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FACULTY OF MEDICINE, HEALTH AND LIFE SCIENCES

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THE ROLE OF SOCIAL-PROBLEM SOLVING AND SOCIAL SUPPORT AND THEIR RELATION TO WELL-BEING IN YOUNG SAUDI WOMEN

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ABSTRACT

FACULTY OF MEDICINE, HEALTH AND LIFE SCIENCES

Doctor of Philosophy

THE ROLE OF SOCIAL-PROBLEM SOLVING AND SOCIAL SUPPORT AND THEIR RELATION TO WELL-BEING IN YOUNG SAUDI WOMEN

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Previous research has demonstrated that psychological well-being and distress are strongly associated in adolescents; however the mechanisms involved in this relationship are unclear in the Saudi population. One potentially important process is the role of a social-problem solving ability and social support. Studies suggest that day to day problems require an effective problem solving ability to maintain a satisfying lifestyle and decrease risk of distress (D'Zurilla et al., 2004). Furthermore, social support appears to be common coping strategy reported by young adults (Demaray, 2005).

This study investigates the role of social-problem solving and social support as mediators and moderators of the relationship between stressful life events and adjustment, experienced by young students in Saudi Arabia.

The study sample involved 630 college students and 390 high school students. Both qualitative and quantitative methodologies were used. Semi-structured interviews (Chapter 4) conducted with twelve university students showed that the chief problems that the students experienced were mainly interpersonal and personal. Students reported that they used a rational problem solving style and avoidance; rather than other styles. Translation and modification of original western cultural measures, testing psychometric properties and finding new factors of the translated scales was undertaken (Chapter 5 and 6). Reliability and validity for all the scales were acceptable. The Life Satisfaction of Young Saudi Women scale was specifically developed for the current study, and proved a reliable and valid means of assessing the populations. The empirical investigation contained two related studies (Chapter 7 and 8), using self-completion questionnaires administered to both populations. They showed that dysfunctional social-problem solving dimensions partially mediated the stress-distress relationship in both samples. Social support was found to partially mediate stress-life satisfaction only in university students. However it was found to partially mediate stress-distress relationships in the school sample. In terms of moderating effects, path analysis results showed that the path representing dysfunctional social-problem solving dimensions significantly interacted with stress to predict a high level of distress. Results also indicated that social support moderated the relation between stress and distress in both samples. In Chapter Nine, several avenues for implication and future research are suggested in the areas of theory, measurement and applied research.

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DECLARATION OF AUTHORSHIP

I,.....ARWA ARAB……,

declare that the thesis entitled

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and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

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- where I have consulted the published work of others, this is always clearly attributed;

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- I have acknowledged all main sources of help;

- where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

Signed: ……..

Date:…….

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ABBREVIATIONS

α = Chronbach's alpha

AIC = Aikake's information criterion

AS = Avoidance style

β = standardised regression weight

BDI = Beck Depression Inventory

CFI = comparative fit index

ICS = Impulsiveness and carelessness style

ICSRLE = The Inventory of College Students' Recent Life Experience

IHSSRLE = The Inventory of High School Students Recent Life Experiences

LSYSWQ = Life Satisfaction of Young Saudi Women Questionnaire

MSPSS = The Multidimensional Scale of Perceived Social Support

NPO = Negative problem orientation

PCLOSE is the *p* value testing the null that RMSEA is no greater than .05

PPO = positive problem orientation

PSS = The Perceived Stress Scale

RMSEA = root mean square error of approximation

RPS = Rational problem solving

SPSI = Social-problem-Solving Inventory

STAI-T = State-Trait Anxiety Inventory (trait)

STAXI-T = The State Trait Anger Inventory (trait)

CHAPTER ONE: BACKGROUND AND OVERVIEW OF THE STUDY

1.1 Introduction

In order to provide a clear contextual framework for the research in this PhD, this chapter provides a general background to the culture of Saudi Arabia. It begins with a brief description of the geographic and demographic features of Saudi Arabia and goes on to consider its economic, cultural and social structure, as well as its educational system. In addition, the chapter provides an overview of the current research programme, including its aims and objectives, the research questions it addressed and its application.

1.2 The Country and people of Saudi Arabia

Saudi Arabia has an estimated population of 23,513,330, spread over an area of 829,995 square miles (2,149,690 sq. km); it occupies about four-fifths of the Arabian Peninsula. The country has a growing sense of importance at the cross-roads of three continents, Asia, Africa and Europe. Jordan, Iraq and Kuwait bound the kingdom to the north; the Arabian Gulf, Qatar and the United Arab Emirates are to the east; Yemen and Oman are to the south and the Red sea is to the west. Its capital is Riyadh, and Jeddah its main principal port.

Saudi Arabia holds one quarter of the world's oil reserves, and the oil industry dominates the economy. Huge revenues from oil have been used to develop and diversify the industrial base, with products from metals, chemicals, plastics, cement and fertilizers being currently produced. Incomes are also derived from Muslim pilgrims travelling from

all parts of the world to the holy cities, Makah and Medina. Islamic heritage is based on the prophet's recorded migration from and to these respective cities.

Arabic is the official language, as well the language of the holy Quran, hence its importance as a great literary language. English is also spoken and understood by much of the population; it is also used in business and is a compulsory second language in schools. Multi-ethnic communities have existed for some time in the country, sometimes a product of pilgrim travel and settlement; thousands of Europeans, Americans and other nationals work in the oil industry (Albonyan, 1990).

There are no formal class divisions in Saudi Arabia, but very different levels of life exist in terms of economic, geographical and nationality status. The rich co-exist with the poor. The well-educated, landowners, merchants, professors and other elite are among the most privileged, and generally have had a western education. There are also wealthy expatriates in the country.

1.3 The impact of Islam on Saudi culture

Saudi society is strongly influenced by Islam and the moral values imposed by religion have a major effect on individuals' behaviour in both educational and social domains. Islam is based on the belief that there is a single God, Allah, and his word, the Quran, was delivered by Prophet Mohammed. Saudi Arabia was the birthplace of Islam and is the guardian of the holy cities of Makah and Medina. Today, the worldwide community of Muslims, which embraces people of many races and cultures, numbers over one billion (Al-Farsy, 2003).

For the majority of Saudi Arabians, Islam is not merely a religion, but a way of life. Islam plays a vital role in daily life, determining dress code, food, morals and even the calendar (Ministry of Information and Culture, 2006). Islam provides a broad economic, political, legal and social framework for both the people and the government, and stresses the equality of males and females. Nowhere does the Qur'an state that one gender is superior to the other. “Be it man or woman, each of you is equal to the other” (3:195). Diverse practice in Muslim countries often reflects cultural influences (local or foreign), more so than the letter or spirit of the Shari’ah. Mtango (2004, p. 53) argues that, while Islam promotes equality between men and women, “the interpretation of the Shari’a is left to government appointed individuals, whose agenda often suppresses women’s right in the name of the religion”. Shari’a is derived from the Quran and the actions of the Prophet (the Sunnah or Hadith). It is used as the basis for government guidance and provides the foundation for its constitution and legal system (Ministry of Information and Culture, 2006). Islam dictates fundamental, traditional social mores and cultural values that create a homogenous self-perception and strong social fabric.

1.4 Education in Saudi Arabia

Within approximately seventy years, the kingdom of Saudi Arabia has established an educational system that provides free education from preschool to higher education for all. There are 12 years of education and most people attend six years or the equivalent of primary / middle school (age 6-12), and three years or the equivalent of secondary / four form college education (age 13-15 and 16-18). Each year has two terms of four months’ duration. At the end of each term, students sit formal examinations, the second term

results determining whether the student has passed the year or has to re-take the year. Students not passing a year after two attempts are moved to special status, whereby they continue education and sit exams but do not attend regular classes. National Exams for Entrance University are sat in the final year of school. University courses last for four years (depending on the field of study).

The Saudi Ministry of Education designs the curricula and teaching materials, which are standard around the country, even in private schools. The style of teaching is typically teacher-centred, with students often copying into their exercise books what teachers dictate. In the past, the aim of education was to enable pupils to pass examinations or obtain high marks by the process of rigorous memorising of information (Al-Sonbol, 1996; Al-Hamed et al., 2004). Consistent with this goal, parents tended to make great efforts to encourage hard work and fund extra tuition to aid examination success. More recently, it has been recognised that this teacher-centred style can leave students less confident and anxious about their marks or grades at the end of the year (Al-Hamed et al., 2004). The educational process now seeks to develop thinking skills (critical thought), understanding and problem solving. In addition, progress is being made with the introduction of new technology (computers and laboratory equipment), although libraries and reading rooms are in short supply in the majority of schools, reducing the scope for students to gain wider knowledge or skills through reading.

1.5 The Higher education Ministry

Higher education in Saudi Arabia is relatively new. The King Saud University was the first to be founded, in 1957. There are now seven more independent universities, namely the King Saud University, the Al-Imam Mohamed Ibn Saud Islamic University, the King Abdul Aziz University, the King Faisal University, the Umm Al-Qura University, Islamic University Medina and the King Fahad University of Petroleum and Minerals. Three of the eight universities are male only (Yamani, 2000). By 2003, there were also several private institutes, and in 2007 there were twenty major universities and a large number of other higher education institutions All universities fall under the jurisdiction of the Higher Education Ministry (established in 1975) (Al-Hoquail, 2003), which also supervises study abroad.

The number of male and female students in higher education institutions increased from 691 in 1970 (Ministry of Higher Education, 1995) to 643,116 students in 2007 (Ministry of Planning, 2007). It was believed that the universities' lack of sufficient financial and academic resources compared to increasing demand would negatively affect the quality of academic programmes. The rising population led to awareness of the need to expand the number of universities. However, some critics argue that expansion is not the only factor to be considered as far as competency among graduates is concerned. They demand that considerable time, planning and effort should be directed towards improving the standards of higher education, to raising the quality of education and to ensuring its relevance to labour market requirements and future careers (Yamani, 2000).

1.6 The Position of Saudi women

Education has been an important objective of the government since the late 18th century. However, compared with other Gulf States, education for Saudi women has lagged behind. The first schools for girls were founded during the 1960s, and improved significantly in the 80s. Literacy among Saudi women and girls over the age of 15 has risen sharply, according to UN reports, from 16.4 per cent in 1970 to 83.3 per cent in 2005 and Saudi women make up 58 per cent of university graduates (most at teachers' colleges), but education is dependent on the permission of male guardians.

Socio-economic change in Saudi Arabia has encouraged an increasing number of women to pursue higher education before starting a career. Women now represent 58 per cent of all graduates in the country (Baki, 2004). The study of specific fields, however, remain closed to women (Yamani, 2000), including such as geology, petroleum, engineering and sport (Alromi, 2000), where these restrictions can limit their choices, ambitions and opportunities for advancement and promotion in certain areas of work. Hamdan (2005) points out that Islam is not the key factor behind these prohibitions. The denial of women's rights and the restrictions imposed on their educational choices is rooted in the hegemony of ancient tribal practices that contradict the true essence of Islam to encourage every Muslim male and female to pursue knowledge.

Women are only allowed to work in specific settings, such as girls' schools, universities and hospitals. Otherwise their access to the labour market is very limited (women made up seven per cent of the workforce in 1999 and four per cent in 2003; Hamdan, 2005) and their participation in the global market is still very low (Baki, 2004). This limitation on female participation has the potential to negatively affect the

development of the country. In a 2004 UN ranking of gender empowerment, defined in terms of women's participation in economic and political life, Saudi Arabia came 77th out of 78 countries, just ahead of Yemen. Norway had the highest ranking.

The policy of sexual segregation has also left women with substantially inferior facilities (Wilson 1994, Global Women's Rights, 2006). Obedience has been indoctrinated, and freedom restricted not only in the educational system, but also in public and social spheres (Mtango, 2004). Women's voices and potential are neglected, with subsequent personal and psychological outcomes (Greenspan, 1993). That is not to say that Saudi women cannot travel and study abroad alone (Hamdan, 2005).

It has been stated that if a girl is not married before thirty years of age, she is destined to remain a spinster (Ministry of Planning, 2007). According to Arab news (2008), 1.5 million women in Saudi Arabia are spinsters. Al-Kazi (2008) reports that the average age of marriage in Gulf countries varies according to regional type (rural or urban); the average age is 21 years in Kuwait, which is largely urban, but 17 years in Saudi Arabia, where there is a greater rural population. However, the Ministry of Higher Education reports that in 2007 the average of marriage age in Saudi Arabia was 20.4.

In addition, there is some disagreement about the divorce rate in Saudi Arabia, which is over 35% according to the Ministry of Social Affairs (2008), but over 50% according to Arab News (2008). These misconceptions have combined to create growth in the number of spinsters in Saudi today. Hammad discusses the emergence of a very minor trend, whereby families marry off their daughters at high school age so that they may avoid spinsterhood. Sometimes the man agrees to let his wife finish university after the wedding, but Hammad notes that most of these marriages fail because girls were not

emotionally mature at the time of the arrangement, and not fully occupied with marital responsibilities, because of study preoccupations (Hammad, 2003).

Most women in Saudi Arabia lack independence, free choice of life partner, access to divorce procedures (Kayal, 2007), and are unable to travel without permission (Ministry of Internal Affairs and Communications). In addition Saudi women are the only females internationally who are not allowed to drive or to vote. This derives from a social, economic, legal and cultural background and tradition rather than Islamic custom.

1.7 Population-based sample of Saudi female students

The participants in this study were undergraduate female students at King Abdul-Aziz University and students from six high schools in the city of Jeddah in Saudi Arabia.

1.7.1 The importance of the location (Jeddah)

The study was conducted in the city of Jeddah located on eastern shore of the Red Sea. It has grown from humble origins about 2500 years ago (AD647) as a tiny fishing settlement to one of the biggest cities in the Middle East and the main industrial and commercial city in Saudi Arabia. The population of the city currently stands at over 3.4 million. Jeddah has one of the largest universities, to which different types of students and staff from different areas of Saudi Arabia arrive, enabling data to be collected from a broad cross-section of the Saudi population with a variety of backgrounds.

1.7.2 King Abdul Aziz University

The King Abdul Aziz University provides the context for the current studies. It was established in 1967, as a private institute in the city of Jeddah, located on the west coast. The University has separate campuses to accommodate males and females. The latter consists of eight colleges. Permission was obtained from all colleges to gain access and cooperation. The colleges are: Arts and Humanities, Science, Business Administration, Home Economics, Nursing, and the Medical, Dentistry and Pharmacy schools. All Saudi university students receive a monthly payment to encourage them to study. Girls and boys in Saudi schools and universities are not mixed, and thus access to the female population was easier.

1.7.3 Young Saudi females

The rationale for the selection of the population was as follows. The 16-24 age group faces vital decisions and challenges that may have an impact on their adult life, and so need special attention. While adolescence is considered to cover the teenage years, youthfulness extends into undergraduate life (Dyson & rink, 2006). Models of social and cognitive development suggest that young people have some grasp of the meaning of life during secondary school years, and life issues take on considerable importance for them (Warren and Sroufe, 2004; Westenberg et al., 2001). Psychosocial developmental theory (e.g., Erikson, 1963, 1968) suggests that adolescence is a critical time of development of life goals, values, sense of direction and purpose in life. When a person develops a sense of identity (who they are, what they believe in, and where they are going), existential worries become prominent.

Saudi adolescent females may experience some of the same problems as adolescents in the west such as physical, emotional, and intellectual changes as well as a change in social roles, relationships, and expectations (Al-Gelban, 2009; Abdel-Khalek, 2009). However, the strong influence of religion, cultural norms and values may have a unique effect on their coping strategies. Furthermore, the challenges faced by female adolescents in Saudi Arabia may also be different to problems faced by females in the west, and in other Arabian cultures. These include migration to urban areas, lifestyle changes, and restricted job opportunities for women (Al-Kateeb, 1998; Mtango, 2004), substance abuse (Al-Arabiya, 2007), family dysfunction and domestic violence (Al-Ghaithy, 2007). The development of the economy and the power of the mass media have a major influence on Saudi culture (Al-Garni, 2002). Saudi female adolescents are more likely to suffer from psychological, social and family difficulties compared to males. They display more anger, have lower self esteem, less self-control and poorer decision making abilities (Khairy, 2009).

Currently, it is estimated that approximately 55% of the female population is under the age of twenty nine (Ministry of Planning, 2007). In spite of the significant increase in the proportion of young Saudi females, little is known about their needs, feelings, problems faced and coping strategies. It has been recognized that an important way to evaluate social realities and achieve equality is to pay attention to the position of women (Kayal, 2007).

1.8 The purpose of the study

The main aim of this study is to provide an insight into the range and scope of social-problems and stressful events from the female students' perspectives. In addition, this study aims to examine the association of stressors, distress, life satisfaction, social support and social-problem solving strategies and skills used in the face of real life problems in a sample of young Saudi women. The theoretical framework of the study is the social-problem solving model. Conceptualization of, and theoretical approaches to the concepts of social-problem solving, stress, distress (anxiety, anger and depression) and life satisfaction are introduced in the following chapter. The secondary aim of this study was to test the psychometrics for Arabic versions of the instruments used.

