations based on Antonovsky's Salutogenic paradigm. More specifically, there has been promising evidence of positive relationships between the level of SOC and employment status and vocational outcomes. However, studies relevant to the relationships between the levels of SOC and choosing careers among college students with disabilities are scant. Thus, this literature review concludes that it is necessary to further investigate the relationships between the levels of SOC and career decision processes among college students with disabilities. In addition, as factors affecting career decision-making or development, demographic characteristics of college students with disabilities should be investigated.

CHAPTER 3

METHOD

Participants

The population of interest in this study was college students with disabilities. The sample for the current study was drawn from large Midwestern Universities. The sample was college students with disabilities currently registered with the Resource Center for Persons with Disabilities (RCPD) at Michigan State University. In addition, the sample was collected from other universities or colleges via a listserv of the Michigan Association on Higher Education and Disabilities (MI-AHEAD). There were approximately 1,071 students with disabilities who are currently registered with the RCPD. In the current study, 142 participants completed the questionnaire. The following demographic variables were examined: age, number of years of studying as a college student, gender, disability type, race/ethnicity, level of education, and mother's or stepmother's education level. Table 1 provides an illustration of demographic characteristics of the participants in this study.

Participants ranged in age from 18 to 44 (M =23.42, SD =4.84), with 76.7 % (n=109) between the ages of 18 and 25. Participants ranged in number of years of studying as a college student from 1 to 18 (M =4.24, SD =2.922), with 86% (n=122) between the year of 1 and 6. Males composed 34.5% (n= 49) and females composed 65.5 % (n=93) of the sample. The Center categorized disability as the following: deaf/hard of hearing , blindness/visual impairment, mobility disability, brain injury, learning disability, psychiatric disability, chronic health disability, multiple, and other disabilities (RCPD, 2008).

Table 1

Participant Demographic Characteristics

Variables		Freq	% [a]
Gender	Female	93	65.5
	Male	49	34.5
Disability Type	Hearing	3	2.1
	Visual	7	4.9
	Mobility	15	10.6
	Brain Injury	6	4.2
	Learning	49	34.5
	Psychiatric	28	19.7
	Chronic	18	12.7
	Multiple	10	7
	Other	4	2.8
Race	Caucasian	107	75.4
	Black	19	13.4
	Chicano	6	4.2
	Hispanic	5	3.5
	American Indian/Alaskan	1	0.7
	Asian/Pacific Islander	1	0.7
	International	0	0
Education Level	Freshman	15	10.6
	Sophomore	25	17.6
	Junior	31	21.8
	Senior	42	29.6
	Graduate	27	19
Mother's or Stepmother's Education Level	No high school	10	7
	Some high school	18	12.7
	Some college	36	25.4
	College graduate	36	25.4
	Professional degree	26	18.3

[a] Percentages may not equal 100% due to omitted data.

Primary disabilities included learning disabilities (34.5%, n= 49), psychiatric disabilities (19.7%, n =28), chronic health disabilities (12.7%, n=18), mobility disabilities (10.6, n=15), and multiple disabilities (7%, n=10). Racial and ethnic data were collected according to the ethnic classification of the university: Caucasian (non Hispanic), Black (non Hispanic), Chicano, Hispanic (Other), American Indian/Alaskan Native, Asian / Pacific Islander, and International (Michigan State University, 2009). Most, 75.4%, (n=107) identified themselves as Caucasian (non Hispanic), 13.4% (n=19) as Black (non

Hispanic), 4.2% (n=6) as Chicano, 3.5% (n=5) as Hispanic (Other), 0.7% (n=1) as American Indian/Alaskan Native, and 0.7% (n=1) as Asian / Pacific Islander. In terms of class standing, 10.6% (n=15) were freshmen, 17.6% (n=25) were sophomores, 21.8% (n=31) were juniors, 29.6% (n=42) were seniors, and 19% (n=27) were graduate students. In terms of mother's or stepmother's education level, 7% (n=10) indicated no high school, some high school (12.7%, n=18), some college (25.4%, n=36), college graduate (25.4%, n=36), and professional degree (18.3%, n=26). In an attempt to assess the socioeconomic status of participants' families, participants were asked to report the educational levels of their mother (Bosco & Bianco, 2005; Johnson et al., 1999). The demographic variables of age, number of years of studying as a college student, and disability types were excluded in data analyses due to the constriction of participants and sample size. About 77 % (n=109) of participants ranged in age between the ages of 18 and 25. Eighty-six percent (n= 122) of participants ranged in number of years of studying as a college student between the year of 1 and 6. In terms of disability type, the numbers of participants with deaf/hard of hearing (2.1%, n=3), blindness/visual impairment (4.9%, n=7), and brain injury (4.2%, n=6) were constricted compared to primary disabilities: learning disabilities (34.5%, n= 49), psychiatric disabilities (19.7%, n =28), chronic health disabilities (12.7%, n=18), mobility disabilities (10.6, n=15), and multiple disabilities (7%, n=10). Appendix C provides questions of demographic characteristics of the participants in this study.

Variables and Instruments

Sense of coherence. Sense of coherence is individual's self-reported global orientation that the world is comprehensible, manageable, and meaningful. The sense of coherence was conceptually defined as a global orientation in which individuals view that

external or internal stimuli are structured, predictable, and explicable, that the resources are available to them meet the demands derived from these stimuli, and that these demands are worthwhile challenges. The sense of coherence is composed of three elements: comprehensibility, manageability, and meaningfulness (Antonovsky, 1987). In the current study, sense of coherence was operationally defined by the Total score on Antonovsky's Sense of Coherence Questionnaire 13-Item.

The Sense of Coherence (SOC) Questionnaire 13-Item consists of 13 items. Participants were asked to choose a response on a seven-point semantic differential scale with two anchoring phrases. The SOC-13 consists of 5 comprehensibility, 4 manageability and 4 meaningfulness items. Five of the items need to be reversed in scoring and the sum of all items ranges from 13 to 91. A high score always indicates a strong SOC. The SOC measures universally meaningful construct of individual's basis for successful coping with stressors across different cultures such as gender, race, or social class. Completion of SOC-13 may take less than 15-20 minutes (Antonovsky, 1993). Examples of items are "Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?" (Comprehensibility), "Has it happened that people whom you counted on disappointed you?" (Manageability), and "Do you have the feeling that you don't really care about what goes on around you?" (Meaningfulness). In the current study, the sum Total scale score of all 13 items including comprehensibility, manageability, and meaningfulness was utilized as a score of an individual's sense of coherence.

The Cronbach alpha for the SOC-13 has reported adequate range from 0.74 to 0.94. Consistent high internal consistency was found in different populations, such as in

different languages and Western cultures. The SOC-13 also showed an adequate level of content, face, and consensual validity (Antonovsky, 1993). For the present sample, the Cronbach's alpha coefficient for the Sense of Coherence Questionnaire 13-Item was .89.