1.9 The importance of the study

This study is significant in many ways: first, it may help to increase our understanding of the social-problems and challenges, problem solving strategies, and the resources that Saudi young women utilize in everyday life, as well looking at the impact of stress, social support and social-problems on their well-being through the use and development of existing frameworks (social-problem solving model).

Secondly, it may lead to the identification of means of intervention to help meet students' needs. Social-problem solving is a tool to teach young people how, rather than what to think, and can be used for a variety of problems in everyday life. Training in it can be maximized and generalised by creating opportunities for continued practice. This study can also be viewed as an initial step in identifying a theoretical framework for

future problem solving interventions. An intervention in problem-solving therapy could improve both psychopathological and psychological health in young Saudi women.

Thirdly, this type of research has not been previously conducted in Saudi Arabia, as far as the researcher knows, the questionnaire on social-problem solving has not been translated into Arabic and factor analyses of most, if not all, of the questionnaires used in this study have not been conducted on a Saudi population. Therefore, this study is expected to fill a research gap, and to replicate and expand other previous research examining the link between social-problem solving, stress and distress in Arab culture. Since most studies consider either the mediating or moderating impact of social-problem solving on the relationships between stressors and outcomes, both models will be examined in this study.

Finally, the results may address critical issues facing young Saudis and will contribute useful information to families, teachers, Saudi policy-makers, planners, schools and higher education sectors, counsellors and researchers.

1.10 Research questions

The research for this study was carrying out in order to seek answers to the following questions:

Study 1: The purpose of this study was to understand the nature and magnitude of social-problems and stress faced by Saudi female students and to identify the coping styles and strategies commonly used. This study uses qualitative interviews conducted with Saudi female college students. It intends to answer the following questions:

1- What are the main sources of stress faced by young Saudi women?
2- What is the role of cultural factors in social-problem solving of young Saudi women?

Study 2: The general purpose of this study was to establish scales that measure stress, coping, and social support in a Saudi culture. The first part of this study focuses on the development of the Life satisfaction for Saudi women questionnaire (Arab, Hadwin, Stopa & Sonuga-Barke, 2006). This questionnaire was based on the results of study one. Along with existing questionnaires, it aimed to provide a valid and reliable measure to identify social-problems and coping style in a Saudi context. This study also examine the development of an Arabic version of the Social-problem Solving Inventory-Revised (D'Zurilla et al., 2002), perceived stress scale (Cohen & Williamson, 1988), The inventory of college student's recent life experiences (Kohn et al., 1990), the brief cope (Carver, 1997) and the multidimensional scale of perceived social support (Zimet et al., 1988) using Vallerand's. (1989) cross-cultural translation process. Data were processed to test the psychometric properties of the measures in the developed and translated questionnaires. The main research questions in this study were:

3- To what extent are the study questionnaires applicable to the Saudi culture?
4- What are the validity and reliability of translated and developed questionnaires?
5- What are the factor structures of the translated Arabic scales compared with the original scales?

Study 3: This study is considered as a link between the previous study and the following study. It tried to replicate the results from study 2 with larger sample ($N = 630$). In addition, the theoretical framework of social-problem solving is used to test the

relationship between social-problem solving ability, stress, anxiety, depression, anger, and social support in a large sample (N = 630) of female undergraduate students (Chapter 7) and female high school students (N = 390) (Chapter 8). The primary aim of the study is to test the integrity of the social-problem solving model on a sample of females from Saudi Arabia. The questions explore:

6- Does social-problem solving ability mediate the stress (social-problems) - mental health (depression, anxiety and anger) relationship?
7- Does social support mediate the stress (social-problems) - mental health (depression, anxiety and anger) relationship?
8- Does social-problem solving ability moderate the link between stress (social-problems) and well-being (depression, anxiety and anger)?
9- Does social support moderate the link between stress (social-problems) and well-being (depression, anxiety and anger)?

These are the main research questions of the whole thesis and detailed questions about each study will be presented in the following chapters.

1.11 Organization of the thesis

The present thesis is organized into eight chapters. The following is a brief description of the chapters included in this study.

Chapter 1. Chapter 1 provides the background and overview of the current study. The chapter is divided into two sections. The first section presented an overview of the characteristics of the country of Saudi Arabia, cultural value, and educational system of

Saudi Arabia, also it describes of the female population of Saudi Arabia in the past and in the present. The second section describes the purpose and the significance of the study, as well as, the research questions. The chapter also contains an outline of the layout and the organization of the thesis.

Chapter 2. This chapter highlights the conceptual framework of the current study; the social-problem solving model. In addition, it provides a number of theories of social-problem solving, coping and stress and presents a critical analysis of these theories.

Chapter 3. This chapter reviews empirical evidence and provides an overview of research on social-problem solving, coping, stress and mental health. It considers how this work can be applied to Saudi culture to develop a framework that might allow identification of the specific challenges that Saudi women face and how they usually go about social-problem solving.

Chapter 4. Chapter 4 is the first chapter presenting empirical work (using the qualitative interview technique). The study concerns Saudi female college students and attempts to identify the social-problems and stresses that they face and the coping strategies they frequently use.

Chapters 5 and 6. This chapter comprises Study 2, a quantitative study whose general purpose is to establish and develop Arabic versions of scales that measure stress, coping, and social support in a Saudi context. It also aims to test the validity, reliability, and psychometric properties of the measures in the developed and translated questionnaires using Vallerand's technique.

Chapters 7 and 8. These chapters make up the two core empirical chapters of the thesis. They use the social-problem solving framework to test the associations between social-problem solving, stress, social support and distress in a large sample of female undergraduate students (Chapter 7) and female high school students (Chapter 8).

Chapter 9. discusses the main findings from both the qualitative and quantitative data. The findings are discussed in relation to the existing literature and the conceptual framework. The chapter also outlines the implications, recommendations and the limitations of the study.

1.12 Chapter Summary

This chapter described Saudi Arabian cultural values. The educational system, sex segregation and the position of young Saudi female has also been described. This chapter has also presented the statement of the problem and outlined the purpose of the study. In addition, this chapter set out the research questions and identified the significance of the study. Finally, the organization of the thesis and brief outline of the contents of the chapters has been presented. The next chapter will explore the theoretical models of social-problem solving and coping, and stress.

CHAPTER TWO: THEORITICAL BACKGROUND

2.1 Introduction

Research suggests that coping and problem-solving activities contribute to psychological well-being following negative or stressful life events (D'Zurilla & Nezu, 1982; Chang et al., 2000). Social-problem solving is of theoretical and practical interest for many reasons, not least its relevance to individuals who need to maintain a level of functionality in social contexts. Problem solving is central to psychological well-being, since problems may or do arise on a regular basis, "from birth to death" (Emmery, 1993, p. 305). Research on social-problem solving has advanced our knowledge of cognitive behaviour and the prevention of difficulties that individuals might face in everyday life (D'Zurilla & Nezu, 1999; Nezu & D'Zurilla, 1989). In particular, the study of social-problem-solving abilities and their relations to matters of behavioral health have supported many of the basic theoretical tenets of available models and their accompanying measures (D'Zurilla & Nezu, 1999; Heppner & Baker, 1997). Models of social-problem solving and coping vary in terms of their definitions of stress, placing different emphases on physiological factors, and descriptions of the relationships between individuals and their environment. Some of these models are: The relational problem solving model (D'Zurilla & Goldfried, 1971); Model of human problem solving (Newell & Simon's, 1972); Interpersonal cognitive problem solving (ICPS) (Spivack et al., 1976); The process model of stress and coping (Lazarus & Folkman, 1984); The integrative model of life stress, current problems, problem solving and depressive symptoms (Nezu & Ronan, 1985); The social information processing model (Dodge et al., 1986); Self appraisal problem solving ability and the stress, coping, and adjustment model (Heppner

& Krauskopf, 1987); and Social-problem solving model (D'Zurilla, et al. 2004). Theories that focus on the specific relationship between external demands (stressors) and bodily processes (stress) can be grouped into two different categories: approaches to 'systemic stresses' based in physiology and psychobiology (e.g., Selye, 1976) and approaches to `psychological stress' developed within the field of cognitive psychology (e.g., Lazarus & Folkman, 1984). The present study applies the social-problem solving model of D'Zurilla et al. (2004), to the context of Saudi Arabia. This chapter provides an overview of the theory and historical background of social-problem solving and coping over the last four decades.

This chapter is divided into three main sections. The first section, briefly discusses the theoretical background of social-problem solving. In addition, the definition of social-problem solving and other related terms will be highlighted. The second one outlines the major theoretical approaches related to social-problem solving, coping and stress. The illustration of the concepts from the models will be outlined with regard to the propositions of the study and the area of research interest. Finally, the similarities and difference between different models of social-problem solving, coping and stress are described and outlined.

2.2 Theoretical antecedents of the concept

Observers of human nature have generally assumed that successful problem solving reduces maladjustment and enhances positive adjustment, where everyday life is replete with problems that must be resolved in order to function effectively. Despite early views, and the long history of experimental psychology (Newell & Simon, 1972), the

standard theory of problem solving, initially outlined by Newell and Simon(1976), focuses on how humans respond when they are confronted with unfamiliar tasks. A more detailed aspect of the theory is that, in many cases, problem solvers utilize means-ends analysis, which involves identifying the steps necessary to achieve a particular goal (Newell & Simon, 1972). Applying this theoretical framework to problem solving resulted in a significant impact on the direction of cognitive psychology.

2.3 Social-problem solving

Social-problem-solving is defined as the cognitive behavioural process of identifying effective solutions to resolve "specific problems encountered in everyday living," which "(a) makes available a variety of potentially effective response alternatives for dealing with the problematic situation and (b) increases the probability of selecting the most effective response from among these various alternatives" (D'Zurilla et al., 2004, p.12; see also D'Zurilla & Nezu, 1982; Nezu, 1987). D'Zurilla and his colleagues further propose two distinct but interrelated aspects of social-problem-solving: problem-orientation and problem-solving style also referred to as "problem-solving proper" in D'Zurilla & Nezu (1990). They emphasized that the major contribution of social-problem solving to this model lies in its role as a general model of social psychological adjustment as opposed to a specific coping strategy primarily useful for particular problems. Social-problem solving is a cognitive-affective-behavioural process by which people attempt to identify, discover, or invent ways of dealing with everyday problems (D'Zurilla & Goldfried, 1971). At the same time, it is described as a social learning process or a self-management technique and a general coping strategy that can be applied to a wide range of problems (D'Zurilla, 1988). Other terms have also been used to refer to essentially the

same process, for example, inter-personal problem solving (Shure & Spivack, 1978), interpersonal cognitive problem solving (Spivack et al., 1976) personal problem-solving (Heppner et al., 1983) and social-problem solving (D'Zurilla & Nezu, 1982). This study will use the latter term.

2.4 Social-problem solving and coping

It would be helpful at this point to clarify further the relationship between problem solving and the concept of coping. According to Lazarus and Folkman (1984), coping refers to the cognitive and behavioural activities by which a person attempts to manage specific stressful situations, as well as the emotions that they generate. Given this general definition of coping, problem solving is clearly a coping process, but not all coping is problem solving. Most attempts to distinguish problem solving from other forms of coping have been based on a functional analysis of coping. Thus, it has been common in coping research to identify problem solving as a problem-focused coping strategy, which is distinguished from emotional-focused coping (Folkman & Lazarus, 1984).

2.5 The model of social-problem solving and coping

2.5.1 The relational problem solving model (D'Zurilla and Goldfried, 1971)

Within this model, stress is viewed as a function of the reciprocal relations among three major variables - stressful life events, emotional stress responses and problem solving. In this model, two types of stressful life events, major negative events, and daily problems are proposed to influence each other. Major negative events, such as a divorce, can result in many new daily problems for an individual. An increase in unresolved daily

problems, such as an increasing number of unresolved conflicts with one's spouse, can eventually result in a major negative event, such as divorce (D'Zurilla &Goldfried, 1971). The model also illustrates that these two types of stressful life events can affect well-being directly, as well as indirectly via problem solving coping. Problem solving is assumed to play an important role as a mediator and a moderator of the relationship between stressful life events (major negative events as well as daily problems) and well-being (D'Zurilla & Nezu, 1999, 2007). Solving problems effectively may have two positive effects: first a reduction in the negative impact of stress on well-being and second an enhancement of positive functioning, resulting in less emotional distress. On the other hand, solving problems ineffectively is likely to generate a negative impact of stress on well-being, increasing anxiety, depression, and anger.

There are two reasons why problem solving coping may be ineffective. First, the person may have deficits in constructive problem solving attitudes and skills. Secondly, if the magnitude of stress is high enough (e.g. major traumatic events, major daily problem solving), the impact on problem solving may be negative, resulting in negative coping outcomes.

The model (Figure 2.1) suggests that the relationship between daily problems and problem solving is reciprocal. Problem solving can have a direct impact on daily problems. For example, ineffective coping leads to additional problems, and effective problem solving leads to a decrease in daily problems (D'Zurilla & Goldfried, 1971). In addition, the relationship between stressful events and well-being is also suggested to be reciprocal. For example, decrements in well-being can lead to increases in both major events and daily problems, whereas improvement in well-being can decrease the intensity

and frequency of stressful events.

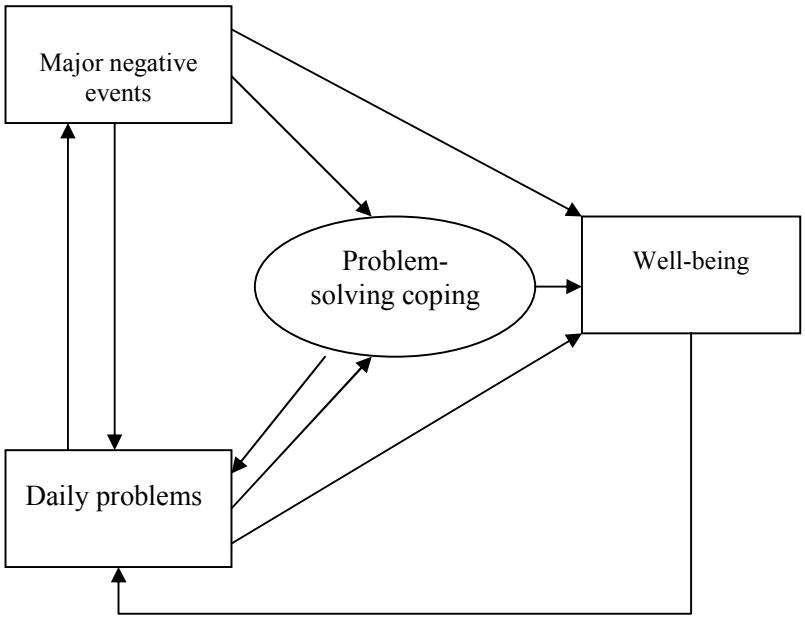

Figure 2.1. The relational problem solving model (D'Zurilla & Goldfried, 1971, from (D'Zurilla & Nezu, 2007)

D'Zurilla and Goldfried (1971) proposed a theoretical model of social-problem solving that includes the affective, cognitive and behavioural aspects that make up the social-problem solving process, from initial orientation to the implementation of solutions. Five stages are considered in this model:

Stage One: General orientation

The first stage concerns the set of general problem solving-related ideas, beliefs and emotional reactions that an individual may have. Motivation may have positive or negative influences on efficacy. Effective response may involve a number of specific

attitudes, including accepting that problems are a normal feature of life, generally solvable. Minimising negative emotional reactions to problems, recognising that a problem has occurred, procrastination and the removal of the tendency to act on impulse are important points. Negative reactions are for example to say that problems "should not happen". Effective problem perception involves a focus on the situation itself, not a ruminative, affective reaction to it (Watkins & Baracaia, 2002); the only importance of emotional cues is that they signal the existence of a problem. Problem perception is the early stage of identification and labelling. Individuals show tendencies either to commit to dealing with or to avoiding problems. Janis (1982) highlighted three avoidance strategies: procrastination, shifting of responsibility and selectivity.

Stage Two: Problem definition and formulation

D'Zurilla and Goldfried (1971) point out that most problems are messy, contain ambiguity, with many facts and details missing. Defining and formulating problems involves gathering more information to understand the problem and the setting of goals or objectives, to achieve desired outcomes. Conceptualisation has important implications for later stages. Problem solutions can be classified and become part of experience (Mowrer, 1960).

Stage Three: Generating alternative solutions

Once problems have been formulated and goals defined, generating as many solutions as possible is the next task, to maximise the chances of generating effective responses. This can be achieved by brainstorming (Osborn, 1963), without constraint. Evaluation of ideas generated is delayed, and so a broader group of alternatives is created. The quantity of ideas generated is of importance, and then a quality idea can be

selected at a later time (D'Zurilla & Goldfried, 1971), which optimises the likelihood of finding an effective solution.