The discriminant validity of the SOC has been examined by comparing associations with health indicator behaviors of two psychosocial measurements: depression and anxiety measures. The SOC demonstrated high inverse correlations with depression (r=-0.62 among both men and women) and anxiety measures (r = −0.57 among the men and r = −0.54 among the women) (Konttinen et al., 2008). Among patients with schizophrenic symptoms, the SOC measure showed a positive relationship with mastery (r=.68), self-esteem (r=.65), adequacy of attachment (r=.37), adequacy of social integration (r=.33), and a negative relationship with psychiatric symptoms (r=-.44) (Bengtsson-Tops & Hanson, 2001). In a cross cultural context of Anglo-American and Native American cultures, the SOC measure was found to correlate negatively with Beck Depression Inventory (r=-.66 and r=-.49 respectively), State-Trait Anxiety Inventory-Trait Scale (r=-.64 and r=-.43 respectively), and Wahler Physical Symptom Inventory (r=-.41 and r=-.29 respectively) (Bowman, 1996). Antonovsky's Sense of Coherence Questionnaire 13- Item can be found in Appendix D.

Career thought processes. Career thoughts are conceptually defined as "outcomes of ones thinking about assumptions, attitudes, behaviors, beliefs, feelings, plans, and/or strategies related to career problem solving and decision making" (Sampson et al., 1996, p. 2). Dysfunctional career thoughts are conceptually defined as a negative thinking that impairs individuals' ability to effectively understand career-related situations, solve career problems, and make career decisions (Sampson et al., 1996). In the current study,

dysfunctional career thoughts were operationally defined by the Total score on the Career Thoughts Inventory, which is an overall indicator of dysfunctional thinking in career problem solving.

The Career Thoughts Inventory (CTI; Sampson et al., 1996) is designed to measure the level of dysfunctional career thoughts of individuals who make career decisions or seek career choices. For the CTI, career thoughts are defined as outcomes of one's thinking about assumptions, attitudes, behaviors, beliefs, feelings, plans, and/or strategies related to career problem solving and decision making. Higher CTI scores indicate greater amounts of dysfunctional career thinking.

The CTI consists of 48 items and produces a Total score and scores on the three subscales : Decision Making Confusion scale (14 items), Commitment Anxiety scale (10 items), and External Conflict scale (5 items). Participants were asked to answer each 4-point rating item, with responses ranging from 0 (strongly disagree), 1 (disagree), 2 (agree), to 3 (strongly agree). CTI Total scores and three subscale scores are obtained by summing the items. Mean scores are used for missing data. Examples of items are "No field of study or occupation interests me at this time" (Decision Making Confusion), "I'm afraid of overlooking an occupation" (Commitment Anxiety), and "The views of important people in my life interfere with choosing a field of study or occupation" (External Conflict).

The CTI categorizes dysfunctional career thoughts into three types: Decision-Making Confusion (DMC), Commitment Anxiety (CA), and External Conflict (EC). Decision-Making Confusion (DMC) scale measures individuals' inability to initiate or sustain career decision making process due to a lack of cognitive understanding regarding

the decision making process itself or negative emotions while making career decisions. The Commitment Anxiety (CA) scale reflects individuals' inability to make a commitment to a career choice due to generalized anxiety in relation to the outcome of the career decision making process. The External Conflict (EC) scale assesses individuals' inability to balance or integrate their own values or ideas about potential career choices with the opinions of significant others. The internal consistency of the CTI Total score and the three subscales was obtained by calculating coefficient alphas for each of the respective norm groups. The internal consistency coefficients for the CTI Total score ranged from .93 to .97 and for the three subscales ranged from .94 to .74 (.90 and .94 for Decision Making Confusion, .79 and .91 for Commitment Anxiety, and .74 and .81 for External Conflict). Four-week test-retest coefficients for the CTI Total score was .86 and for the subscales ranged from .74 to .82 among college students. For the high school sample, the test-retest coefficient of the CTI Total was .69 and the subscales ranged from .52 to .72. For the present sample, the Cronbach's alphas for the CTI-Total, Decision-Making Confusion, Commitment Anxiety, and External Conflict were .95, .93, .83, and .76 respectively.

Principal components analysis indicated support for three factors: Decision Making Confusion, Commitment Anxiety, and External Conflict. Correlations between the CTI Total and the three subscales and measures of similar constructs (e.g., My Vocational Situation, Career Decision Scale, Career Decision Profile, and NEO Personality Inventory-Revised) indicated adequate support for the convergent validity of the CTI (Sampson et al., 1996).

In the current study, the Total scale score of all 48 items of the CTI was utilized to measure overall dysfunctional career thoughts. In addition, each sum subscale score of CTI (Decision-Making Confusion, Commitment Anxiety, and External Conflict) was separately utilized to measure the level of each construct. The Career Thoughts Inventory can be found in Appendix E.

Demographic Background Questionnaire

Participants were asked questions regarding gender, race, age, education level, number of years of studying as a college student, types of disability, and mother's or stepmother's education level. Appendix C provides questions of demographic characteristics of the participants in this study.

Procedure

Following receipt of notification of approval for the use of human subjects in research by the Michigan State University Institutional Review Board, the researcher generated an on-line version of a consent form, demographic questionnaire, Antonovsky's Sense of Coherence Questionnaire 13-Item, and Career Thoughts Inventory by using Survey Monkey which is an Internet survey web program. Once participants agreed to participate in completing the survey questionnaires by clicking on an 'OK' button at the bottom of the consent form, participants were asked to complete an on-line version of the two scales: Antonovsky's Sense of Coherence Questionnaire 13-Item and the Career Thoughts Inventory as well as a demographic form that included information on gender, race, age, education level, number of years of studying as a college student, types of disability, and mother's or stepmother's education level.

A director and a disability specialist at the Center approved that the researcher can survey students with disabilities who register with the Center. With prior approval, the researcher contacted the director and disability specialists and solicited college students with disabilities who were currently enrolled in the Center to participate in the study. Once the director and disability specialists received an email recruitment message from the researcher, they disseminated the message to all college students with disabilities by using their electronic Student Data System (SDS). The SDS is an electronic database system where all students' information is automatically stored once they register with the Center. The Center has one SDS for all registered college students with disabilities and can disseminate email survey requests to all RCPD students by using the SDS. The Center uses the SDS on a regular basis to disseminate information or notices to all registered students with disabilities and regularly and accurately update the SDS system. The spring or fall semesters were the best time of the year to maximize students' responses.

Furthermore, the disability specialist at the Center forwarded the researcher's email request to other colleges and universities in the State of Michigan via a listserv of the Michigan Association on Higher Education and Disabilities (MI-AHEAD). The MI-AHEAD membership includes colleges/universities in the State of Michigan which have access to the MI-AHEAD membership list, such as Wayne State, Western Michigan, Grand Valley State, and Central Michigan Universities.

The researcher generated the email recruitment message that included an introduction of the study, risks/benefits of participation, anonymous and voluntary participation, compensation for participation, alternative format, and a web link directly

connected to the current surveys. Once participants clicked to open the web link, they viewed a consent form of the study. After participants clicked to agree to participate in the study, they were asked to complete the survey questionnaires.

For participants who required alternative format of the survey questionnaires, the researcher generated the survey packet in Braille, large print (Time New Roman font 18), electronic, or audio format and mailed or emailed to the participants. A notice for alternative format and the researcher's contact information were provided in the consent form. The alternative survey packets included an alternative copy of consent form/cover letter, an alternative copy of the questionnaires, and a self-addressed return envelope. All participants were given the same instructions and a brief introduction regarding the study. Participants were informed that the survey procedure would last for about 20 to 30 minutes.

In order to protect participants' confidentiality, a numeric code was be assigned to each individual who participated in the study. Final data were stored at the researcher's secured personal computer and no personally identifying information was included in the final database. In the consent form, a notice for confidentiality and anonymity was included so participants were informed that any information they disclosed would remain confidential and not be shared with anyone.

In order to compensate for participation, the researcher provided a two-dollar cash or check for individuals who participated in completing the survey. A thank-you note for participation was generated at the end of the survey so participants could print it out to identify their completion to receive incentive . The researcher reserved a room at the Center once per week to distribute the incentive to participants. For participants who

were not able to obtain the incentive in person, the researcher mailed the 2-dollar cash or check if they emailed or mailed the thank-you note to the researcher.

Data Analysis

Descriptive statistics were computed from the questionnaire such as means, standard deviations, ranges on the Sense of Coherence Total score and Career Thoughts Inventory Total score and the three subscales: Decision-Making Confusion, Commitment Anxiety, and External Conflict subscales. Frequencies and percentages were computed for the following categorical variables: gender, race/ethnicity, disability type, education level, and mother's or stepmother's education level. Tables were utilized to indicate the descriptive data, frequencies, and percentages on each variable.

Several data analytic approaches were conducted to address the research questions.

First, in order to examine the predictive contributions of the demographic characteristics of participants (e.g., gender, race, and mother's education level) to sense of coherence among college students with disabilities, forward stepwise regression analyses were conducted. Forward stepwise regression analysis is a statistical tool when researchers want to examine the degree to which one predictor variable correlates to the criterion variable by adding predictor variables One by one. The total score of the Sense of Coherence Questionnaire 13-Item was used as a criterion variable and demographic variables (e.g., gender, race, and mother's education level) were used as predictor variables. A linear regression analysis showed the proportion of the variance of the criterion variables that can be explained by variation in the predictor variables, prediction of one variable from other variables, the direction of the regression, and the actual prediction equation (Ott & Longnecker, 2001).

Second, in order to examine the predictive contributions of the sense of coherence and demographic characteristics of participants (e.g., gender, race, and mother's education level) to career thought process among college students with disabilities, forward stepwise multiple regression was conducted. Forward stepwise multiple regression analysis can be applied by measuring the degree to which one predictor variable correlates to the criterion variable. One by one, additional predictor variables are added to the regression model. The total score of the Career Thoughts Inventory was used as a criterion variable and the Total score of sense of coherence and demographic variables (e.g., gender, race, and mother's education level) were used as predictor variables. A linear regression analysis showed the proportion of the variance of the criterion variables that can be explained by variation in the predictor variables, prediction of one variable from other variables, the direction of the regression, and the actual prediction equation. A criterion variable should be continuous. Dichotomous and continuous variables are also acceptable as predictor variables (Ott & Longnecker, 2001).

Finally, a Pearson correlation coefficient test was computed between the Sense of Coherence Total score and Career Thoughts Inventory Total score to measure the relationship between the sense of coherence and overall dysfunctional career thoughts. To examine whether individuals who report a strong sense of coherence will have lower levels of dysfunctional career thoughts, the Pearson correlation coefficient test should indicate negative correlation between the two variables. In addition, Pearson correlation coefficient tests were conducted between the Sense of Coherence Total score and the three subscale score of the Career Thoughts Inventory: Decision-Making Confusion, Commitment Anxiety, and External Conflict subscales. A correlation matrix was

constructed to indicate pairs of correlation between the Sense of Coherence and Career Thought Inventory scores. A Pearson correlation coefficient test can measure the strength of the linear relationship between two variables. The test indicates the direction (positive or negative) and strength (strong or weak) of the linear correlation. The Pearson correlation coefficient can be between -1.0 and 1.0. Coefficients close to 1.0 represent a strong positive linear relationship, close to -1.0 represent a strong negative linear relationship, and close to 0.0 represent a weak linear relationship. In general, correlations greater than 0.7 (-0.7) represent strong, smaller than 0.3 (-0.3) represent weak, and between 0.3 (-0.3) and 0.7 (-0.7) represent moderate linear relationships (Ott & Longnecker, 2001).

For the current study, an alpha level of .01 for each Pearson Correlation Coefficient test was used to control for error rate and an alpha level of .05 for the other statistical analyses was used. The Statistical Package for the Social Sciences (SPSS) software version 15.0 was employed in all of the data analyses in this study.

CHAPTER 4

RESULTS

The primary purpose of this study was to examine the relationship between career thoughts and sense of coherence and demographic characteristics among college students with disabilities. In addition, the predictive contributions of demographic characteristics (e.g., gender, race, and mother's education level) to sense of coherence among college students with disabilities were examined. Participants were collected through the Resource Center for Persons with Disabilities (RCPD) at Michigan State University. Additionally, the researcher's email request was disseminated to other colleges and universities via a listserv of the Michigan Association on Higher Education and Disabilities (MI-AHEAD), including Wayne State, Western Michigan, Grand Valley State, and Central Michigan Universities. All participants were asked to complete Antonovsky's Sense of Coherence Questionnaire 13-Item, Career Thought Inventory, and demographic questionnaire.

In this chapter, the results of the forward multiple regression analyses are described to show the relationships between sense of coherence and demographic variables. In the forward multiple linear regression, the Total score of the Sense of Coherence Questionnaire 13-Item was used as the criterion and demographic variables (e.g., gender, race, and mother's education level) were used as the predictor variables. Next, the results of the forward multiple regression analyses are described to show the relationships between dysfunctional career thoughts and sense of coherence and demographic variables. In the forward multiple linear regression, the Total score of the Career Thoughts Inventory was used as the criterion and the Total score of Sense of

Coherence Questionnaire 13-Item and demographic variables (e.g., gender, race, and mother's education level) were used as the predictor variables. Finally, the results of Pearson Correlation Coefficient tests are described. The test was computed between the Total score of the Sense of Coherence Questionnaire 13-Item and the Total score of the Career Thoughts Inventory to measure the relationship between the sense of coherence and overall dysfunctional career thoughts. In addition, three subsequent Pearson Correlation Coefficient tests were conducted between the Total score of Sense of Coherence Questionnaire 13-Item and three subscale scores of the Career Thoughts Inventory: Decision-Making Confusion, Commitment Anxiety, and External Conflict subscales.

Research Question 1: What are the predictive contributions of demographic characteristics (e.g., gender, race, and mother's education level) to sense of coherence among college students with disabilities?

Descriptive Statistics. Descriptive statistics (i.e., mean, standard deviation, range, and Cronbach's alpha) for variables are presented in Table 2. As illustrated in Table 2, the mean score (M= 65.80) of the Sense of Coherence Questionnaire 13-Item indicated that sense of coherence among participants in the current study showed a relatively high mean score (Antonovsky, 1993). Participants' mean scores on the Career Thought Inventory Total (M= 31.94), Decision-Making Confusion (M= 9.55), Commitment Anxiety subscale (M= 6.61), and External Conflict (M= 3.07) were lower than 47.01, 10.72, 12.92, and 3.32 respectively reported by Sampson et al. (1996). This indicated that participants in the current study demonstrated less overall dysfunctional career thoughts and career-related anxiety.