Stage Four: Decision making

In the evaluation stage, individuals may not always be able to see clearly, mainly because of cognitive biases and defective heuristics (Tversky & Kahneman, 1974), but decision theory has contributed knowledge as to how selections may be made. Individuals may make a decision based on "(a) an estimate of the probability that each alternative will achieve a certain outcome and (b) the subjective value of the various outcomes" (Edwards, 1961).

Stage Five: Solution implementation and verification

Stage five represents the behavioural component of the process. Achievement of goals marks the end of the problem solving process. However, D'Zurilla and Goldfried (1971) note that it is not always possible to achieve the optimal solution (p. 120), so individuals may have to re-visit earlier stages (generation of alternatives or decision making) in order to complete their task.

2.5.2 A model of human problem solving (Newell and Simon, 1972).

Although there have been several theories in the history of cognitive psychology about how humans think and solve problems, Newell and Simon's (1972) theory proposed a comprehensive theory of problem solving, which had a strong influence on research into human problem solving and computer simulation of human problem solving (Mayer, 1992). Like D'Zurilla and Goldfried (1971), Newell and Simon (1972) defined problem solving as a process that iterates through several steps.

Newell and Simon highlighted important dimensions of human cognition, including a developmental facet. The model has been applied to different forms of problem solving and it is a useful framework for examining clinical decisions, such as diagnosis (Ogden, 2004). Newell and Simon defined each problem as a space. At one end of the space is the starting point; on the other side is the goal. The problem-solving procedure itself is conceived as a set of operations to cross that space, to get from the starting point to the goal state, one step at a time.

As shown in the problem solving model (Figure 2.2), the stages involved are as follows: first, understanding the nature of problems and developing an internal representation; it involves understanding the goal of the problem, evaluating any given condition, and assigning the nature of available data; second, developing a plan of action for solving the problem. Newell and Simon differentiated between two types of plans involving heuristics or algorithms. Algorithms provide rules that offer a correct solution if applied correctly, e.g. multiplication. On the other hand, most human problems involve heuristics. This type of plan may involve developing parallels between the present problem and previous similar ones. Newell and Simon (1972) stated that, algorithms are straightforward procedures that are guaranteed to work every time and may even be automatic. In contrast, heuristics work in a powerful and general way. Thirdly, when heuristics are applied, it has to be determined whether the process has been fruitful, and whether an acceptable solution has been obtained. At completion, it has to be proved whether suitable outcomes have been obtained.

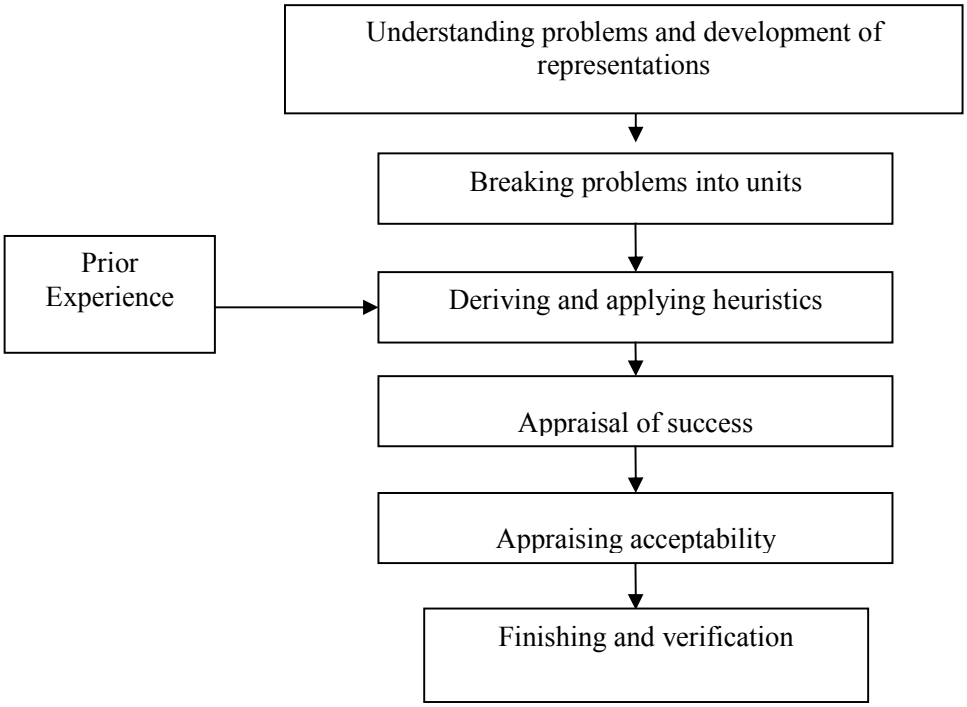

Figure 2.2. a simplified model of problem solving (Newell & Simon, 1972) (from Ogden, 2004)

This type of model involves information processing and it is suggested that, at each stage of the process, the individual applies a means-end analysis. According to Newell and Simon (1972) and Newell (1980), the process of problem solving involves a "sequence of different knowledge states, which intervene between the initial state and the goal state, with mental operators producing the shift from one knowledge state to the next. This approach works well with several well-defined problems which are clear and structured, with the initial state, the goal state and the rules clearly stated." The theory allows specification of "the shortest sequence of moves from the initial state to the goal state". It also shows how "a participant's performance deviates from the ideal" (Eysenck, 2004, pp 343**)**. The theory is consistent with knowledge about human information processing.

2.5.3 Interpersonal cognitive problem solving (ICPS) (Spivack et al.*, 1976):*

Spivack et al. (1976) conducted some of the earliest and most significant programmatic research on applied problem solving, focusing directly on psychological adjustment. Conceptualizing problem solving as a constellation of relatively discrete thought processes, Spivack and colleagues (1976) established research on cognitive problem-solving skills within interpersonal situations, such as problem sensitivity, alternative solution thinking, causal thinking, and means-end thinking. This line of research found, for example, that the number of alternatives generated for solving hypothetical problems was positively correlated with developing better solutions and was related to better psychological adjustment in general (Shure, 1982). There was an additional focus on the role of differential levels of stress associated with different problems; it was later well documented that stress can affect physical and psychological well-being (Lazarus & Folkman, 1984).

This model has some overlap with the relational problem solving model (D'Zurilla & Goldfried, 1971); it highlights additional cognitive skills (e.g. alternative-solution thinking, mean-end thinking), which are hypothesized to have an important role in effective interpersonal problem solving. In this model, social competence is defined as a set of interrelated interpersonal cognitive problem solving skills (ICPS) (Spivack et al., 1976). It was hypothesized that some problems could result from the absence of, or failure to apply, certain cognitive interpersonal abilities. Such problem-solving 'deficits' might include repeated rigidity when a situation demanded flexibility of response, acting impulsively without considering the alternatives, or neglecting to look ahead and

anticipate the ramifications of a particular decision or course of action (Spivack et al. (1976).

Spivack et al.'s (1976) model focuses around the following core elements:

(a) the isolation of a number of separate cognitive skills e.g. thinking before acting or considering options

(b) different combinations of these skills during different phases of life e.g. early childhood, adolescence

(c) cognitive skills directed towards interpersonal behaviour as opposed to intelligence tests

(d) the development of these skills through specific training resulting in improvements in interpersonal adjustment.

Common to both these approaches: failure and absence of effective problem solving are associated with interpersonal difficulties and other mental health or behavioural problems. There are two possible causal pathways (pre-problem solving and problem solving skills) leading to this outcome. The principal ICPS skills are held to include the following;

(a) *Alternative-solution thinking*: 'an individual's ability to generate in his or her own mind different options (solutions) that could potentially be put into action to solve a problem' (Spivack et al., 1976, p. 19).

(b) *Means–end thinking*: 'the ability to orient oneself to and conceptualize the step-by-step means of moving towards a goal' (Spivack et al., 1976, p. 83).

(c) *Consequential thinking*: 'the ability to generate in one's own mind what might happen as a direct result of carrying out an interpersonal act' (Spivack et al., 1976, p. 31).

(d) *Social cause-and-effect thinking*: 'the ability to relate one event to another over time with regard to the 'why' that might have precipitated an event' (Spivack et al., 1976, pp. 38–39).

(e) *Perspective taking*: 'the ability to see interpersonal situations from the perspectives of other involved individuals' (Spivack et al., 1976, p. 83).

2.5.4 The process model of stress and coping (Lazarus and Folkman, 1984)

The transactional model of stress and coping is a cognitively-based model that emphasizes the dynamic, bi-directional, and reciprocal relationship between the person and the environment (Lazarus & Folkman, 1984). It has been noted that the social-problem-solving model and Lazarus and Folkman's transactional model both incorporate transactional views of stress (Nezu et al., 1989). The socia-problem-solving model (SPS) however, differs in terms of its conceptualization of the relationship between problem and emotion-focused coping and problem solving. D'Zurilla (1986) illustrated the difference between these models by describing the problem-solving model's emphasis on problem solving as a general coping process. Problem solving, within Lazarus and Folkman's model, is one example of coping (Lazarus & Folkman, 1984), whereas in the Socia-problem-Solving model, it is broader in scope (Nezu et al., 1989). D'Zurilla et al. (1999; 2004) conceptualised stress in the SPS model in a similar way to Lazarus' relational model of stress (Lazarus, 1999), and the overlap of these two models resulted in the relational/problem-solving model of stress (D'Zurilla & Goldfried, 1971).

Stress, according to this model, is defined as "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1984, p. 19). Cognitive appraisal is a process of evaluation by which the person determines whether an interaction with the environment is relevant to his or her well-being. Cognitive appraisal consists of two parts:

1- Primary appraisal, which refers to the process of evaluating the significance of a stressor or threatening event in terms of its impact on well-being.
2- Secondary appraisal refers to the process by which the person evaluates resources and options that can be used to deal with the stressful situation (Folkman & Lazarus, 1986). Coping within this model is defined in term of a person's behavioural and cognitive activities that are employed to control the external and internal demands when a person and an environmental the event of a certain interact, which may appraised as taxing or exceeding a persons' psychological resource. Coping in this model has been described in terms of two general forms of coping:
1- Problem-focused coping refers to strategies where attempts are made to change problematic aspects of stressful situations.
2- Emotion-focused coping refers to strategies in which the goal is to change a situation's meaning without changing the environment and to reduce or manage emotional responses to stressful situations (Folkman & Lazarus, 1984).

The model of Folkman and Lazarus (1985) illustrated in Figure 2.3 demonstrates that individuals, when faced with a stressful situation, use both types of coping. The decision to employ problem-focused or emotion-focused coping in a particular stressful

situation is proposed to be determined by an individual's appraisal of the situation as either controllable/changeable or uncontrollable/unchangeable (Folkman & Lazarus, 1986). Adaptive coping, in this model, refers to the situations in which a person chooses a coping strategy and the chosen strategy fits with the changeability of the stressful situation. Maladaptive coping refers to situations in which a person chooses emotion-focused strategies to manage changeable stressors or problem-focused strategies to manage stressors that are unchangeable. Reappraisal in this model refers to an ongoing reinterpretation of a situation based on new information that is obtained by the person (Folkman & Lazarus, 1985).

According to stress-coping theory, a stressor will not negatively impact individuals who possess resources to adequately cope (Lazarus & Folkman, 1984). D'Zurilla et al. (2004) note that this definition limits the utility of SPS to "goals that can be completed through the changing of the environment." This definition omits a major contribution that SPS adds to individual repertoires, namely "emotion-focused coping" and "coping with unchangeable stressors".

The next model is the integrative model of life stress, current problems, problem solving and depressive symptoms (Nezu & Ronan, 1985), which has been documented as an adaptive and versatility model with adult populations.

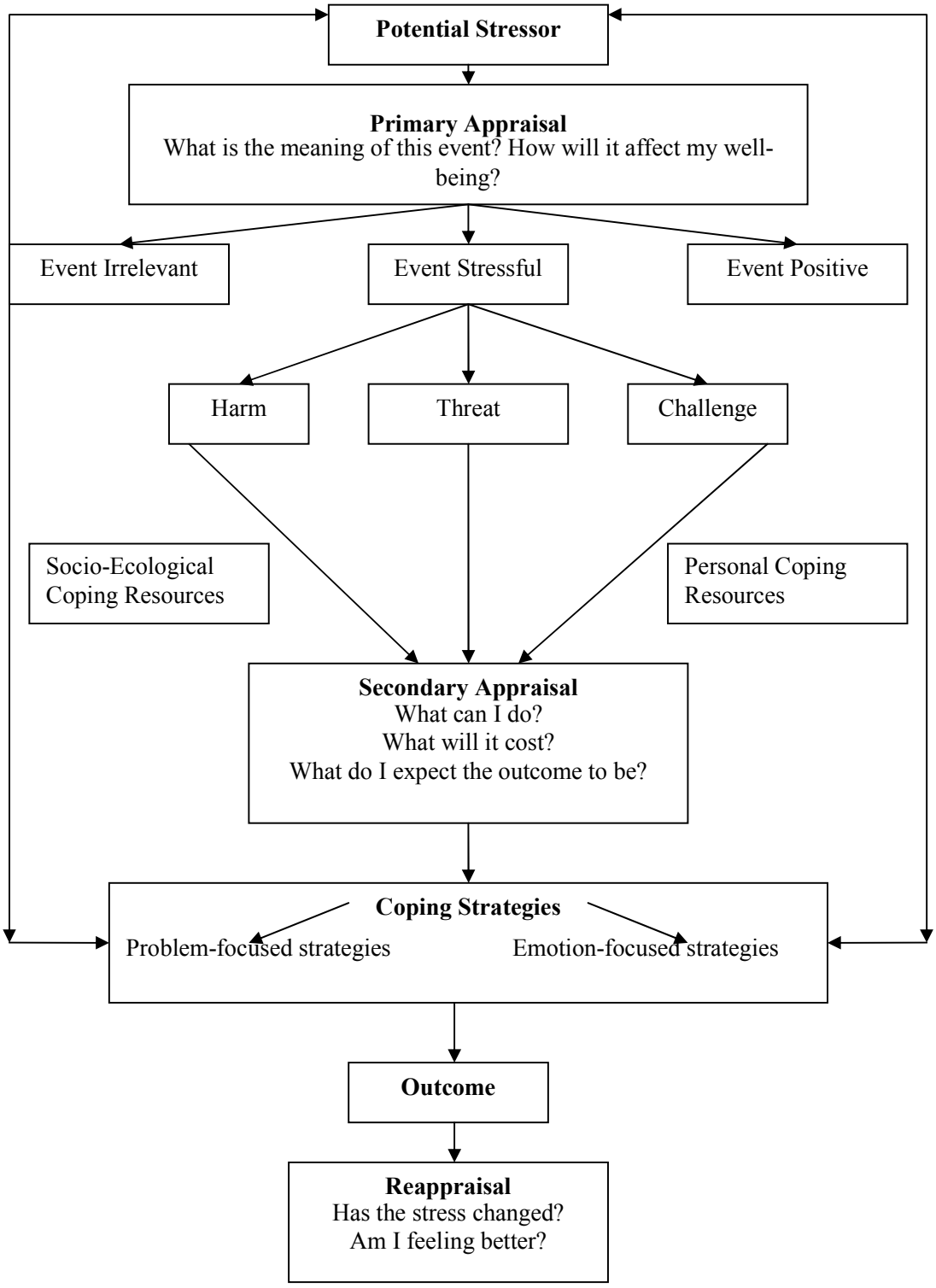

Figure 2.3. the process model of stress and coping (Lazarus and Folkman's, 1984) (from Beresford, 1994).

2.5.5 The integrative model of life stress, current problems, problem solving and depressive symptoms (Nezu and Ronan, 1985)

It may be argued that problem solving goals can include problem-focused goals, emotion-focused goals, or both, depending on the nature of the problem and how it is appraised (Nezu & D'Zurilla, 1989). Research has demonstrated that minor life events or problems are strongly related to psychological symptoms, possibly even more so than major stressful life events (Monroe, 1983; Nezu & Ronan, 1985). As such, both major negative life events and daily problems can lead to psychological distress.

In this model, Nezu and Ronan (1985) highlighted links between problem solving and negative emotional states. They suggested, for example, that negative life events can influence depression directly, as well as indirectly through their impact on the frequency of current problems and level of problem solving. Furthermore, current problems are portrayed as having both a direct and indirect (via problem solving) impact on level of depression symptoms (see Figure 2.4). Problem solving and coping are seen as influencing the severity of depressive symptoms in a direct fashion. Nezu and Ronan (1985) suggested that experiencing a major life event often results in the increase of current daily problems that may function as micro stressors. Within the present social-problem-solving model of depression it is hypothesized that individual differences in the ability to solve interpersonal problems would not only have a main effect on depression, but also might moderate the effects of negative life stress on depression.

While this model concentrates on depression in adults, the next model 'The social information processing model' (Dodge et al., 1986) focuses on behaviour problem in childhood.