Table 2 also provides results of the internal consistency (Cronbach's alpha) analysis of the Sense of Coherence Questionnaire 13-Item, the Career Thoughts Inventory Total, Decision-Making Confusion subscale, Commitment Anxiety subscale, and External Conflict subscale. A significantly high internal consistency reliability was found for the Sense of Coherence (Cronbach's alpha = .89). The Cronbach's alpha for the Sense of Coherence Questionnaire 13-Item has reported adequate range from 0.74 to 0.94 across different social groups, different languages, and Western cultures (Antonovsky, 1993). A significantly high internal consistency reliability was found for the Career Thoughts Inventory Total (Cronbach's alpha = .95) and Decision-Making Confusion subscale (Cronbach's alpha = .93). It was also found that the Commitment Anxiety subscale (Cronbach's alpha= .83) and External Conflict subscale (Cronbach's alpha= .76) indicated moderate internal consistency. The internal consistency coefficients for the Career Thoughts Inventory Total score ranged from .93 to .97 and for the three subscales ranged from .94 to .74 (.90 and .94 for Decision-Making Confusion, .79 and .91 for Commitment Anxiety, and .74 and .81 for External Conflict) (Peterson et al., 1991).

Table 2

Descriptive Statistics for Sense of Coherence and Career Thoughts Inventory (Total and Subscales)

Scale	SOC	CTI-Total	CTI-DMC	CTI-CA	CTI-EC
M	65.80	31.94	9.55	6.61	3.07
SD	14.106	20.851	7.517	4.407	2.393
Range	29-84	2-89	0-26	1-18	0-10
A	.89	.95	.93	.83	.76

Note: N=142. SOC= Sense of Coherence; CTI=Career Thoughts inventory; CTI-DMC= Career Thoughts Inventory Decision-Making Confusion subscale; CTI-CA= Career Thoughts Inventory Commitment Anxiety subscale; CTI- EC= Career Thoughts Inventory External Conflict subscale.

Results of Forward Multiple Regression Analysis. In order to examine the relationship between sense of coherence and demographic characteristics (e.g., gender, race, and mother's education level), forward stepwise multiple regression was conducted. Forward stepwise multiple regression analysis is a statistical tool when researchers want to examine the degree to which one predictor variable correlates to the criterion variable by adding predictor variables one by one. The total score of the Sense of Coherence Questionnaire 13-Item was used as a criterion variable and demographic variables (e.g., gender, race, and mother's education level) were used as predictor variables. A linear regression analysis showed the proportion of the variance of the criterion variables that can be explained by variation in the predictor variables, prediction of one variable from other variables, the direction of the regression, and the actual prediction equation (Ott & Longnecker, 2001).

First, a linear regression analysis was calculated predicting participants' sense of coherence based on gender. A significant regression equation was found, $F(1, 140)= 9.065$, $p = .003$, with an R^2 of .06. Participants' predicted sense of coherence was equal to 68. 312-7.291 (Gender), where gender was coded as 0= Male and 1= Female. The relationships indicated that gender accounted for 6 % of the variance in the sense of coherence. Gender was a significant predictor, $p=. 003$. Thus gender remained in the model.

Next, a multiple linear regression analysis was calculated predicting participants' sense of coherence based on gender and Race. A significant regression equation was found, $F(2, 137)= 5.761$, $p = .004$, with an R^2 of .07. Participants' predicted sense of coherence was equal to 65. 440-7.938(Gender)+ 3.949610(Race), where Race was coded

as 0= White and 1= Non-White. Due to the small sample of ethnic minority participants, Black, Chicano, Hispanic, American Indian/Alaskan Native, and Asian / Pacific Islander participants were collapsed into one group. The relationships indicated that gender and race accounted for 7 % of the variance of the sense of coherence. However, race was not a significant predictor, p=.154. Thus, race was removed from the model.

Finally, a multiple linear regression analysis was calculated predicting participants' sense of coherence based on gender and mother's education level. A significant regression equation was found, $F(2, 123)= 11.614$, $p = .000$, with an R^2 of .15. Participants' predicted sense of coherence was equal to 56. 918-4.950(Gender)+ 2.949875(Mother's Education Level). The relationships indicated that gender and mother's education level accounted for 15 % of the variance of the sense of coherence. Mother's education level was a significant predictor, p=.000. Thus, mother's education level remained in the model.

Research Question 2: What are the predictive contributions of the sense of coherence and demographic characteristics (e.g., gender, race, and mother's education level) to career thought process among college students with disabilities?

In order to examine the predictive contributions of the sense of coherence and demographic characteristics of participants (e.g., gender, race, and mother's education level) for career thought process among college students with disabilities, forward stepwise multiple regression was conducted. Forward stepwise multiple regression analysis is a statistical tool when researchers want to examine the degree to which one predictor variable correlates to the criterion variable. One by one, additional predictor variables are added to the regression model. The total score of the Career Thoughts

Inventory was used as a criterion variable and the Total score of sense of coherence and demographic variables (e.g., gender, race, and mother's education level) were used as predictor variables. Moreover, a linear regression analysis showed the proportion of the variance of the criterion variables that can be explained by variation in the predictor variables, prediction of one variable from other variables, the direction of the regression, and the actual prediction equation (Ott & Longnecker, 2001).

First, a linear regression analysis was calculated predicting participants' dysfunctional career thoughts based on their Sense of Coherence. A significant regression equation was found, $F(1, 140)= 30.219, p < .001$, with an R^2 of .17. Participants' predicted dysfunctional career thoughts were equal to 72.914 -.623(Sense of Coherence). The relationships indicated that the Sense of Coherence score accounted for 17% of the variance of the dysfunctional career thoughts.

Next, a multiple linear regression analysis was calculated predicting participants' dysfunctional career thoughts based on their Sense of Coherence and gender. A significant regression equation was found, $F(2, 139)= 15.020, p < .001$, with an R^2 of .17. Participants' predicted dysfunctional career thoughts were equal to 72. 369-.618(Sense of Coherence)+ .610(Gender), where gender was coded as 0= Male and 1= Female. The relationships indicated that the Sense of Coherence score and gender accounted for 17 % of the variance of the dysfunctional career thoughts. However, gender was not a significant predictor, p=.861. Thus gender was removed from the model.

Next, a multiple linear regression analysis was calculated predicting participants' dysfunctional career thoughts based on their Sense of Coherence and race. A significant regression equation was found, $F(2, 137)= 14.730, p < .001$, with an R^2 of .17.

Participants' predicted dysfunctional career thoughts were equal to 63.011-.620(Sense of Coherence) -.181(Race), where race was coded as 0= White and 1= Non-White. Due to the small sample of ethnic minority participants, Black, Chicano, Hispanic, American Indian/Alaskan Native, and Asian / Pacific Islander participants were collapsed into one group. The relationships indicated that the Sense of Coherence score and race accounted for 17 % of the variance of the dysfunctional career thoughts. However, race was not a significant predictor, p=.962. Thus race was removed from the model.

Finally, a multiple linear regression analysis was calculated predicting participants' dysfunctional career thoughts based on their Sense of Coherence and mother's education level. A significant regression equation was found, $F(2, 123)= 22.069$, $p < .001$, with an R^2 of .26. Participants' predicted dysfunctional career thoughts were equal to 87.141-.729(Sense of Coherence)- 1.365(Mother's Education Level). The relationships indicated that the Sense of Coherence score and mother's education level accounted for 26 % of the variance of the dysfunctional career thoughts. However, mother's education level was not a significant predictor, p=.207. Thus mother's education level was removed from the model.

Research Question 3: What is the relationship between sense of coherence and career thought processes among college students with disabilities?

Correlations among variables used in Pearson Correlation Coefficient analysis are present in Table3. As per Table 3, results indicate moderate negative correlations between Sense of Coherence and overall Career Thoughts and three subscales: Decision-Making Confusion, Commitment Anxiety, and External Conflict.

Table 3

Correlation Matrix Among Sense of Coherence and Career Thoughts Inventory (Total and Subscales)

Scale	SOC	CTI-Total	CTI-DMC	CTI-CA	CTI-EC
SOC	1				
CTI-Total	-.421**	1			
CTI-DMC	-.409**	.903**	1		
CTI-CA	-.307**	.902**	.707**	1	
CTI-EC	-.400**	.844**	.678**	.752**	1

Note: N=142. SOC= Sense of Coherence; CTI=Career Thoughts inventory; CTI-DMC= Career Thoughts Inventory Decision-Making Confusion subscale; CTI-CA= Career Thoughts Inventory Commitment Anxiety subscale; CTI-EC= Career Thoughts Inventory External Conflict subscale.

**$p<.01$.

Results of Pearson Correlation Coefficient Tests. In order to examine the correlations between sense of coherence and career thought processes among college students with disabilities, Pearson Correlation Coefficient tests were employed. A Pearson Correlation Coefficient test is a data analytic tool to measure the correlation (linear dependence) between two variables and the strength of the linear relationship between the variables. The test indicates the positive or negative direction and weak or strong strength of linear correlation. In interpreting results, coefficients close to 1.0 imply a strong positive linear relationship describing the correlation between *the two variables* perfectly as one variable increases the other variable increases, close to -1.0 imply a strong negative linear relationship representing the correlation between the two variables perfectly as one variable decreases the other variable increases, and close to 0.0 represent a weak linear relationship. Correlations greater than 0.7 (-0.7) represent strong, smaller than 0.3 (-0.3) represent weak, and between 0.3 (-0.3) and 0.7 (-0.7) represent moderate linear relationships (Ott & Longnecker, 2001).

In order to examine correlations between sense of coherence and overall dysfunctional career thought processes, the Total score of the Sense of Coherence Questionnaire and the Total score of the Career Thought Inventory were utilized in a Pearson Correlation Coefficient analysis. In addition, the Total score of the Sense of Coherence Questionnaire and scores of the three subscales of the Career Thought Inventory: Decision-Making Confusion, Commitment Anxiety, and External Conflict were utilized.

First, a Pearson Correlation Coefficient test was calculated for the relationship between participants' sense of coherence and overall dysfunctional career thought processes. A moderate negative correlation was found, $r(140) = -.421, p < .001$, indicating a significant moderate negative linear relationship between the two variables. Participants who possessed higher sense of coherence showed less overall dysfunctional career thoughts.

Second, a Pearson Correlation Coefficient test was calculated for the relationship between participants' sense of coherence and Decision-Making Confusion. A moderate negative correlation was found, $r(140) = -.409, p < .001$, indicating a significant moderate negative linear relationship between the two variables. Participants who possessed higher sense of coherence showed less confusion while they need to make career-related decisions.

Third, a Pearson Correlation Coefficient test was calculated for the relationship between participants' sense of coherence and Commitment Anxiety. A moderate negative correlation was found, $r(140) = -.307, p < .001$, indicating a significant negative moderate

linear relationship between the two variables. Participants who possessed higher sense of coherence showed less career-related anxiety.

Finally, a Pearson Correlation Coefficient test was calculated for the relationship between participants' sense of coherence and External Conflict. A moderate negative correlation was found, $r(140) = -.400$, $p < .001$, indicating a significant moderate negative linear relationship between the two variables. Participants who possessed higher sense of coherence showed less conflict related to career decisions or activities with significant others.

CHAPTER 5

Discussion

This chapter provides a discussion of the major findings of the current study. First, the findings related to the research questions are presented. Next, a broader discussion that integrates all the findings is presented. The chapter concludes with applied implications of the findings, limitations of the study, and future directions for research.

The primary purpose of this study was to examine the relationships between sense of coherence, demographic characteristics, and career thought processes among college students with disabilities. The following research questions were investigated.

1. What are the predictive contributions of demographic characteristics (e.g., gender, race, and mother's education level) to sense of coherence among college students with disabilities?
2. What are the predictive contributions of the sense of coherence and demographic characteristics (e.g., gender, race, and mother's education level) to career thought process among college students with disabilities?
3. What is the relationship between sense of coherence and career thought processes among college students with disabilities?

Antonovsky's Sense of Coherence 13-Item, Career Thought Inventory, and demographic questionnaire were utilized to investigate the relationship between sense of coherence, demographic characteristics, and the areas of dysfunctional career thoughts.

Predictive Contributions of the Demographic Characteristics for Sense of Coherence

Based on the notion that individuals who experienced negative perception or emotion regarding life conditions can demonstrate lower level of sense of coherence (Antonovsky, 1987; Antonovsky, 1993), females can show weaker sense of coherence due to unequal or inferior social status in terms of political or economic hierarchical opportunities, familial expectations, and housework (Evertsson et al., 2009; Laura, 2003; Osborne, Baum, & Ziersch, 2009). Thus, female college students with disabilities are more likely to experience emotional distress and are more likely to view life issues as difficult or unmanageable due to their disadvantageous societal status.

Consistent with previous studies (e.g., Antonovsky, 1987; Bengtsson-Tops & Hanson, 2001; Bowman, 1996), the current study found no significant relationships of sense of coherence among racial groups. According to Antonovsky (1987, 1993), the sense of coherence is considered as a meaningful psychological construct of an individual's basis for successful coping with stressors across different racial groups. Thus, individuals with a higher sense of coherence have been found to have an intensive inner resource that helps them deal more effectively with life stress regardless of cultural or racial differences.

According to Antonovsky (1987), Generalized Resistance Resources (GRRs) such as economic resources provide individuals with set of life experiences characterized by consistency, participation in shaping outcome, and an under-load-overload balance. Economic resources or support from higher familial socioeconomic background provide individuals with life experiences and opportunities to build up stronger sense of

coherence (Antonovsky, 1987; Cohen, 1997; Fok et al., 2005; Jahnsen et al., 2002; Lundberg & Nyström Peck, 1994).

Predictive Contributions of the Sense of Coherence and Demographic Characteristics to Career Thought Process

Consistent with previous findings (e.g., Antonovsky, 1987; Lustig & Strauser, 2002; Soderfeldt et al., 2000), the current study found that college students with disabilities with a stronger sense of coherence tended to report more favorable levels of decision-making abilities and emotional reaction while involved in career-related stressors or difficulties. Based on the notion that sense of coherence is a cognitive style used when individuals manage stressful situations (Antonovsky, 1987; Antonovsky, 1993), it can be relevant to career-related situations where college students with disabilities experience job-related stressors or problems.