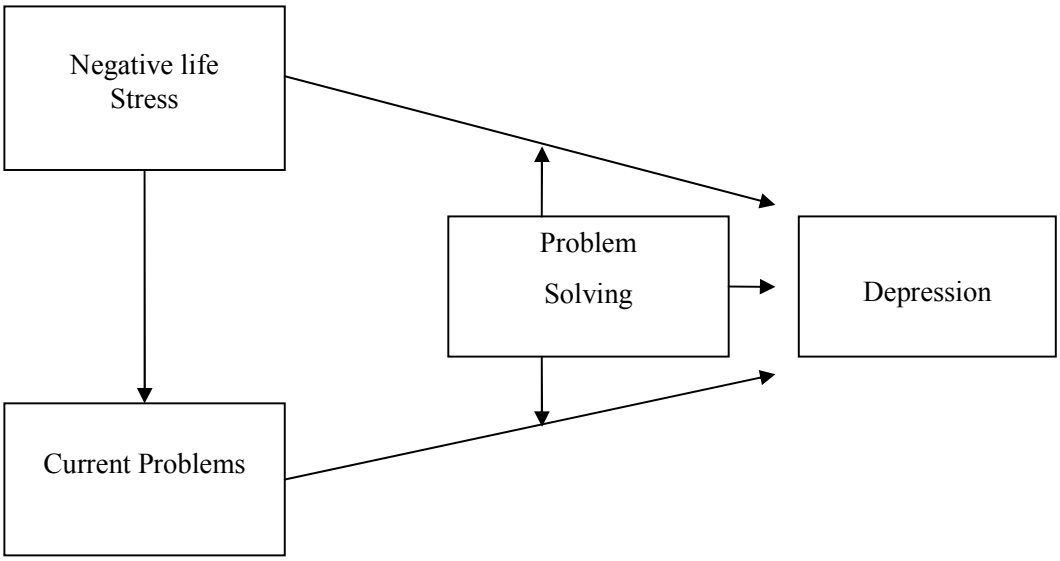

Figure 2.4. social-problem solving model of depression (Nezu and Ronan, 1985)

2.5.6 The social information processing model (Dodge et al*., 1986):*

From a cognitive psychology standpoint, stress-specific problem solving can be conceptualized within an information-processing system approach that relies heavily on two components: (a) how knowledge of the stress and past experience with stress-related problem situations are stored and accessed for application to new problem situations and (b) how the defining characteristics of the stress-related problem can be used as triggers of an appropriate, stored, rational, stress-specific, problem-solving strategy. Information-processing perspectives (e.g., Hayes, 1981; Newell & Simon, 1972) have been guided by a set of assumptions about temporal ordering relations in the flow of processing (Palmer & Kimchi, 1986). First, there are ordered paths of operations by which input information travels. Second, operations are time-dependent; that is, some minimal period of time must

elapse before input may be processed by any single operation. Third, operations can only be activated when all necessary information is available from temporally-antecedent processes and outputs. Based on these assumptions, numerous information-processing models have been posited to explain mental functioning according to sequential cognitive steps (or processes) (Reeves, 1996)

More recently, social information-processing models have been advanced to explain relations between cognition and antisocial behaviour in the course of child development (e.g., Crick & Dodge, 1994; Huesmann, 1988, 1998). These models have been successfully operationalized in varied empirical settings for the central purpose of predicting and explaining aggressive behavioural patterns in childhood and adolescence (e.g., Dodge et al., 2003; Fontaine et al., 2002). Current formulations of these models (Crick & Dodge, 1994) as well as related models of behavioural decision making (Fontaine & Dodge, in press) and social perception (Read & Miller, 1998) have hypothesized that multiple, interactive levels of cognitive functioning collectively account for social–behavioural outcomes.

Decision making processes are a particular form of problem solving and have been studied within the context of problem solving and theories of information processing. Crick and Dodge (1994) formulated a model of social cognition and performance that attempts to describe the cognitive features of social competence.
A primary assumption of the model is that effective behaviour depends on rational and objective perceptions of social circumstances. The socially competent person is capable of accurately perceiving and appraising the social environment by attending and

responding to information that is socially relevant. On the other hand, behavioural problems are suggested to be the result of deficits and distortions of this process.

In this model, deficiencies in the processing of social information are assumed to play a central role in the development of conduct problems, depression, aggression and social rejection. In the model of social information processing, generalized experiences and self-schemas (Dodge & Coin, 1987) are thought to influence social cognitions at every processing stage. Crick and Dodge (1994) maintain that each phase of social information processing depends on earlier stages and interacts with social schemas. They base this assertion on cognitive psychology (e.g., McShane, 1991; Schneider & Pressley, 1997), social cognition (e.g., Crick & Dodge, 1994; Huesmann, 1998), and cognitive neuropsychology (e.g., Temple, 1997). In particular, theories of social cognition in childhood have concentrated on the developing, complex relation between children's mental functioning and interpersonal behavior within the broader context of the child's social world. As a result, the critical role that is played by social cognition in children's social and behavioural development has been well established (Crick & Dodge, 1994).

Crick and Dodge (1994) delineate six stages of social cognitive processing, as illustrated in Figure 2.5. The first stage (encoding of cues) involves the perception of and attention to interna1 and external information. The second stage (interpretation of cues) encompasses the subjective definition of those cues. Two primary components of the interpretive process are the attributions of causality and intentions towards others. The third stage is a motivational process where immediate social goals are considered. The fourth stage is the response access or construction phase, where potential behavioural options are produced. In the fifth stage, the response decision phase, solutions are

evaluated and selected. The response that is selected is implemented in the final stage - the behavioural performance stage. All of the information processing stages depend on the appraised impact of the response. Feedback from peers and the environment can initiate the process (Crick & Dodge, 1994).

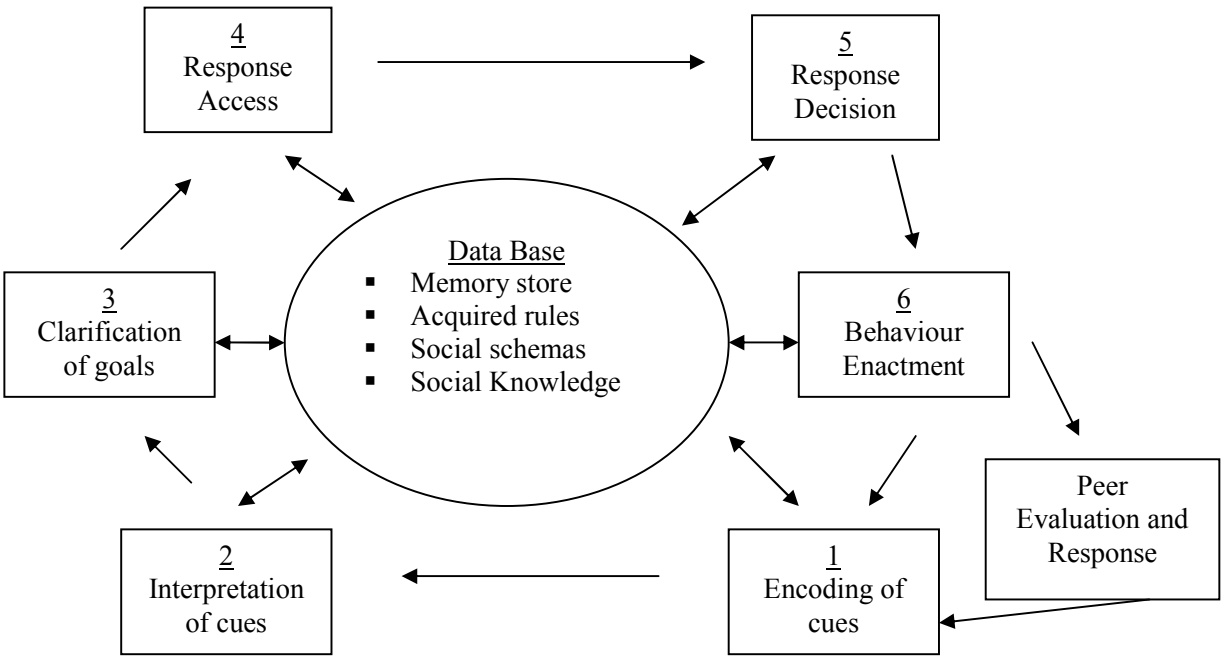

Figure 2.5. Social information processing model (Dodge et al., 1986) (from Crick and Dodge 1994)

2.5.7 Self appraisal problem solving ability and the stress, coping, and adjustment model (Heppner & Krauskopf, 1987)

Self appraisal problem-solving ability theoretically serves an important function in the way in which a person processes information about self, the environment and problematic situations encountered in everyday life (Elliot et al., 1995 and Heppner & Krauskopf, 1987). This variable was derived from the problem-solving model of D'Zurilla and Goldfried (1971). This model has been conceptualised as a general appraisal of social-problem style, whereas other models, such as, the social-problem solving model of depression, conceptualize how one will cope with specific problem (Nezu & Ronan, 1985). Although there is a wide range of theoretical conceptualisations of coping and problem solving (e.g. D'Zurilla, 1986; Heppner & Krauskopf, 1987; Lazarus & Folkman, 1984), one of the most common elements of these conceptualizations is a person-environment interaction theoretical perspective. In other words, a common theme among many of the coping theories is the balance between the demands of the situation -environment- and the abilities or resources of the person (e.g., D'Zurilla, 1986; Heppner & Krauskopf, 1987; Lazarus & Folkman, 1984). Although the perspectives differ in the extent to which they explain adaptive and maladaptive behaviours, all models distinguish factors that might affect the adaptation process (e.g., resources and coping). The adjustment or maladjustment outcomes indicate how successful the adaptation process has been. It has been suggested repeatedly that ineffective problem solving results in psychological maladjustment (e.g. D'Zurilla & Goldfried, 1971; Heppner & Krauskopf, 1987; Spivack & Shure, 1974).

Problem-solving appraisal is conceptualized as a person variable within the global person-environment model and specifically a generalized set of beliefs or expectancies about applied problem solving (Heppner & Lee, 2002). Problem solving appraisal has been conceptualized as a general appraisal of problem solving style rather than a specific appraisal of how individuals will cope with a specific problem, such as a marital conflict (Heppner et al., 2004).

Heppner and Petersen (1982) developed the problem solving inventory (PSI), which resulted in the assessment of problem solving appraisal. Heppner and Petersen sought to develop a problem solving inventory to assess five of the most commonly identified problem-solving stages.

1- General orientation,

2- Problem definition,

3- Generating alternatives,

4- Decision making,

5- Evaluation

Each of the stages was loaded in almost random fashion across the three factors shown in Figure 2.6:

1- Problem-solving confidence (PSC) is defined as an individual's self-assurance, beliefs, and trust in ability to effectively cope with problems

2- The approach-avoidance Style (AAS) is a cognitive behavioural skill in defining problems and formulating solutions. It refers to a general style to avoid different problem solving activities

3- Personal control (PC) is defined as control of one's emotions and behaviours in problems solving situations.

Heppner and Petersen (1982) firstly conceptualized the three PSI factors as variables associated with a motivational or expectancy component or within social learning theory. Specifically, problem solving confidence and personal control factors seem to be directly related to self-efficacy (Bandura, 1986). Moreover, the three PSI self appraisal factors have been conceptualized as constituting an individual's problem solving style (Heppner & Lee, 2002). However, problem solving self-appraisal is more a measure of self-efficacy than of problem-solving ability (Bonner & Rich, 1998).

Heppner and Krauskopf (1987) proposed an information-processing model of personal problem-solving. According to this model, problem-solving is synonymous with coping, and any situation can be regarded either objectively or subjectively as a problem that should be solved. The processing and generation of solutions is therefore not restricted to social and interpersonal behaviours, as suggested by D'Zurilla and Nezu (1987).

Theoretical models of self-appraised problem solving ability stipulate that individuals differ in the ways in which they process information about the self and the environment and how they cope with problems encountered in everyday life. This model leans heavily towards the role of information-processing in the appraisal of skills, problems and the implementation of goal-directed behaviours (Heppner & Krauskopf, 1987). The social-problem solving model, in contrast, emphasizes the utility of specific cognitive behavioural skills in resolving problematic situations (D'Zurilla & Nezu, 1989).

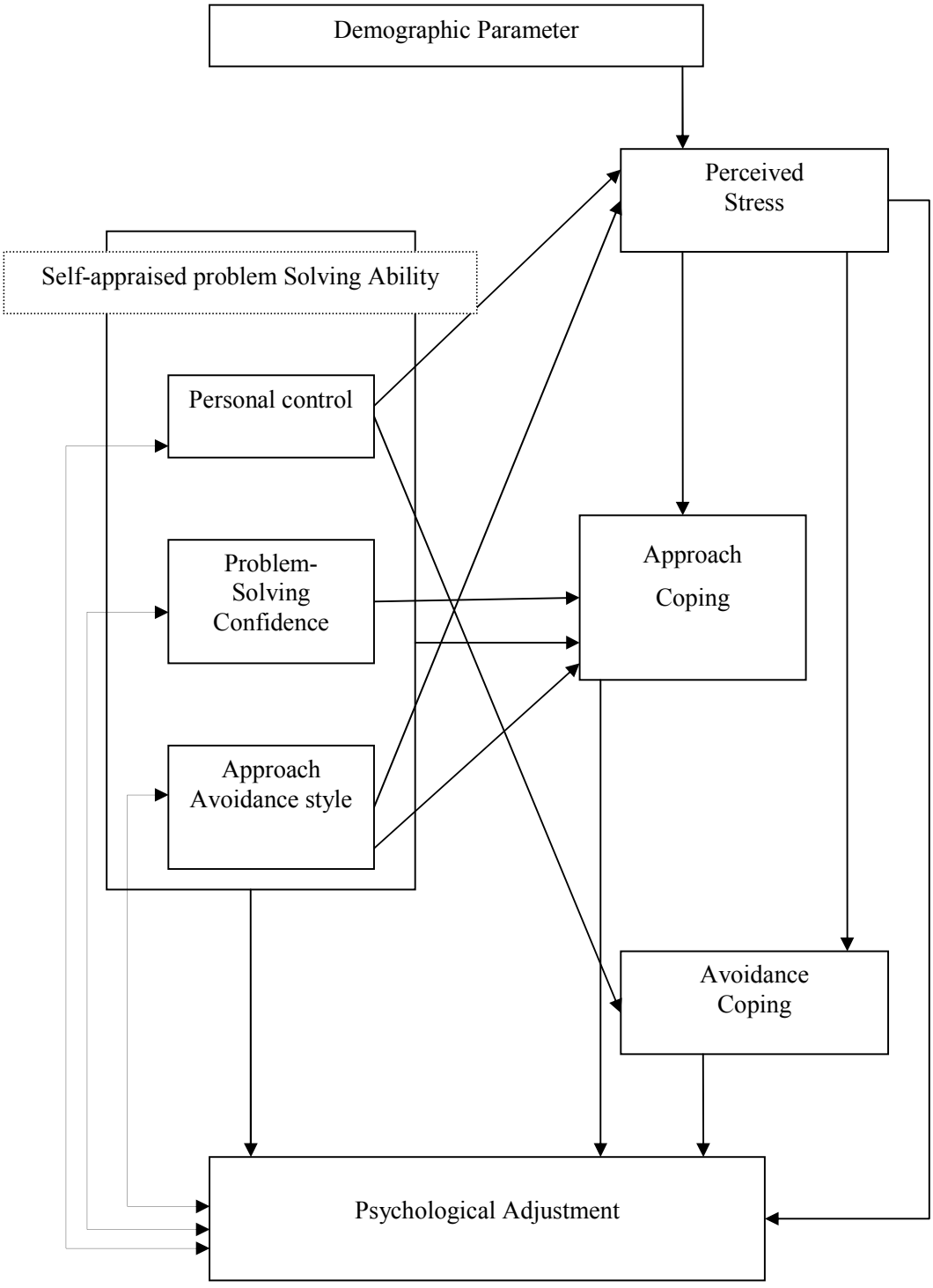

Figure 2.6. self- appraisal problem solving ability and stress, coping and adjustment model (from Noojin 1997)

2.5.8 Social-problem solving model (D'Zurilla, Nezu, & Maydeu- Olivares, 2004)

The definition of social-problem solving used in this study follows the model outlined by D'Zurilla and Nezu (1999) and D'Zurilla et al. (2004). This model is based on the original model developed by D'Zurilla and Goldfried (1971) and was later expanded and refined by D'Zurilla and Nezu (1982, 1990, 1999); and D'Zurilla et al. (2004). This model has been further revised in recent years, resulting in a new five dimensional model of social-problem solving. Problem solving, as a general coping process, requires a "flexible, creative, and versatile approach in the development of an adaptive solution to a problematic situation" (D'Zurilla, 1986). The model hypothesizes that problem-solving outcomes in real-life settings are determined by two major processes: (1) problem orientation and (2) problem solving proper. Problem-orientation is a motivational process involving a set of relatively stable cognitive-emotional schemas that describe how a person generally thinks and feels about real life problems, and their personal problem-solving ability. Problem-solving proper refers to the rational search for a solution through the application of problem-solving skills and techniques designed to maximize the probability of finding the `best' or most adaptive solution for a particular problem.