The current study supported the previous findings that there were no significant relationships between gender or race and overall dysfunctional career thoughts (Kleiman et al., 2004; Lustig & Strauser, 2002; Sampson et al., 1996). According to Sampson et al. (1996), the Career Thoughts Inventory (CTI) was designed to measure overall dysfunctional career thoughts that were considered as universal career-related dysfunctional thoughts across demographic groups. The intent of generating the items was to select core dysfunctional thoughts that were common to all individuals. There were no relationships between gender or race and dysfunctional career thoughts. This was due to each question having freedom of personal or social bias based on certain demographic groups, such as gender or race. Another possible explanation why there were no relationships between gender or race and overall dysfunctional career thoughts is because college students can have access to career-related activities through academic curriculum regardless of their

gender or race. The academic career-related programs or interventions can provide the opportunities to expose students to various career activities, to offer helpful resources for the career development of college students at school, and to manage career-related concerns or difficulties (Chung et al., 1999; Lopez & Ann-Yi, 2006).

The current study failed to support the notion that the levels of familial socioeconomic background can have a significant influence on individual's career decision-making or career-related emotional distress (Bosco & Bianco, 2005; Johnson et al., 1999; Patel et al., 2008). College students can be provided a variety of career-related activities and opportunities through school career centers or workshops (Dipeolu, Reardon, Sampson, & Burkhead, 2002). Specially, universities are in a unique position to provide students from lower socioeconomic status with information about career-related opportunities, such as career exploration, career decision-making, and job-related skills. Financial assistance is also available to economically disadvantaged students through university programs. For college students, poverty and lower socioeconomic status are no longer significant barriers to cause a lack of career-related information or emotional distress (Newlon, Lewis, & Lukeman, 1979). Moreover, in order to better understand career-related confusion or anxiety about career development and decision, it is necessary to examine career thought processes based on a complex socialization course rather than on a socioeconomic variable alone. Due to the extensive use of the Internet, computers, or other digital devices of Generation y students, socialization and career development processes of current college students have become more complex. Socialization and learning processes within the home environment can be associated with career selection and lifestyle. It is noteworthy to recognize that current college students experience

childhood in a significantly different way than people from older generations (Bosco & Bianco, 2005; Pinquart, Juang, & Silbereisen, 2004).

Correlation between Sense of Coherence and Dysfunctional Career Thoughts

A Pearson Correlation Coefficient test between the sense of coherence and overall dysfunctional career thoughts revealed that college students with a higher sense of coherence demonstrated less dysfunctional career thoughts. In addition, correlations between sense of coherence and the three subscales of career thoughts, which were Decision-making Confusion, Commitment Anxiety, and External Conflict, showed that college students with a higher sense of coherence indicated less dysfunctional decision-making, career-related anxiety, and conflict with significant others (Antonovsky, 1993; Lustig & Strauser, 2002; Motzer & Stewart, 1996; Soderberg et al., 1997).

Antonovsky (1987) indicated that individuals who have strong sense of coherence can possess and demonstrate a variety of cognitive and behavioral abilities to flexibly manage challenges in stressful situations. The strength of an individual's sense of coherence can influence their appraisal of the demand derived from challenging events. College students with disabilities who indicated a higher sense of coherence can possess the ability to utilize a wide range of stress management strategies. Such individuals may appropriately use both internal and external coping skills.

Furthermore, consistent with previous findings, the results of the study also indicated that individuals with a higher sense of coherence exhibited less anxiety while encountering difficult life circumstances (Carstens & Spangenberg, 1997; Engelhard et al., 2003; Forsberg & Björvell's, 1996; Motzer & Stewart, 1996; Soderberg et al., 1997). More specifically, college students with disabilities who showed a higher sense of

coherence indicated less job-related anxiety. Individuals with a strong sense of coherence seemed to appropriately deal with emotional distress; however, participants with a weak sense of coherence did not seem to manage emotional disturbance well and need a great deal of emotional support from others in stressful or challenging situations.

Consistent with previous studies (Lustig & Strauser, 2002; Lustig & Strauser, 2008), individuals who showed a higher sense of coherence could demonstrate better ability to effectively integrate opinions from others about their career decision and to take responsibility for their career direction. College students with disabilities with a stronger sense of coherence were less likely to experience difficulties related to balancing the views of significant others and taking ownership of their career decision. In addition, they were more likely to believe that they had better abilities to make their own career decision and understand opinions about their career decision and consequently effectively incorporate their career views with others (Antonovsky, 1987).

Limitations of the Study

The current study has multiple limitations. First, based on a convenience sampling method, data were gathered predominantly from White college students from higher familial socioeconomic status whose knowledge and experiences may not reflect those of a more diverse group of persons with disabilities. For this reason, it may be difficult to apply the findings to other populations and social settings. Data collection was also intentionally limited to a highly specific geographic location. Due to the small number of participants who completed surveys and the low response rate, it is necessary to replicate the study with a sufficient number of participants. In addition, the accurate number of participants via the MI-AHEAD could not be obtained due to the inability to

find out the numbers of participants who actually received researcher's recruitment email. Thus, the present study has limited external validity and generalizability. In order to enhance the generalizability of the research findings, it is necessary to extend the study to other settings with a sufficient number of participants who represent the population of interest. Second, based on the results of the analyses between participants' demographic variables, sense of coherence, and career thought processes, it is necessary to investigate other personal characteristics which affect career thought processes such as students' attachment to their parents, career-related familial support, and societal attitudes towards people with disabilities. Also, it is warranted to examine further personal characteristics which impact levels of sense of coherence of college students with disabilities such as familial emotional support and spirituality. Third, due to the self-reported knowledge and attitudes of the participants, the results should be interpreted with caution, as participants might respond to the measurements in a socially desirable way. Fourth, the ex-post facto design made it impossible to infer causal relationships between the research findings and participants' behaviors. Due to the methodological limitations of observational data, the findings cannot support the causal relationships between the level of sense of coherence, demographic characteristics, and dysfunctional career thoughts of each participant. In order to address this limitation, further studies should utilize more rigorous statistical methods and designs. Finally, to better understand the relationship between the level of sense of coherence and career decision thought processes, it is imperative to utilize longitudinal descriptive and narrative qualitative methods. Qualitative approaches will provide opportunities to examine how people with disabilities manage stressful career-related events in relation to their level of psychological resources.

Implications for Practice

The findings of the correlation analyses indicated that college students with disabilities who showed a higher sense of coherence demonstrated lower levels of dysfunctional career thoughts, decision-making confusion, career-related anxiety, or conflicts with significant others. Cognitive-behavioral counseling interventions can be a feasible approach for enhancing the level of sense of coherence and reducing dysfunctional career thoughts in career counseling processes (Keller, Biggs, & Gysbers, 1982; Lustig & Strauser, 2008; Sampson et al., 1996). For example, career development professionals should initially increase comprehensibility during counseling sessions by introducing approaches to handle individual's irrational or unrealistic beliefs. By lessening dysfunctional career thoughts (e.g., I must find a well-paid job), college students with disabilities can have realistic and practical predictions about their future career directions (Peterson et al., 1991; Sampson et al., 1996). As an instrumental component, the enhancement of manageability can involve helping college students with disabilities identify tangible and practical strategies for management of career-related stressors and use specific skills to achieve and sustain emotional stability. By setting a practical, manageable, and explicit career-related goal, college students with disabilities can create ways to reach the goal throughout specific, sizable, and controllable sub goals (Peterson et al., 1991). Finally, career development professionals should encourage college students with disabilities to better understand the meaning of career decision processes by informing the clear rationale of career development. In presenting the therapeutic rationale, the professionals should inform college students with disabilities

about the aim and meaning of the career counseling models and processes (Peterson et al., 1991; Sampson et al., 1996).

Suggestions for Future Research

Findings of this study suggest that further examinations of the relationship between sense of coherence, demographic factors, and career thought processes among college students with disabilities are needed. In addition, given the analyses of the relationships between demographic characteristics and career thought processes, future research should be conducted to investigate various factors which can affect the career thought process other than gender, race, socioeconomic status, or sense of coherence. For example, physical and mental abilities (e.g., work competencies), personal beliefs about abilities to address career difficulties (e.g., locus of control), religious beliefs on specific jobs, familial supports for making career decisions (e.g., secure parental attachment), and attitudes towards certain occupations are additional factors that should be examined further. Additionally, future research should be focused on a wide range of personal factors to find out the relationships between sense of coherence and individual's demographic characteristics. Examples include religious faith, social support (e.g., support from family, friends, or community), and coping styles.

As this study was exploratory and thus used a relatively small sample, a first step would be to repeat this study on a larger scale. This would clarify the findings and establish stability of the results. Another possibility would be to repeat this study using qualitative methods that capture the relationships between sense of coherence, personal characteristics, and career-related thoughts or behaviors in a much broader way. Future research may focus more on whether it is possible to improve or build on the relationship

between sense of coherence and career thought processes among college students with disabilities.

Some questions that should be investigated further include: Are there any differences in sense of coherence between participants who engage in career-related interventions or workshops and those who do not? To what extent do particular approaches, such as participation in a career-related interventions or workshops, increase sense of coherence? What is the relationship between sense of coherence and career thought processes in a non-college-based sample? Do cognitive behavior counseling interventions designed to strengthen sense of coherence actually minimize dysfunctional career thoughts? Does parental attachment and familial support impact individuals' career-related perception, decision-making, or job selection? Does societal attitudes towards people with disabilities influence the career thought process of college students with disabilities? Does spirituality impact levels of sense of coherence among college students with disabilities?

APPENDIX A

CONSENT FORM

Welcome and thank you for taking the time to participate in this research study. Participation will take approximately 15 minutes.

Introduction

In the recent year, the Americans with Disabilities Act (ADA) and Rehabilitation Act of 1973 have supported disability-related services and have given people with disabilities a better opportunity to achieve their educational and vocational goals. However, during the past twenty years, people with disabilities indicated that they are less likely to complete college-level education and less likely to be employed than their counterparts without disabilities in spite of the passage of the legislatives. People with disabilities are often experiencing difficulties pursuing postsecondary education and are not appropriately prepared in terms of employment or job-related decisions and skills (National Organization on Disabilities, 1998; Stodden & Dowrick, 2000). The current study will seek the relationships between the level of sense of coherence and career thought processes among college students with disabilities. This will provide useful guidelines for career counselors who assist students with disabilities to better understand plausible vocational approaches to augment their ability to make career decisions. Further, it will suggest a more useful tool for college students with disabilities to find out more available and useful strategies to cope with stressful job-related situations by increasing the level of sense of coherence.

Procedures

You must be 18 years or older and be a current student who enrolls in courses at Michigan State University to participate in the study. Please complete the survey regarding your Sense of Coherence (SOC) and career thoughts and the brief demographic questionnaire. Your participation will require about 15 minutes of your time. At the completion of the survey, you will be asked to submit your survey to the researcher. In order to compensate for participation, the researcher will provide two dollars in the form of cash or check for individuals who participate in completing the survey. A thank-you note for participation will be generated at the end of the survey so participants can print it out to identify their completion to receive the compensation. The researcher will reserve a room at the Center once per week to distribute the two dollars to participants. For participants who are not able to obtain the reward in person, the researcher will mail them a check if they email or mail the thank-you note to the researcher.

Risks/Benefits

The risks in this study are minimal. As a result of completing Antonovsky's Sense of Coherence 13-Item and the Career Thought Inventory, you may experience emotional/cognitive reactions related to your perspectives on managing stressful life

events and career-related decision. The results of this study may contribute to the literature on management of career-related stress and career decision skills.

Confidentiality

This web-based survey is anonymous. This means that you can not be identified by the information you provide. Your identity can not be revealed in any report produced from this study. The research records will be stored in a secure, password protected computer file in the researcher's computer program. Your identity will be protected to the maximum extent allowable by law.

Voluntary Participation/Withdrawal

Your participation in this study is voluntary. You may decide to or not to participate in this study. If you do participate, you may freely withdraw from the study at any time without penalty. You may also refuse to answer any particular questions.

Questions

If you have any concerns or questions about this research study, such as scientific issues, how to do any part of it, or to report an injury, please contact Wonsun (Sunny) Seo, doctoral candidate in Rehabilitation Counselor Education at Michigan State University, via e-mail seowonsu@msu.edu or telephone (517-355-7961), or regular mail at 455 Erickson Hall, East Lansing, MI 48824 or Dr. John Kosciulek, Professor via e-mail jkosciul@msu.edu or telephone (517-353-9443), or regular mail at 458 Erickson Hall, East Lansing, MI 48824.

If you have questions or concerns about your role and rights as a research participant, would like to obtain information or offer input, or would like to register a complaint about this study, you may contact, anonymously if you wish, the Michigan State University's Human Research Protection Program at 517-355-2180, Fax 517-432-4503, or e-mail irb@msu.edu or regular mail at 207 Olds Hall, MSU, East Lansing, MI 48824.

If you would like to participate in this study, please click on the ">>> " link below.

Consent (Accept or Decline)

APPENDIX B

PARTICIPANT RECRUITMENT LETTER

Dear Students:

My name is Wonsun (Sunny) Seo and I'm a Ph.D. Candidate in the Rehabilitation Counseling Program in the Department of Counseling, Educational Psychology, and Special Education in the College of Education at Michigan State University. I'm writing to request your participation in my dissertation research.

The purpose of my study is to explore the relationships between sense of coherence and career thought processes among college students with disabilities. I will conduct this study independently under the supervision of my major professor, Dr. John Kosciulek. The short time you spend filling out this survey will generate useful information for career counseling professionals to deliver better vocational services.

By clicking on the following link, you will be asked to participate in my research. http://www.surveymonkey.com/s.

I generated an on-line version of a consent form, demographic questionnaire, Antonovsky's Sense of Coherence Questionnaire 13-Item, and Career Thoughts Inventory. Once you agree to participate by clicking on an 'Next button at the bottom of the consent form, you will be asked to complete an on-line version of the questionnaires.

In order to express appreciation for your time, I will provide 2 dollars cash or check for individuals who participate in completing the survey. A thank-you note for participation will be generated at the end of the survey so participants can print it out to identify their completion to receive the two dollars cash or check. I will reserve the RCPD Assistive Computer room on Friday, Oct 9 and Oct 16 from 9:00am-4:00pm so please bring the note to obtain your compensation.