Maydeu-Olivares and D'Zurilla (1996) thoroughly examined the empirical data generated by the SPSI, relative to the theoretical model of social-problem-solving, which it was based on. They found support for the basic structure and dimensions within this model. Their results suggest that problem solving in real-life environments is best described by five inter-related dimensions illustrated in figure 2.7: two problem solving dimensions and three problem solving proper dimensions. These dimensions are:

(1) Positive problem orientation (PPO), a constructive, problem-solving cognitive `set' (e.g. generalized challenge appraisals, self-efficacy, and positive outcome expectancies); (2) Negative problem-orientation (NPO), a set of dysfunctional cognitive-emotional schemas (e.g. generalized threat appraisals, low self-efficacy, negative outcome expectancies); (3) Rational problem-solving (RPS), a constructive problem-solving pattern characterized by rational, deliberate, and systematic application of effective problem- solving skills; (4) Impulsiveness/carelessness style (ICS), a dysfunctional problem-solving dimension characterized by active problem-solving attempts that are impulsive, careless, hurried and incomplete; and (5) Avoidance style (AS), another dysfunctional dimension characterized by procrastination, passivity or inaction, and attempts to shift the responsibility for problem solving to others.

There are several important aspects of this model. Firstly, the social-problem-solving perspective emphasizes motivational, attitudinal, and affective aspects of real-life problem resolution. Social-problem solving can be viewed from several perspectives (behavioural, social learning mental health, and so on (Nezu et al., 1989).The SPS model highlights the importance of coping and social competence. This is made clear in the theory, but the SPS model also has considerable empirical support among different populations. D'Zurilla and Nezu (1999) identified 24 different populations and applications of SPS in a review of previous outcome studies, which covered formal diagnoses such as schizophrenia to behavioural problems among children and adults with mental retardation, sex offenders, and substance abusers, as well as prevention programmes (stress management) and various health problems (cancer, HIV and weight problems).Individual differences were emphasised. The model highlights the fact that

different people may perceive and respond to similar situations in different ways. As such, the demands of problem situations are most aptly described as perceived demands. A problem situation is proposed to be a product of a relationship between an individual and the environment in which the demands perceived by the individual exceed his or her coping resources (Nezu et al., 1989). These definitions represent the transactional nature of the Social-problem-Solving Model. On the other hand, the traditional information-processing model defined problem solving as a series of cognitive skills in problem identification, goal setting, finding suitable solutions and evaluating problem-solving outcomes, but largely ignored the motivational, affective and behavioural aspects of problem solving (e.g., Logan, 1989). The social-problem-solving model proposed by D'Zurilla and Nezu (1990), however, represents a major update of the traditional information-processing model of problem solving. The SPS model describes constructive and dysfunctional styles of solving problems that effect health and adjustment (D'Zurilla & Goldfried, 1971; D'Zurilla & Nezu, 1989; Nezu, 2004). In this model, the primary components of SPS have specific, testable properties are hypothesized to influence adjustment. For example, the problem orientation component explains how individuals' motivations and mood regulatory properties affect perceptions of competencies and abilities, and propensity for positive and negative moods when facing problems.

This concept of problem-focused coping is similar to that in the Lazarus model of stress and problem solving. The model of stress broadens the role of problem solving as a general coping strategy (Nezu et al., 2004). It incorporates emotion focused coping (a combination of problem- and emotion-focused coping). SPS is a general model of psycho-social adjustment, as opposed to a specific model of coping strategy. There is

considerable empirical support for this perspective of SPS. D'Zurilla et al. (1999; 2004) highlighted the major contribution of SPS and its role as a general coping strategy used to face main challenges. With regard to coping process, Carver et al., (1989) disapproved of the established dichotomy between emotion-focus and problem-focus, because it is too simple and it does not resolve the complexity of problem-focused strategies that normally involves several distinct processes such as planning, taking direct action and seeking assistance. This is also the case for emotion-focused coping, which entails several responses, like positive reinterpretation of events, seeking out social support and denial.

Effective problem solving is postulated to be dependent on a positive orientation towards problem solving (problem orientation) and the effective application of rational problem-solving skills. Social-problem solving is suggested to become ineffective when it is dominated by a negative attitude towards problem solving, impulsiveness and acting out behaviour, or extreme delay and avoidance (D'Zurilla et al., 2004).

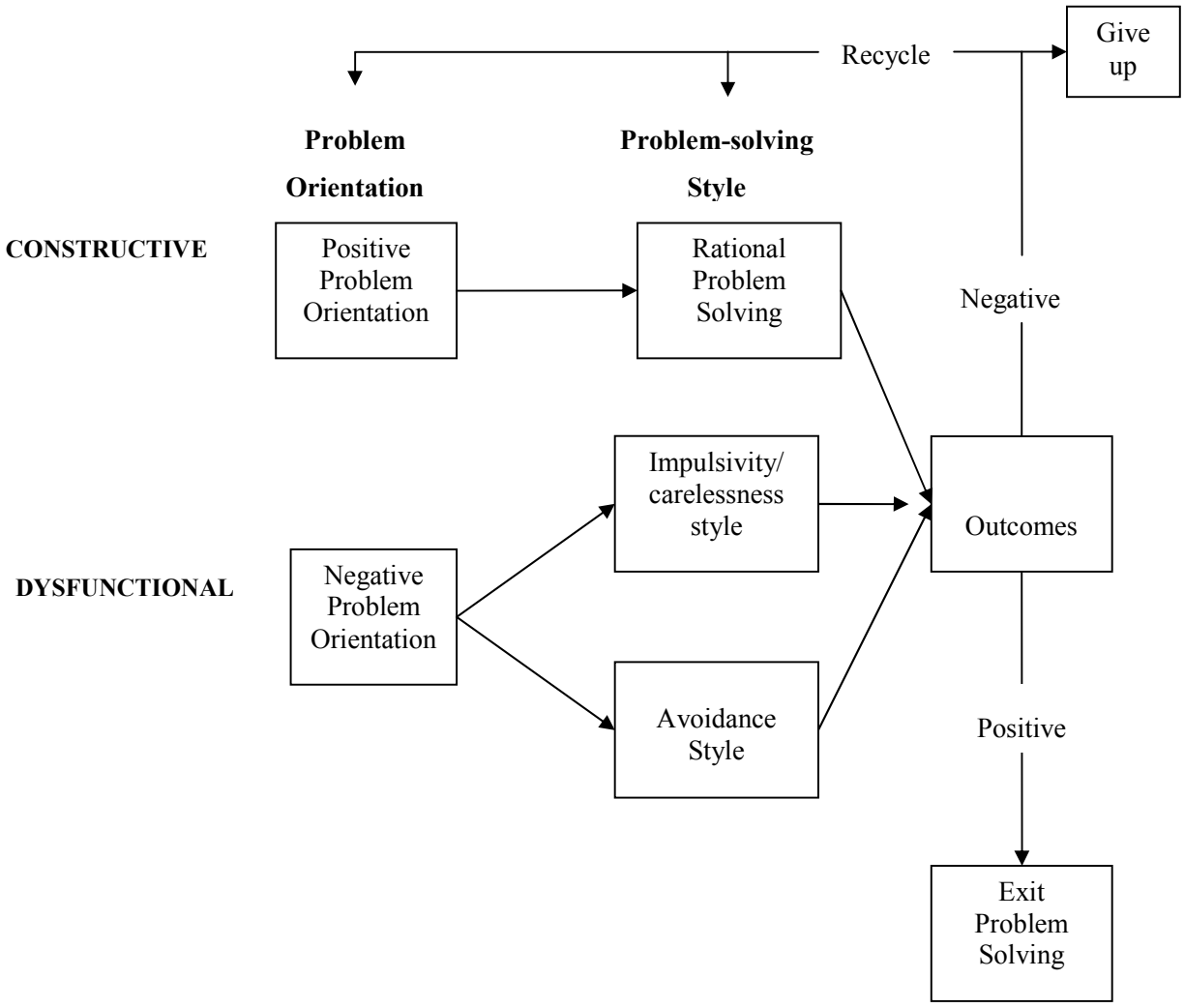

Figure 2.7. Social-problem solving processes based on the five dimensional models of D'Zurilla et al. (2002)

2.6 Chapter summary

In conclusion, the social-problem solving models highlighted in this chapter are comprehensive and sophisticated. Nerveless, there are several commonalities within the various theories. All of the previous models distinguish factors that might affect the adaptation process (e.g., problem solving, coping). The adjustment or maladjustment

outcomes may indicate how successful the adaption process (e.g., resources and coping) has been. In addition, most of the theories have a specific measurement related to the model of problem-solving or coping (social-problem solving model, self appraisal problem solving ability and adjustment model, the transactional model, the model of human problem solving). Many of the theoretical models highlight the role of self efficacy (e.g., interpersonal problem solving model, the social-problem solving model and the transactional model), although different terms are used for this construct, including self confidence and self ability. The models, however, differ in the factors they specify as mediators/moderators of the relationship between stress and outcomes. For example, the transactional stress and coping model hypothesized that coping acts as a mediator between stress and adjustment. The interpersonal problem solving model focuses on a variety of thinking skills as mediators of social involvement and adaptation, whereas the social-problem-solving model of depression hypothesizes that the ability to solve interpersonal problems moderates or interacts with the effects of negative life stress on depression. Furthermore, it may be noted that in self appraisal problem solving ability, the transactional model and the social-problem solving model include both elements, namely cognitive process and personal style. While some models (e.g. the social information processing model and the model of human problem solving) stress the cognitive process involved in problem solving.

Chapter 3 will aim to provide an overview of the substantial empirical support for social-problem solving model across a number of different populations.

CHAPTER THREE: LITERATURE REVIEW

3.1 Introduction

The aim of this chapter is to review the literature which forms the background to the present study. This chapter considers links between social-problem solving, stress and mental health especially in adolescents and young adults. It investigates the dimensions of the social-problem solving and stress constructs and explores psychological distress in young adults. In addition, it highlights the role of social support in life satisfaction. This chapter will also underline issues relating to cultural differences in stress, distress, social support and social-problem solving.

3.2 Social-problem solving

In general, social-problem solving is the process of resolving conflicts or dilemmas that arise in social situations. Social-problem includes a variety of difficulties such as Interpersonal and intrapersonal problems.

Social-problem solving has been defined as ‘‘the self-directed cognitive-behavioural process by which a person attempts to identify or discover effective or adaptive solutions for specific problems encountered in everyday living’’ (D’Zurilla & Nezu, 1999, p. 17). This process is understood as naturally occurring in everyday life, where all types of problems might affect a person’s functioning. Heppner and Krauskopf (1987) conceptualized problem solving as "a goal-directed sequence of cognitive and affective behavioural responses for the purpose of adapting to internal or external demands" (p. 15). In this respect, the terms problem solving and coping have sometimes been viewed as synonymous (Heppner & Hillerbrand, 1991).

Engaging in social-problem solving inevitably activates some of the processes involved in cognitive problem solving. It has been widely recognized, however, that there are additional activities involved in attempting to solve problems in the interpersonal domain (D'Zurilla et al., 2004). Real-life problem solving is proposed to be a social learning process that requires the application of social skills (D'Zurilla & Nezu, 1999). D'Zurilla et al. (2004) categorized problems into four types that may impact on an individual, namely: impersonal problems (e.g., insufficient finances); intrapersonal problems (e.g., health and/or emotional problems); interpersonal problems (e.g., marital conflict); and societal problems (e.g., racial discrimination). This study will focus on everyday problems, rather than major stressful life events, because these stressors have been found to be associated with increased psychological symptomatology in both young and older adults (Nezu, 1986).

Problem solving links two elements. The first elements relates to the problem, which represents a discrepancy between the current state and the desired state and the existence of various obstacles that block the path to reach goals. The second element includes the solution, which is an objective or desired outcome of that effort (D'Zurilla & Nezu, 1999). D'Zurilla et al. (2004) described a problem as ''any life situation or task (present or anticipated) that demands a response for adaptive functioning, but for which no effective response is immediately apparent or available to the person, due to the presence of some obstacle(s)'' (p. 12). A solution is understood as ''a situation-specific coping response or response pattern (cognitive and/or behavioural) which is the product or outcome of the problem-solving process when it is applied to a specific problematic situation' (p. 13). Within cognitive social learning theory, effective problem solving is

regarded as a skill (D'Zurilla et al., 2002). In this case, problem-solving training or therapy is designed to help individuals find their way from problems to solutions using a systematic sequence of methods and steps. In the cognitive-interpersonal domain, individuals deploy skills in activities that range from communication, interaction, or building and maintaining relationships, to negotiation and resolving conflicts (Heppner et al., 2004).

3.3 Stress and how it is linked to distress and social-problem solving.

Stress is seen as a syndrome of modern life. It can be beneficial when challenges are to be met, but persistently high and unrelieved stress can lead to psychological, physical and behavioural problems. Stress is a typically occurring part of life and is defined as a process of interaction between persons and their environment (Folkman & Lazarus, 1985). Stress has been studied extensively in the field of psychology and counselling. Health literature provides evidence of a relation with several dimensions of well-being (Frye & Goodman, 2000). Stress is viewed as an interactional phenomenon that occurs when the perceived demands of a situation are considered to be greater than the individual's perceived resources for dealing with those demands (Heibert, 1987). The term stress has been categorized as a stimulus, as a response or reaction and (as in the present study) as a transaction between the person and the environment. Lazarus' cognitive-transactional theory of stress and coping (Lazarus & Folkman, 1984), for example, defined stress as the relationship between an individual and the environment that is appraised as taxing or exceeding that individual's resources and as endangering the individual's well-being.

Perceived stress can derive from the environment (external stress), physiological reactions of the body (distress) or cognitive, emotional, and behavioural responses to interaction. Stress occurs when an external event causes adverse physiological and cognitive distress in an individual beyond the limits of normal coping (Suldo et al., 2008). Some resources are available to individuals to deal with stressors, such as coping, which allow one to experience external stress without experiencing compromise functioning. Lazarus and Folkman (1984, p. 141) defined coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person". This definition has been found to be the most widely accepted and cited definition of stress (Suldo et al., 2008).

Smith (1993) offered several methods to study both the response to stress, and the stressful event itself. He asserted that one needs to consider the content of the stimuli, the context of the event, the undesirability and, the psychological magnitude, in order to better understand its impact. He considered catastrophic stress and daily hassles and proposed that a person will cope differently with the two types of stressors. Smith (1993) emphasized that the ambiguity of events, their unpredictability, uncertainty and uncontrollability also influence a person's response to a stressor. He also considered the timing of the events, its imminence and duration, as important in determining an individual's response.

Bloom (1985) suggested that stressful events are life experiences that present a person with strong demands for personal, social, or biological readjustment. Major stressful life events that affect most people include divorce or the death of a loved one.

Daily problems or problematic situations are narrower and represent less dramatic stressful events; although research suggests that the frequency of minor problems may have a greater impact on psychological well-being than major negative events (Nezu & Ronan, 1988). It has been hypothesized that social-problem solving is an important general coping strategy that can reduce or prevent the negative effects of major and minor stressful life events on psychological well-being (D'Zurilla et al., 2004).

A number of studies have shown that social-problem solving ability by itself, or in tandem with social support, can reduce or minimize the impact of life stress on individuals (Dubow & Tisak, 1989; D'Zurilla & Sheedy, 1991; D'Zurilla et al., 2004). Studies that aimed to find relationships between perceived stress, coping behaviours and mental health outcomes found that these variables do reciprocally influence each other. (Not only does stress negatively affect troubled adolescents' psychological well-being, but it is exacerbated by depressed mood) (Galaif et al., 2003).

Social-problem-solving abilities have been found to moderate the relation between negative life stress and measures of distress, including depression and anxiety (Nezu & Nezu, 1987). In addition, social-problem solving as an important coping strategy can mediate the impact of experiences associated with daily life stressors or problems (Nezu & D'Zurilla, 1989). Moreover, it has been noted that major stressful life events and daily problems influence each other in a reciprocal way, creating stressful effects (Nezu, 1996). In other words, problems often develop independently from major life changes as a normal part of daily living. However, an increase in daily problems can often result in major life changes, which in turn produce new additional daily hassles. Stress can lead to negative affect and a reduction in psychological well-being (e.g.

Beasley et al., 2002). As regards behavioural and social stress it appears that everyday stressors are normative and contain challenges (Galaif, 2003) and do not necessarily have a negative impact on individuals if they have adequate coping resourcefulness (Lazarus & Folkman, 1984), however, they also embody elements of loss and threat (Galaif, 2003).

Research has demonstrated that increases in minor life events or problems (e.g. conflict with friends, academic problems) have more of an impact on psychological well-being than major life events (e.g., divorce, death); (Nezu, 1996). A growing body of literature suggests that problem-solving deficits are related to distress and psychological adjustment. Studies have found that social-problem solving is related to positive and negative affect (Chang & D'Zurilla, 1996). Social-problem-solving appraisals have been linked to indices of psychological distress, including anxiety (Elliott et al., 1999), stress (Nezu & D'Zurilla, 1989; D'Zurilla & Sheedy, 1991), depression (Nezu & D'Zurilla, 1989), and maladjustment (Heppner et al., 2004). In addition, effective and ineffective self-appraised problem solvers differ in relation to their expectancies about control (Nezu, 1985), self-concept and irrational beliefs (Heppner et al., 1983). Effective self-appraised problem solving has been associated with rational decision-making styles (Chartrand et al., 1993), academic performance (Elliott et al., 1990), and the use of problem-focused coping strategies (MacNair & Eillot, 1992).

Davey et al. (1996) found that high levels of stress affect social-problem solving and are associated with lack of confidence and increased anxiety levels. Anxious individuals (compared with those who are less anxious) worry excessively and have an excess of negative thoughts when having to resolve social-problems. In addition, they often show more avoidance behaviour, and have a tendency to avoid direct confrontation

when trying to solve social-problems (D'Zurilla & Goldfried, 1971). Several problem solving measures has been used to show that both problem orientation components (negative problem orientation and positive problem orientation) are often predictive of depressive behaviour, anxiety, neuroticism, and negative affect under general and stressful conditions (Dugas et al., 1995). It was shown that, if a person has a positive orientation (e.g., apprise a problem as a challenge) to problem solving, then this approach functions to help immunize the person against anger, depression, and anxiety (D'Zurilla et al., 2004). It also encourages positive feelings and self-efficacy in problem solving; it decreases impulsive response styles and encourages an approach rather than avoidance to solving problems (D'Zurilla & Sheedy, 1991; Elliott et al., 1999). Reports in the literature have indicated that the level of stress in young people is growing dramatically (McNamara, 2000; Moon et al, 1999) and that it is highly prevalent in adolescent and young adult populations.

3.4 Adolescents

Stress has an important function in adolescent development. Stress is indicative of an imbalance between the individual and his or her environment and that something is at stake. Research on adolescent stress has shifted its focus from the study of traumatic events and chronic stressors, characterized by loss and threat, to normative challenges, demands, and developmental tasks (Nurmi, 2004; Seiffge-Krenke, 1995; Skinner & Zimmer- Gembeck, 2007). The present study focuses on typical, everyday stressors that frequently occur during adolescence.

Most adolescents are confronted with mildly stressful situations in their everyday lives. For example, adolescents attempt to make their relationships with their parents more egalitarian and begin to extend their social networks to include friends and romantic partners. Such significant changes in close relationships are frequently accompanied by stressful encounters. It is noteworthy that 46%– 82% of all stressful everyday events named by adolescents pertain to interpersonal relationships (Seiffge-Krenke, 2006) and include conflicts between parents and adolescents (Seiffge-Krenke et al., 2001; Thornton, et al., 1995), with close friends (Bowker et al., 2000). Such concerns emerge during early adolescence and persist until early adulthood (Erikson, 1968; Frydenberg, 1997; Kroger, 2000). During adolescence, stress may be connected with concerns about one's own future (Nurmi et al., 1995), for example, with respect to educational, occupational, and career goals (Nurmi et al., 1994).

Adolescents with high levels of perceived stress are at high risk of negative developmental outcomes, such as depression (Martin et al., 1995), academic underachievement (Brissette et al., 2002), and lower satisfaction with life (Mayberry & Graham, 2001). It has been found that perceived stress is linked to negative outcomes like psychopathology (Schmeelk-Cone & Zimmerman, 2003) and coping strategies that increase perceived stress may put adolescents at further risk of experiencing mental health problems.

Although many everyday stressors in adolescence are universal and have been found in diverse cross cultural samples around the globe (Brown et al., 2002; Gelhaar et al., 2007), some are context specific. For example, although several of the problem situations identified in Farrell et al.'s (2007) qualitative study on urban African American

adolescents clearly overlapped with the aforementioned everyday stressors typical for youths living in Western industrialized countries, other situations were uniquely specific to an urban context, for example, perceived injustice, victimization and stealing or property damage.

Coping behaviours can help adolescents to adapt effectively. Williams and McGilldicuddy-De Lisis. (2000) examined the coping strategies of adolescents and found that adolescents develop new coping strategies that increase the flexibility and range of response to the stressor. In addition, it was found that the use of coping strategies increases with age. Specifically, older adolescents (16-19) reported using coping strategies to deal with problems more often than younger adolescents. Also, those in late adolescence used planned problem solving, positive reappraisal and self-control in conjunction with seeking social support more often than younger adolescents. In another preliminary study, 1099 adolescents 12- to 18-year old were interviewed about their ways of dealing with 260 typical everyday stressors (Seiffge-Krenke, 1995). In an exploratory factor analysis, three conceptually different coping styles were identified. The first style, active coping, includes strategies such as support-seeking and discussing the problem with parents, peers, or other concerned persons. The second style, internal coping, encompasses cognitive ways of dealing with stressors, such as considering possible solutions and anticipating results. The third style, withdrawal coping, consists of withdrawal from the stressor, distraction strategies, and seeking emotional outlets.

A number of cross-sectional studies have shown that when confronted with age specific stressors, adolescents rely more on active and internal coping strategies (Garnefski et al., 2002) than on withdrawal (Gelhaar et al., 2007; Seiffge-Krenke &

Klessinger, 2000). A consistent finding has been that female adolescents generally show higher levels of active coping and support seeking when dealing with stress, compared to males (Compas et al., 2001; Frydenberg & Lewis, 1997). More specifically, females are more active than males when coping with relationship stressors (Seiffge-Krenke, 2006). As pubertal changes shape most aspects of early adolescent development e.g., cognitive performance, self-perception, and social behaviour (Petersen et al., 1988), it is likely that physical maturity also influences how young people cope with stressful changes (Kernke & Nurmi, 2009).

3.5 College Students

Tertiary students constitute a population of young adults identified as being prone to high levels of stress (D'Zurilla & Sheedy, 1991). A study by Edwards and associates (2001), for example, found that 30 per cent of undergraduate students in Canada reported high psychological distress (i.e., anxiety, depression). In addition, Jameson and Jon (1996) found that high levels of stress among university students had serious implications for academic performance, interpersonal relationships, and social activities. The effects of stress on college and university students have been well documented. Researchers have found that the perception of high stress in students can lead to poor academic performance and depression (Hudd et al., 2000). Typical problems related to college life may include adjusting to and balancing academic coursework (Li & Kam, 2002). In addition, the most common academic concerns reported by undergraduate students are academic problems such as scheduling conflicts and inaccessible classes, exams, competition, time demands, professor and class environment, motivation to study, and

future success in a career (Li & Kam, 2002). In another study, Research has shown that stress is common in college students. Li and Kam. (2002) found that major types of stress for university students are academic and daily problems, such as conflict with friends and having a lot of responsibilities.

Much of the existing research on self-rated health in college student populations has addressed gender differences, which overall has yielded an intriguing yet inconsistent pattern of results. Specifically, this research suggests that female students report greater levels of stress than male (Adlaf et al., 2001; Hudd et al., 2000). In another study, Sax (1997) found that 9.7% of college freshmen reported frequent depression. Past studies also reported that 75% to 80% of college students are moderately stressed and 10% to 12% are severely stressed (Abouserie 1994; Pierceall & Keim, 2007). However, Hudd et al. (2000) found that during a typical college semester, 52% of college students reported high levels of stress. Possible explanations for this may be the transition from adolescence into adulthood and the transitional nature of college life (Towbes & Cohen, 1996). Furthermore, some research has suggested that the stressful effect of major life changes is often mediated by increases in daily problems and the hassles produced by these changes (Nezu and Ronan, 1985). Students with learning and behavioural problems often have difficulty dealing with interpersonal problems, which further limits their academic and social success at college (Nelson et al., 1996).

Ross et al. (1999), for example, found that interpersonal sources of stress were the most common sources of stress among a sample of college students. However, there are cultural differences in countries across the world (see section 3.9 for more discussion of this).

The few studies that have included a measure of social-problem solving have found that effective self-appraised problem-solving is associated with more adaptive study habits and attitudes (Elliott et al., 1990), lower levels of stress associated with starting university (Hudd et al., 2000; Lumley & Provenzano, 2003; Perry, 2003; D'Zurilla & Sheedy, 1991), and better academic performance (GPA) in the first year of college (D'Zurilla, 2004). There is further evidence that self-appraised problem solving abilities are related to objective indices of performance over time. For example, elements of the problem orientation component (negative and positive problem orientation) have been significantly predictive of academic performance (e.g. course grade, grade point averages) (Blankstein et al., 1992). Aspinwall and Taylor (1992) found that college students who used active coping rather than avoidance coping made more positive adjustment at college. According to Misra, McKean, West, and Russo (2000), college students often attempt to control and reduce their stress through avoidance, religious and social support, or positive reappraisal. Recent research on primary and secondary control from both the educational and coping domains suggests that active rather than more passive secondary-control beliefs and strategies (e.g., positive reinterpretation vs. disengagement, respectively) are most effective in fostering the social and academic development of adolescents and college students (Hall et al., 2006; Petito & Cummins, 2000; Wadsworth & Compas, 2002). Smith and Renk (2007) found that anxiety, problem-focused coping and social support are all important predictors of academic-related stress in university students.

In a college environment, particularly for first-year students, the main indicator of adaptation was academic success. Thus, according to social-problem solving theory, students' social-problem solving should be related to their academic performance. Two studies have reported a modest but significant positive influence of social-problem-solving on college freshmen (GPA scores) (D'Zurilla et al., 2004; D'Zurilla & Sheedy, 1992).

3.6 The role of social support

Research clearly establishes the strong and significant impact of social support, specifically perceived social support on a variety of stressful life events as well as the ability of social support to facilitate psychological well-being. The choice to use social support as a coping strategy is shaped by personality characteristics, personal relationships and larger social structures (Pierce et al., 1996). In addition, social support has been shown to reduce negative life events, reduce depressive symtomotology, reduce daily hassle stress, and increase life satisfaction, (Licitra-Kleckler & Waas, 1993; Vihijalmsson, 1994). In a study of the general population, Huang and Chiang (2001) supported the association between satisfaction, social support and psychological well-being, where social support was found to act as a mediator between other variables and depressive symptoms. Brissette, et al. (2002) also showed that optimistic college students received more social support and suffered less depression. Solberg (1997) proposed that perceived social support moderated stress and distress, with those having a higher perception of social support also having a lower distress rating. Social support has also been seen as being protective to young people (Cohen, 1988); for example, it mediates

stress and anger and has an influence on perceptions of self-esteem; it reinforces intimacy and dependability (Eckenrode & Wethington, 1990).

Conversely, it was found that individuals with less perceived social support from friends and family were found to be "emotionally less positive" (Deihl et al., 1997). Taylor et al. (2001) has found that individuals who rated their families as being subjectively closer reported higher levels of life satisfaction. However, Taylor et al., (2001) also found that those individuals who indicated that they did not need help reported higher levels of happiness than those who received assistance from families as well as those who didn't receive assistance. Friends are a main source of social support in younger populations. Schonet-Reichl (1994) found that 76 % of young adults resorted to friends when feeling stressed and 60% asked family members for support.

Social support ability is an important determinant of coping with stress at the beginning of university studies (Dyson & Renk, 2006). Social support can be an important part of the transition (Misra et al., 2000; Friedlander et al., 2007) and help students to be successful in their academic work (DeBerard et al., 2004). Kessler et al. (1994) reported that individuals with low levels of social support were at risk of depression. Support on the other hand involved cognitive appraisals that were less threatening or beneficial to mental health (Turner & Marino, 1994).

Day and Livingstone (2003) found that females, for example, would turn to their partner and friends to a greater extent than males. Females also reported that they would seek emotional support more than males (Day & Livingstone, 2003; Renk & Creasey, 2003). Research confirms that college environments perceived as supportive are linked with better adjustment and achievement (Chang et al., 2004). Stress and coping and

everyday problem-solving models highlight that, when individuals involve others as part of the coping and problem-solving process, this involvement typically takes the form of social support (Cutrona & Russell, 1990). Other individuals may be both sources of stress and involved in the coping process either as sources of information, advice or support models, or as collaborators engaged in mutual or compensatory coping efforts (Wethington & Kessler, 1991).

3.7 The role of life satisfaction

Life satisfaction is the cognitive dimension of subjective well-being (Lucas et al., 1996). It is also the degree to which individuals judge the overall quality of their lives favourably (Diener & Diener, 1985). Life satisfaction is the most stable aspect of subjective well-being, the term used in scientific studies for happiness (Diener et al., 2002). Current research indicates that life satisfaction among adolescents is an important construct related to a wide range of other characteristics. Individuals with lower life satisfaction are at risk of various psychological and social-problems, such as depression and maladaptive relationships with others (Furr & Funder 1998; Lewinsohn et al., 1991).

Life satisfaction is negatively correlated with depression, anxiety and symptoms of psychological disorders (Huebner, 1991; McKnight et al., 2002). Empirical studies have also shown direct associations between life stress and negative physical and mental health consequences (Edwards & Besseling, 2001; Unger et al., 2001).

Peer relationships are a strongly influential factor among adolescents. Griffin (2002) showed how life satisfaction mediates the effects of stressors on adolescent social adjustment. Adolescents with high life satisfaction can adjust well socially, despite peer

stressors or lack of resources. Life satisfaction is an important mediator between environmental events, adolescent adjustment and well-being. Environmental events are not the only influence on positive youth development, but having a positive interpretation of and adjustment to these events is essential, just as much as the occurrence of positive life events (MacLeod & Moore, 2000). Effective parenting and good peer relationships have also been found to be important for positive development (Nezlek & Allen, 2006). However, some adolescents may not have the benefit of this support due to poor parental relationship.

Psychological well-being should be defined in terms of not just positive factors but also the absence of negative factors. The traditional conceptualizations of health or well-being focus only on the absence of disease or distress, which does not give the full picture regarding a person's psychological well-being (Diener, 1994). Happiness, contentment, serenity and life satisfaction can co-exist with challenge and stress (Diener & Diener, 1995; Veenhoven, 1996). Even at the level of subjective experience, positive and negative emotions may co-exist (George et al., 1995), and it should not be assumed that individuals are well just because they do not report negative moods or symptoms. Young people who report low levels of pathological symptoms can also experience diminished psychological well-being. As Cowen (1991, 1994) suggests, positive indicators such as life satisfaction should be included in any assessment to determine psychological well-being among youths. The good and the stressful aspects of life need to be measured separately in order to make judgements regarding prevention or intervention.

3.8 The role of Religion

Religious prayer and beliefs, in contrast to medication and help seeking from doctors or psychiatrists, were considered helpful. In a related paper, Loewenthal et al. (2001) interviewed 186 women and 97 men. The sample consisted mainly of Christians (*n* = 130), Jews (*n* = 35), Muslims (33), Hindus (*n* = 18) and other religions such as Sikhs, Buddhist and New Age (*n* =15). In this sample, religious coping was considered effective, compared with social and cognitive coping. Faith, prayer, maintaining religious practice, and attending a place of worship were seen as the most effective. When group specific responses were examined, Muslims most often endorsed a religious solution. Christians more often thought prayer and praying for others were effective; Jewish people reported maintenance of religious practice, consulting a religious leader, and others praying for the sufferer more strongly than other groups. Thus religious practice can be central to coping with misfortune, and especially among some ethnic groups (Loewenthal et al., 2001). Cinnirella and Loewenthal (1999) studied 52 women from diverse religious groups and ethnic groups, and concluded that stigma of mental illness led to a preference for private coping, and that this included religious coping.

In an interview study of 282 people, religious activity was considered to be helpful by those who had never previously been depressed, by men more than women, and by Muslims compared to other groups (Loewenthal et al., 2001); Muslims were the most likely to use religious coping rather than seek out professional help or social support. These findings are concordant with this study, in that Islam, as other religions often have a more encompassing influence on people's lives (Esmail, 1996; Loewenthal et al., 2001). These findings are consistent with studies showing that Islam does not

separate secular and religious, religion and politics: ‘‘The Muslim’s life is lived with a vivid sense of the presence of God, and the inescapable working of the divine destiny’’ (Baasher, 2001; Loewenthal et al., 2001). The performance of religious tasks is perceived to overcome these human weaknesses and hence to improve mental health (Loewenthal et al., 2001; Segal et al., 2002).

Saudi society is strongly influenced by Islam, and the moral values imposed by religion have a major effect on individual behaviour, in both the educational and social domains (Al-Garni, 2002). In a study of a sample of almost 3,000 persons, it was found that religious commitment significantly lowered rates of anxiety disorder (Koenig et al., 2001). Dorahy and colleagues (1998) examined the relationship between life satisfaction and religion across gender in four cultural groups and found a general positive association. Ellison (1991), among others, has suggested that the cognitive aspects of religion and stable religion belief have a good effect on life satisfaction. Eltaiba (2003) found that Muslims with mental health problems can benefit from healing strategies, using the Quran, regular prayer and fasting.