If you have questions about the study, please contact Wonsun (Sunny) Seo via e-mail seowonsu@msu.edu .

Thank you very much for your time and attention.

Sincerely,

Wonsun (Sunny) Seo

APPENDIX C

DEMOGRAPHIC BACKGROUND QUESTIONNAIRE

Please mark each one.

1. What is your age?

2. Number of Years of Studying as a College Student

3. Date of Onset of Disability (mm/yyyy)

4. What is your gender?

- Male
- Female

5. Disability Type

- Deaf/ Hard of hearing
- Blindness/ Visual Impairment
- Mobility Disability
- Brain Injury
- Learning Disability
- Psychiatric Disability
- Chronic Health Disability
- Multiple Disabilities
- Other Disabilities

6. Race/Ethnicity

- Caucasian (non Hispanic)
- Black (non Hispanic)
- Chicano
- Hispanic (Other)
- American Indian/Alaskan Native
- Asian / Pacific Islander
- International

7. Education Level

- Freshman
- Sophomore
- Junior
- Senior
- Graduate

8. What was the last year of school your mother completed? If you were raised by a step mother or some other female relative, please answer for that person.

- No high school
- Some high school
- High school
- Some college
- College graduate
- Graduate or professional or degree
- Don't know

APPENDIX D

SENSE OF COHERENCE QUESTIONNAIRE 13-ITEM

Here is a series of questions relating to various aspects of our lives. Each question has seven possible answers. Please mark the number which expresses your answer, with numbers 1 and 7 being the extreme answers. If the words under 1 are right for you, mark 1; if the words under 7 are right for you, mark 7. If you feel differently, mark the number which best expresses your feeling. Please give only one answer to each question.

1. Do you have the feeling that you don't really care about what goes on around you?

1. Very seldom or never	2.	3.	4.	5.	6.	7. Very often

2. Has it happened in the past that you were surprised by the behavior of people whom you thought you knew well?

1. Never happened	2.	3.	4.	5.	6.	7. Always happened

3. Has it happened that people whom you counted on disappointed you?

1. Never happened	2.	3.	4.	5.	6.	7. Always happened

4. Until now your life has had:

1. No clear goals or purpose at all	2.	3.	4.	5.	6.	7. Very clear goals and purpose

5. Do you have the feeling that you're being treated unfairly?

1. Very often	2.	3.	4.	5.	6.	7. Very seldom or never

6. Do you have the feeling that you are in an unfamiliar situation and don't know what to do?

1. Very often	2.	3.	4.	5.	6.	7. Very seldom or never

7. Doing the things you do every day is:

1. A source of deep pleasure and satisfaction	2.	3.	4.	5.	6.	7. A source of pain and boredom

8. Do you have very mixed-up feelings and ideas?

1. Very often	2.	3.	4.	5.	6.	7. Very seldom or never

9. Does it happen that you have feelings inside you would rather not feel?

1. Very often	2.	3.	4.	5.	6.	7. Very seldom or never

10. Many people—even those with a strong character—sometimes feel like sad sacks (losers) in certain situations. How often have you felt his way in the past?

1. Never	2.	3.	4.	5.	6.	7. Very often

11. When something happened, have you generally found that:

1. You overestimated or underestimated its importance	2.	3.	4.	5.	6.	7. You saw things in right proportion

12. How often do you have the feeling that there's little meaning in the things you do in your daily life?

1. Very often	2.	3.	4.	5.	6.	7. Very seldom or never
○	○	○	○	○	○	○

13. How often do you have feelings that you're not sure you can keep under control?

1. Very often	2.	3.	4.	5.	6.	7. Very seldom or never
○	○	○	○	○	○	○

APPENDIX E

CAREER THOUGHTS INVENTORY

This inventory has been developed to help people learn more about the way they think about career choices. You will find statements describing thoughts that some people have when considering career choices. Please answer each statement openly and honestly as it describes you. Read each statement carefully and indicate the degree to which you agree or disagree with each item by marking the answer that best describes you. Please do not omit any items.

0 = Strongly Disagree
1 = Disagree
2 = Agree
3 = Strongly Agree

1. No field of study or occupation interests me.
2. Almost all occupational information is slanted toward making the occupation look good.
3. I get so depressed about choosing a field of study or occupation that I can't get started.
4. I'll never understand myself well enough to make a good career choice.
5. I can't think of any fields of study or occupations that would suit me.
6. The views of important people in my life interfere with choosing a field of study or occupation.
7. I know what I want to do, but I can't develop a plan for getting there.
8. I get so anxious when I have to make decisions that I can hardly think.
9. Whenever I've become interested in something, important people in my life disapprove.
10. There are few jobs that have real meaning.
11. I'm so frustrated with the process of choosing a field of study or occupation I just want to forget about it for now.
12. I don't know why I can't find a field of study or occupation that seems interesting.
13. I'll never find a field of study or occupation I really like.
14. I'm always getting mixed messages about my career choice from important people in my life.
15. Even though there are requirements for the field of study or occupation I'm considering, I don't believe they apply to my specific situation
16. I've tried to find a good occupation many times before, but I can't ever arrive at good decisions.
17. My interests are always changing.
18. Jobs change so fast it makes little sense to learn much about them.
19. If I change my field of study or occupation, I will feel like a failure.
20. Choosing an occupation is so complicated. I just can't get started.
21. I'm afraid I'm overlooking an occupation.
22. There are several fields of study or occupations that fit me, but I can't decide on the best one.

23. I know what job I want, but someone's always putting obstacles in my way.
24. People like counselors or teachers are better suited to solve my career problems.
25. Even though I've taken career tests, I still don't know what field of study or occupation I like.
26. My opinions about occupations change frequently.
27. I'm so confused, I'll never be able to choose a field of study or occupation.
28. The more I try to understand myself and find out about occupations, the more confused and discouraged I get.
29. There are so many occupations to know about, I will never be able to narrow down the list to only a few.
30. I can narrow down my occupational choices to a few, but I don't seem to be able to pick just one.
31. Deciding on an occupation is hard, but taking action after making a choice will be harder.
32. I can't be satisfied unless I can find the perfect occupation for me.
33. I get upset when people ask me what I want to do with my life.
34. I don't know how to find information about jobs in my field.
35. I worry a great deal about choosing the right field of study or occupation.
36. I'll never understand enough about occupations to make a good choice.
37. My age limits my occupational choice.
38. The hardest thing is settling on just one field of study or occupation.
39. Finding a good job in my field is just a matter of luck.
40. Making career choices is so complicated, I am unable to keep track of where I am in the process.
41. My achievements must surpass my mother's or father's or my brother's or sister's.
42. I know so little about the world of work.
43. I'm embarrassed to let others know I haven't chosen a field of study or occupation.
44. Choosing an occupation is so complex, I'll never be able to make a good choice.
45. There are so many occupations that I like, I'll never be able to sort through them to find ones I like better than others.
46. I need to choose a field of study or occupation that will please the important people in my life.
47. I'm afraid if I try out my chosen occupation, I won't be successful.
48. I can't trust that my career decisions will turn out well for me.

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