Considering the relationships between anxiety, depression and religion, several studies have found that people with religious commitment experienced significantly lower rates of anxiety disorder compared to non-religious groups (Koenig et al., 2005). Similarly, Fatimah El-Jamil (2003) found that high religious commitment served as a protection against depression and anxiety in Lebanese and American participants. In a similar vein, Harris (2002) indicated a significant negative relationship between religiosity and trait anxiety. Great emphasis is placed in the Arab world on conformity to norms and standards, which sometimes do not relate to religion (Al-Hammadi, 2000). For

example, almost all Saudi women believe that Islamic law makes no demand that women should confine themselves to household duties, and early Muslim women were found in all walks of life. However there are some who still consider as novelties, certain rights of women (Khusaifan, 2005). In addition, many women feel an inequality between men and women, which can cause them stress (Kayal, 2007).

Research has shown that religion plays an important role in adolescents' lives, positively impacting their academic performance, educational aspirations, worldview, and optimism about the future (Regnerus, et al., 2003). Being religious has also been associated with adolescent psychological well-being, positive self-concept, and good physical health (Koenig et al., 2001; Ellison, 1991). Young people who are religious are less likely to engage in risky behaviours such as smoking, drugs, and alcohol use (Hays et al., 1986; Woodroof, 1985).

In a recent study of adolescent religiosity, Schmidt (2003) finds that adolescents who report higher levels of religiosity, compared to those who consider themselves non-religious, perceive their families as more supportive and challenging. Support refers to family interactions that can be characterized as warm and caring, whereas challenge refers to interactions where children are encouraged to do their best. Family support and challenge have been shown to be indicators of "good parenting" that influence adolescent achievement and ambition (Csikszentmihalyi & Schneider, 2000; Schneider & Stevenson, 1999).

3.9 Cultural differences

Culture has been defined as a set of rules or standard that produce the range of behaviour considered proper and acceptable (Haviland, 2000). Culture, then, includes a variety of learned concepts and behaviours such as gender roles, decision making and verbal and not verbal communication.

It has been found that culture can affect stress and coping in four main ways. First, the cultural context shapes the types of stressors an individual is likely to experience. Second, culture can impact the appraisal of the stressfulness of a situation. Thirdly, culture impacts the choice of coping strategies that may be utilized. Finally, the culture makes available a variety of institutional mechanisms by which an individual can cope with stress (Aldwin, 2007). Until recently, cultural issues in the perception and measurement of psychopathology have received little attention (Kitayama, 2002). Psychological disorders may vary in degree, diagnostic pattern and expression across different cultures (Reid, 1995). For example, it has been found that, the rate of any mood disorders were much lower in Mexico, China and Japan than in the United States (Demyttenaere et al., 2004). There is a considerable variation in the rates of depression across countries (Keyes & Goodman, 2006). A broad body of research suggested that there is a considerable variation in the rates of depression across countries and they indicated that, certain components of culture contribute to the patterning of depression among women (Keyes & Goodman, 2006). Another aspect of culture that may affect reports of mental health is the way in which people learn to present their symptoms. In many Asian societies, the self is conceptualized in term of group harmony and interpersonal relationship. With regards to expressions of mental health problems, these

societies are often discouraged the reporting of such problems. In other words, although they can talk easily about their physical problems, they do not talk about their psychological problems (Keyes & Goodman, 2006).

The available western literature although valuable, does not necessarily generalise to other cultures for example, social structures, roles and relationships are different in the Arab culture, compared to western cultures. Family life, dynamics, and expectations are very different (Kayal, 2007). For example, College students in Arab countries continue to live at home, usually until they get married. In addition, the structure and values of the family, the status of men and women are also different. For example, the patriarchal structure and lifestyle of the Arab family are affected by major values such as cooperation, mutual support, mutual responsibility, family cohesion and solidarity, harmony among family members, and family privacy. Therefore, the family is expected to provide support and security at times of personal, spousal, family, and social distress (Barakat, 1993; Haj- Yahia, 2000). In this connection, the success or failure of one family member concerns the family as a whole and is not just a personal matter. Thus, every family member assumes responsibility in most cases for the behaviour, needs, and living conditions of the others (Haj-Yahia, 1995). The commitment to provide family members with assistance also derives from the belief that most family problems are an internal family matter and that outside parties should not be involved.

Several studies have pointed out variations in the ways that people from different cultures tend to cope with life stress (e.g., Jose et al., 1998; Waterkins et al., 1997, Siu & Shek, 2010). According to Mulatu and Berry (2001), explanations underpinning mental distress are often fundamentally different in western and non-western cultures. Hence,

mental health, illness and healing needs to be understood within the context of a society's or community's cultural and social system (Chang & Kleinman, 2002; Ruwanpura et al., 2006).

Cultural influences can also be crucial in shaping an individual's coping patterns. Although coping is a universal process, cultural background and values may shape which coping patterns are appropriate and valued in a given society (Lazarus & Folkman, 1984). When comparing primary control coping (i.e., changing the existing environment to fit the individual's needs) to secondary control coping (i.e., changing the individual's feelings and thoughts to adjust to the objective environment), studies indicate that secondary control is emphasized more among individuals from Asian cultures than among those from Western cultures (McCarty et al., 1999; Oerter, et al., 1996).

A cross-national study by Jose et al. (1998) indicated that Russian adolescents report that they are less likely to use externalizing coping and more likely to use social support and problem-solving coping compared with American adolescents. Whereas Chinese culture emphasizes the importance of interdependence and conformity, American culture emphasizes independence and individualism (Chen et al., 1998). Thus, the coping strategies used by western adolescents may not generalise to adolescents in non-Western cultures, such as the Saudi culture.

In a cross-cultural study, Frydenberg and colleagues (2003) focused on a comparison between Australian, Colombian, German and Palestinian adolescents using the Adolescent Coping Scale (Frydenberg & Lewis, 1993). This research found that coping strategies are relevant for particular communities. For example, 'physical recreation' as a coping strategy was ranked second for German young people, but it was

ranked in 16th place by Palestinian youths, indicating the importance of understanding culturally determined activities and the links between these activities and coping behaviours (Frydenberg et al., 2003).

According to Kwan (2002) the expression of emotions and concept of personality has a cultural impact. There are also cultural variations in the suitability of certain expressions of emotion, such as laughing and crying. Emotional expression also impacts on the individual cognitive appraisal of a stressful situation. Murssi (1987) investigated the personality traits of adolescents in Saudi Arabia. His study aimed to examine the correlations of adaptation problems with self-confidence, self-sufficiency, achievement, motivation, anxiety and hostility. The results of Murssi's study revealed that Saudi adolescents showed low self-confidence related to high independence and general anxiety.

Furthermore, Murssi's study demonstrated that Saudi adolescents are dependent (financially and emotionally) on their parents, particularly their fathers. Al Mofadda (1993) examined sources of satisfaction among Saudi adolescents. The results indicated that adolescents (aged 16-19) believed that friends are the most important source of support, help and relief. They indicated that family came in fourth place after school and worship. However, the results from Al Moffada's study can be attributed to the seeking of independence and freedom by Saudi adolescents from the restrictive role of their parents. Parents may lack knowledge about adolescents' needs and requirements.

3.10 Chapter Summary

In this chapter, models of social-problem solving as defined by leading figures in the field were presented. Then, discussion of the role of stress, its link to distress and social-problem solving and its effect on college students and young adults we reported. After that, the roles of social support and life satisfaction have been illustrated. Finally, cultural differences in term of stress, distress, coping strategies have been proposed and more specifically, in relation to young adults in Saudi Arabia, were also examined.

External stresses for adolescents (normative stressors) include developmental challenges, such as changing school and high demands at school. Non-normative stresses can include, for example, life changes surrounding divorce and loss of family and the daily hassles of chronic parent–child conflict (McNamara, 2000). Normative stressors and accumulated daily hassles among teenagers can become predictors of mental health problems (Carter et al., 2006).

Effective coping with life events is a process where individuals think and assess what should be done and what specific actions and behaviours are appropriate. The individuals then make necessary behavioural changes to overcome the stressful situation (Lazarus & Folkman 1984). They develop strategies to reduce the physical or psychological pain that results from daily life events. The effective use of available resources can lead to successful adaptation and decrease the impact of the problem (Gibson-Cline et al., 2000). Previous research also supports the view that ineffective coping strategies (e.g. avoidance and carelessness) are associated with negative emotions, such as depression, anxiety, and anger. Overall, research suggests that perceived social support and psychological symptoms are negatively correlated (Wong et al., 2007).

Coping with stress in adolescence and young adulthood is an important topic because of the specific stressors associated with this dynamic life stage. This chapter has evaluated previous relevant studies in the West, Saudi Arabia and other Arab countries. It may be important to note that, researchers caution against simply applying coping programmes from one community to another without first gaining an understanding of the community in question; one should not assume that coping will necessarily be the same in different student populations (Frydenberg et al., 2003).

It also has been found that, young people with low life satisfaction may experience problems in positive development, while young people with high life satisfaction can have well-adjusted and have healthy lives, despite stressful circumstances. Studies also confirm that, the influence of religion on subjective well-being has also found enhancing significantly both cognitive and affective perception of life quality.

Because college students are a unique group experiencing distinct environmental, situational, and interpersonal stressors, they are an important population for studying potential stress management techniques. The findings show that stressful events can affect mental health in college students in different cultures. Stressors are different for different people; that is, what may be stressful to one person may be perceived as no threat whatsoever to another. Additionally, what may be stressful for a person at a particular point in time may not be perceived as stressful at another (D.Zurilla et al., 2004).

These findings lead to the conclusion that there may be differences among non-Western, Islamic and Arab communities regarding stress and coping strategies, while they may have the same outcomes of stress. It means that theories from western culture might have relevance to Arab culture, in spite of cultural differences. It is clearly important to conduct further research on stress and coping in adolescents and young adults in the Saudi Arabian context. The next chapter will illustrate the result of the first study which is a qualitative study.

CHAPTER FOUR: SAUDI YOUNG WOMEN'S VIEWS ON STRESS AND COPING (EXPLORATORY STUDY)

4.1 Introduction

Chapter 3 argued that there is a cultural impact on the level of stress experienced and the strategies that people use to solve their problems. This chapter aims to explore the types of stress and the social-problems that are faced by young Saudi women, along with their commonly used coping styles or strategies. In this exploratory phase, qualitative approaches were employed. Qualitative research is a subjective approach, which comprises examining and reflecting on perceptions in order to understand social and human activity (Collis, 2004). This chapter describes the development of semi- structured interviews in line with the social-problem solving model of D'Zurilla et al. (2004), in order to examine stress and social-problem solving in young Saudi college female students in Saudi Arabia.

4.2 Aims

1. To understand the nature and magnitude of socia-problems and stress faced by young Saudi women.
2. To identify the coping styles and strategies young Saudi women commonly use when faced with difficult situations.
3. To utilize this information to select questionnaires for use in the quantitative study.
4. To identify whether there are issues specifically relevant to young Saudi women that need to be addressed in the next studies.

4.3 Purpose of the Study

The purpose of the study is to increase our understanding of the problem solving strategies, and resources that Saudi young women utilize in everyday life, as well as to look at the impact these problems can have on their lives. Semi-structured interviews were conducted to identify the most common social-problems that affected young Saudi women's lives, as well as the problem solving style that they used to cope with their problems. The data coded from the interviews was analyzed to:

(1) Describe the relevant problem orientation processes the women went through when faced with problems.

(2) Describe the problem solving strategies.

(3) Describe the social resources the participants felt were helpful.

(4) Identify any personal or environmental constraint to solving problems.

4.4 Method

4.4.1 Participants

Twelve female undergraduates volunteered to take part in the research. A snowballing technique was used, where respondents were asked to suggest others whom they knew in the target group and who could be invited to take part. The disadvantage of this technique is that it is limited to members of a specific network. Participants were from the women's campus of King Abdulaziz University in Saudi Arabia. All were Saudi citizens; their mean age was 21 years (SD = 1.59). Ten of the sample were single, one of them was divorced, and one was married. The distribution of the participants' number of years in college was as follows: seven of the participants were

Freshers, two were Sophomores, two were Juniors, and one was a Senior. Seven were from the Social Science School, three from the Business School, one from the School of Medicine and one from the Home Economics School. Regarding their general point average (GPA), $n = 5$ of the students had level 4.5 or above (A), two had a B, three had a C and two had a D. Nine of the sample considered themselves middle-class, two high-class, and one low-class.

4.4.2 Procedure

Ethical approval for this stud was obtained from the Psychology ethics committee of the School of Psychology, University of Southampton. Permission was also obtained from King Abdul Aziz University before data collection began.The interviews were carry out in a private room in the School of Psychology at King AbdulAziz University in Saudi Arabia. Students signed the consent form to participate in the study. The researcher then contacted the students to arrange the time of the interview. Before starting the interviews, the researcher explained the project, summarized the conditions of consent, and informed students about confidentiality, and about the participant's right to withdraw from the study at any time. During the interview, the students could refuse to answer any specific questions or decide to terminate the interview at any point.

The tape-recorded interviews were carryout in a relaxed manner. Audiotape was used to reduce the risk of researcher bias. The interviewer carries out a semi-structured interview, each lasting for a period of 45 - 60 minutes.

4.4.3 The interview protocol

The interview protocol was a semi-structured interview based on the central research questions. It was developed by a multicultural research team, which included clinical, developmental psychologists and counsellors. Drafts of the interview protocol were then circulated among research members, for comments and suggestions for revision. The aim of this procedure was to ensure that all target areas had been covered.

The semi-structured interviews consisted of the following sections:

(See Appendix 1 for more details)

1. General problems
2. Personal problems
3. Feelings associated with common personal problems
4. Emotional expression/regulation
5. Coping – general
6. Coping- specific/rational problem solving
7. Coping - with social versus non-socia-problems
8. Coping - Insight
9. Coping – not coping
10. Coping- style
11. Support
12. Assessing outcomes
13. Learning
14. Alternatives
15. Teaching

16. Advice

17. Further information

4.4.4 Interview content

The interviews consisted of several steps:

(1) Introduction: This section included a general introduction to the project with the intention of establishing rapport and orienting participants to the interview process. During the introduction, it was emphasized that the interviews were about the participants' stress experiences and how they coped with it.

(2) Sources of stress: Participants were asked to describe the types of problem that they usually faced.

(3) Methods of coping with stress: Participants were asked to describe the coping strategies they used to reduce and prevent stress.

(4) Participants' mental health: they were asked about the common feelings they may experience when they face problems.

(5) The role of social support: the aim of this part was to discover who the most supportive person was, and what type of support they usually obtained. Section five investigated ideas about the coping strategies used and which of these strategies was the best for them.

(6) This section considered perceptions of factors affecting problem solving processes, solutions, decisions, and the way to deal with them, which might be positive or negative.

(7) Summary: the researcher thanked each participant for her co-operation.

4.4.5 Pilot work

The semi-structured interviews were tested on three volunteer female university students. The pilot testing was to enable the interviewer to practise and refine interview techniques, to have an idea about the length of the interviews, and to increase the clarity and understanding of the protocol. These three interviews were transcribed and reviewed by the supervisors to improve data quality. These interviews were not included from the data analysis.

4.4.6 Data reduction: codes, categories, and definitions

The subjects' responses were submitted to qualitative data analysis. Qualitative methods are an important way of understanding a person's experiences and they can give more detail about phenomena that are difficult to convey with quantitative methods (Coolican, 2004). The purpose of the qualitative research in this study was to capture individuals' meanings, definitions, and descriptions of events. Participants could discuss the factors related to stress, how they cope with it, and their problem solving strategies. Content analysis was used in all cases, because it allows objective analysis of meaning. It is a research technique for the objective, systematic, and quantitative description of the manifest content of communication, and involves classifying it in such a way as to identify its basic structure (Wolcott, 1992). Researchers who use content analysis create a set of categories that clarify the issues under study and classify content according to those predetermined categories (Abercrombie et al., 2000).

The transcripts were analyzed in a series of stages. First, the researcher transcribed verbatim the interviews in Arabic from audio-tapes using a Microsoft Word processing format. The researcher selected another person who was not a participant to

listen to the tapes and to review and edit the transcriptions to ensure that the documents conveyed well what the participants had actually said during the interviews. This technique increased the authenticity of the data and constituted with what Lincoln and Guba (1985) described as a member check. Then, the transcripts were translated into English. After that, the researcher read all the transcripts and categorized the data to develop and identify initial themes. A joint meeting between the researcher and supervisors was held to discuss the themes. Categories and themes were modified and reworked by merging and linking them. The analysis identified six major themes: problem type, feelings associated with problems, factors affecting problem solving, the consequences of problems, coping strategies and social support (see Table 4.1). This study used these themes as the meaningful unit of analysis. When using themes as a coding unit, the researcher was primarily looking for the expression of ideas (Minichiello, 1990). Thus, codes were assigned to a chunk of message of any size as far as they together represented a theme.

The next step was to develop categories and a coding scheme. To develop codes grounded in the participants' responses, the research team studied the transcripts together and developed a starting list of codes and definitions based on themes. Codes were grouped into categories and a coding system was developed. The coding scheme was derived from three sources: the data themselves, previous related studies, and the social-problem solving model. An instruction system was developed, which consisted of category names, definitions of codes and examples (Weber, 1990).

After that, the coding scheme was tested on sample text. The process of segmentation was tested for reliability by three instructors. The text analysis was intensive and written by hand. The hand analysis of qualitative data involved reading the data, marking by hand, and dividing it into parts (Creswell, 2002). The coders independently rated five transcripts using the coding system. An open coding session was then used to check inter-rater reliability, resolve any discrepancies, and further develop and adapt the coding system. Inter-rater reliability was determined by comparing the level of agreement between the two raters; the Kappa index was used for that purpose. Although the target percentage of agreement was 70% (Kappa = .70), 80% agreement was achieved (Kappa = 0.80). The intra-rater reliability as reported in this study is considered to be excellent. Finally, the coding rules were applied to code all the transcripts.

Table 4.1. *Themes emerging from content analysis of student interviews*

1- Type of problem

Impersonal problems	Financial problems
Personal problems	Emotional (e.g. romantic problems, emotional needs) Health problems Cognitive (e.g. setting goals difficulties) Many commitments and responsibilities
Interpersonal problems	With family (parents/siblings) With friends Varying difficulties when interacting with others
Community and cultural problems	Gender inequality Stringent values and principles Finding it hard to meet cultural obligations Feeling of non-freedom

2- Feelings associated with problems

General emotional distress	Feeling lower self-esteem, nervousness, confusion and upset
Depression	Feeling sad, blue, worthless and hopeless
Anxiety	Feeling fearful and worried
Anger	Feeling frustrated, irritated mad, fractious, cross and aggressive
Guilt	Feeling shame and self-blame
Loneliness	Feeling bored, detached and isolated
Relief	Feeling relaxed and happy

3- Factors affecting problem solving (barriers /difficulties/challenges)

Culture	Influence of norms, religion and values
Personal	Lack of confidence, illness, lack of experience
Family	Lack of parents
Financial	Inability to pay. Being from a low-class family
Practical	Lack of skills and abilities
Social	Lack of social approval, misunderstanding from others and lack of resources

4- Outcomes (Consequences)

Personal	Causing financial, physical, and emotional problems
Social	Inability to hold down work, breakdown in relationships
Positive learning	Improvement in communication skills, improved self-confidence or consideration of the problem as a challenge
Negative learning	Low self-esteem and self-criticism, becoming less productive, lacking enthusiasm

5- Coping style

Rational problem solving style	• Rational, deliberate, and systematic application of effective problem solving skills • Clarifying and understanding the problem, gathering facts about the problem • Changing the situation for the better • Accepting the situation • Minimizing emotional distress • Anticipating the consequences of the different solutions/judging and comparing them • Evaluating the outcomes of the chosen solution • Self distraction (turn to work)
Impulsiveness-carelessness style	• Narrow, impulsive, careless, hurried, and incomplete attempts • Going with the first idea • Scanning solutions and consequences quickly, carelessly, and unsystematically • Monitoring outcomes carelessly and inadequately
Avoidance style	• Procrastination, passivity or inaction and dependency • Putting off problem solving for as long as possible • Waiting for problems to resolve themselves • Shifting the responsibility to other people
Using religion	• Turning to religion • Increasing engagement in religious activity (e.g. praying, asking God for help).

6- Social support: Getting and seeking information, help, comfort and caring

1-Type of support: A- Emotional B- Informational	Seeking emotional social support, getting empathy, sympathy or understanding from someone Seeking instrumental social support, seeking advice, assistance, affirmation or information about what to do
2-Sources of support	Family, Friends, Teachers and Internal

4.5 Results

4.5.1 Theme 1: The type of problems

Endorsed more than one problem are constructing in their lives. All students reported that their problems were mainly interpersonal and personal.

Interpersonal:

"After I started the university, I found difficulties in my relations and contact with the girls in the study or fellowship. And there is also a difference in thinking. These things made me upset. I felt jealous when my friend left me for another friend" J

"I can't discuss things with my family as I wish. It is difficult sometimes to approach them, in spite of the fact that there is a possibility of understanding each other. But because we are far from each other in logic and thinking we couldn't come together" B

"My father refused to let me go abroad for my post-graduate studies" D

Personal problems:

"I took an area of study that I don't like and I have a feeling that this will not fulfil my ambition, so I may not be able to finish my studies easily" W

"… I have to do a lot of things at the same time" J

Community problems were raised by nine students (75 %).

"I feel some sort of division in the community, for instance in our traditions and customs. The husband may leave and travel abroad and do all kinds of shopping alone, and he forbids his wife from doing so inside the kingdom" J

"I am a type of a girl that likes to be free, I like to drive a car, and these are not accepted here, but if I live outside I can do all these things freely" L

"I feel that there is inequality between boys and girls" D

"Once I fell in love with a boy, and he came to my family asking their agreement for an engagement, but my family didn't agree and refused him. And they refused him because his parents were unknown to them. He was adopted by a rich family as a small boy. But because of tradition, they refused a polite, brilliant, well educated person" B

Another finding was that problems were linked to each other. Personal problems may lead to difficulty in personal relationships and dealing with other.

"Do you know that I always prefer to cut my hair and wear boy's clothes, but I face a social-problem and they consider me a bad girl, I consider it as my personal freedom" L

4.5.2 Theme 2: Feelings associated with problems

In this section participants were asked five questions regarding their feelings associated with socia-problems. Typically three or four feelings were mentioned by each respondent, including, anger (n = 10), anxiety (n = 10), depression (n = 9) and guilt (n = 8). In addition, all students reported experiencing general feelings of distress.

"I used to weep often and people around me knew this characteristic. This weeping makes me feel relieved, and I used to do it whenever I passed through an odd situation. I wept so much when I got divorced from my husband, and I used to lock myself in my bedroom. If somebody asked me why I was weeping I didn't tell" A

"I feel upset about my relatives' problems, like my sisters and friends who are very close, and I don't care much if I have a problem with somebody else" H

"1 cannot control it. I get nervous, restless and cannot control myself" B

Feeling Anxious and worried was also evident in some participants' responses (*n* =10).

"… if there is a family problem I'll be worried till the problem is solved" W

"I get worried and anxious all the time, especially if the problem is with one of my relatives" B

Depressed feelings were also evident in most of the participants' responses (*n* = 9).

"I feel depressed and absent, but after a while I resume my normal life, not caring too much about friends" W

"Of course I feel depressed but in the end I do what I want anyway, even behind their backs and even if they don't agree" B

Also, several examples of angry affect were noted in a number of participants (*n* = 10).

"I felt angry, I don't talk with the person that I am angry with, but I talk too much with others. I might weep, and sometimes I keep silent" A

"I get angry when someone tries to undermine my work or stops me from doing my work but I insist and continue my work" W2

Eight participants reported that sometimes they felt guilt and blamed themselves for negative events.

"I felt guilty because I have not done well to get a high percentage in my certificate" L

4.5.3 Theme 3: Factors affecting problem solving

The fourth part of the interviews contained three questions (see Appendix 1). Among the factors that affected problem solving, the protocols revealed that the majority of participants (n = 11) reported them as being personal:

"Being young played the major part, I wasn't aware of my duties towards my husband, and I didn't feel happy with this man, because if I felt happy I could have overcome all these obstacles and continued with him" B

"Because I got tired and problems come to you from all directions, I started to become nervous, and I am afraid that I am going to collapse one day" J

"Because I have a lot of problems I couldn't resolve them… there were a lot at the same time" W

"Before I thought I am not mature and have no experience" A

Nine participants mentioned factors related to family affecting problem solving.

"I could not resolve it because my mother prevented me and she did not let me go to my friend to solve the problem. My mother doesn't understand me at all" H

Regarding cultural factors six participants believed that it was an obstacle stopping them from solving their problems.

"The problem is that, this is unacceptable in this country so I can't solve my problem because the law prevents me from doing that" W2

"My father was like a stranger to me. He did not communicate well with me. The only time he communicates was through instructions or giving orders" H

Ten participants also described several outside influences that had an adverse effect on how well they coped with their problems.

***"I couldn't find someone to consult at the moment, and I hadn't faced a situation like this before*" A**

"She is far from me in another town, and it is difficult to reach her, but anyway my pride prevented me from running after her" M

"I was away from my friend, she left Saudi Arabia to live outside, and I used to see her once every 4 months. So this period of living outside cut my intimate relation with my best friend. If I want to regain that friendship again this may take another 3 years" W

4.5.4 Theme 4: Consequences of problems

When participants were asked to discuss how their problems impacted on their life, all of them reported that the effect of the problems was personal. For example most of them cited changes in health, both physical and psychological, as being some of the immediate outcomes.

"The problems that I faced affected my eating and my sleeping. I could not sleep or eat as usual"

"I felt tired and I felt that I am unhappy person"

"During this bad event I felt I needed to eat a lot, I was just eating, and my weight kept increasing so I felt I got more sad and depressed"

Seven participants mentioned that the problem affected them with regard to their social lives.

"She ignored me. I knew this would affect me in the future because she will teach me again and she may do the same thing" **H**

"Problems affect my studies and I feel unable to work" A

"Problems with my studies might lead me to remain at home, not going out or talking to anybody" W

1-Positive changes

Ten participants said that the problems that they faced had a positive side and enabled them to solve their problems better in the future, and had changed them for the better declared

"Its effect will be positive; I have good experience because I learned from my problems" B

"I know I made a mistake but I learned a lesson" A

"Now I feel I am mature and I discovered that I have changed for the better, and now I am happy. I changed my behaviour and became successful in my interactions with all types of people. And at last all this success is from God" J

2-Negative changes

Eight participants, however, the consequences of the problems affected them negatively.

"So that affects my life negatively now I can't trust anybody, even my family" M

"Now I understand that all people are two-faced and liars" B

"It also means breakdown in my family" H

4.5.5 Theme 5: Coping style

In this section, participants were asked eleven questions related to their coping strategies. Most of the participants used several coping strategies with different actions.

1- Rational problem solving

All participants stated that they utilized an active coping strategy, but the majority mentioned that they don't follow this strategy with all problems.

"I have to know the problem, the reason for the problem and who created it. I have to know how the problem partners think, so that it is easy to deal with them. Lastly I look into the proper solution that satisfies all partners" D

"I look into the problem and its limits, then the appropriate solutions and the alternatives, and I jump to the easiest, fastest, and most suitable solutions. If I fail in

this I try other solutions, and so on. I continue trying till I reach the proper solution, even if I tried twenty times"

2- Impulsiveness-carelessness style

Nine participants thought that they had tried their best to improve their solutions; however they did not consistently follow any one coping strategy for all problems.

"I try to go to the first solution that comes to my mind; this is usually what I do when I face a study problem" B

"…I chose the easiest solution" W

3- Avoidance style

All participants suggested that they usually do things to take their mind off their problems. Almost all of them chose watching television, talking on the phone, visiting relatives and shopping as the most preferable activities.

"Weeping, being outside the house for long periods of time, sleeping, watching TV films, and I try not to think about my problems" J

"I try to avoid problems as much as possible" A

"Sometimes I fear facing it, and escape it" H

4- Using religion

Eight participants thought that God would take responsibility for change and they asked him for help. A common theme of coping shared by some female participants was the use of religion.

"First thing I do is Istikhara (pray and asking help from God)" W2

"'When I have problems I always ask the help from my God and pray and say Dowaa" L

4.5.6 Theme 6: Social support

This section focuses on social support from two different perspectives, the type of support and source of support. Seventy five percent (n = 9) said that they asked someone for support and help as a method to solve their problems and they found that surrounding themselves with supportive, understanding people was particularly helpful.

All of the participants mentioned their friend as the person whom they asked for support.

"I usually have more than one friend. When I feel stressed by one friend I go to the other friend and tell her about everything, so that she might share my worries and upsets. And sometimes I go to a friend asking for advice. I share my friends so that each has a specific character. So for each type of problem I seek the advice from a particular friend. I believe in diversity of friends" A

"When I have any problem I always turn to my best friends" W

Seven of them emphasized the role of family as a source of support. Six participants asked for and received support from their sisters, and only one mentioned that she may ask her father for help. (None of them mentioned mothers.)

"I depend mostly on my sisters. They help me greatly in financial, educational, and socia-problems, not in giving me money but in how I spend it the right way. But my

***friends lack experience, so I don't consult them, and mostly I don't tell them my problems*" H**

"I always look for help, for example, sometimes from my sister, if the matter concerns my studies. For example, I ask her to type something for me or such things" H

"I go to one of my sisters, and talk to her about my problem" J

One participant reported that she asked her boyfriends when she needed help.

***"Now, one person and he is a friend, he is a boy. And it is better that we do not allow many participants in our problems*" B**

Four of the participants (33%) reported that they ask help from God by praying and saying supplication.

"I pray to ask God for help and support" A

"When I have problems I always ask for help from God, pray and say Dowa'. I don't ask help from anybody" W

Two (17%) stated that they don't need support.

"I don't want any of my brothers to see me in a weak position. I always prefer to carry my own responsibilities and don't need any help from anyone. I am sociable, but I don't want anybody to interfere in my life" W2

"I don't think I need any help. No-one can understand me" L

As regards the type of support, emotional, and practical support were referred to equally.

"But if someone knows that I have a problem, he asks me to go outside to a restaurant or a coffee shop for a change" W

"Sometimes they insist that they know about what happened to me, but at that time I do not want to talk about the subject, but I might feel relief if I talk" H

"My sister helps me to idintify my weakness and she guides me to solve my problem by myself and follow different types of strategy" B

4.6 Discussion

This qualitative study reports how female undergraduates in Saudi Arabia experienced and coped with stress. The use of a qualitative design enabled in-depth exploration of how female students experienced and coped with their social-problems. Unlike quantitative research, this approach allowed a wide range of issues to be discussed.

Different types of problems were reported by participants during the interviews, the major categories of problems being interpersonal, personal and community problems. Regarding interpersonal problems, the interview results showed that the participants faced many problems in social interaction, which were mainly associated with communication, social situations, and social relationships. Previous research has also found that, in this period of students' lives, two primary sources of stress relate to

academic activities, and the negation and development of mature relationships with peers, colleagues, the authorities and family members (Larson, 2006). Similarly, Antonvsky (1987) argues that young adulthood is a time in an individual's life which is typically characterized by intense turbulence, confusion and self-doubt.

Community problems were the third most frequently reported source of stress for girls. Most girls reported feeling that there was unfair inequality with boys. This attitude was influenced by tradition, rather than by religious beliefs, because Arabic countries always glorify dominant and resolute men while religion regards the roles of both sexes as equally significant. Fakhr-El-Islam (2000), for example, argued that tradition maintains a hierarchical order in the Arabic family, in which the dominance of male over female and older over younger is observed. A son is given more freedom, authority, and responsibility than a daughter. The results showed that there was no one single or exact coping strategy that the girls used when faced with problems, with all applying two or more strategies when dealing with their social-problems. Although the majority of the girls mentioned that they used rational problem solving, most of them reported that this does not usually succeed. In addition, they stated that they frequently think about rational problem solving but do not put it into practice. Only one of them said that she followed this strategy most of the time. Although all of the girls mentioned rational problem solving as a strategy that they try to use, all of them reported that they used an avoidance style to cope with some problems. The results also highlighted that 75% of girls engaged in impulsive/ carelessness problem solving style. Frye and Goodman (2000) found that, among a sample of adolescent girls, NPO, AS and ICS scales were used as frequently and were highly correlated with BDI scores.

In addition, the same number of girls reported that they looked for support when facing problems. Previous research has found that young adults seek help more than older adults (Alea & Cunningham, 2003). Moreover, 67% of the girls valued the role of religion in helping them to cope and stay calm, and viewed it as a strategy for coping. Religion is often used by adults as a coping mechanism (Koenig et al., 2005). There is some evidence that praying, seeking religious help and talking to others about problems may be a coping strategy that alleviates depression in the general population (Wang & Patten, 2002). Most of the girls in the current research reported that they had received support from someone. They mentioned that they had an emotional bond, and expressed their negative feeling with sisters and female friends, and it was with them that they most commonly shared their problems, concerns, and interests.

The majority of the girls felt that they may have anxious and depressed moods, most or at least some of the time. All students also experienced general emotions such as nervousness and upset, and some of them reported that they do not enjoy life or things that they used to enjoy. Whisman and Kwon (1993) found evidence to suggest that depression, anxiety and worry resulting from stress can interfere with health and related behaviour, such as eating, exercising, and sleep, symptoms experienced by most of the interviewees.

Nearly all of the girls reported that had more than one negative feeling. The most common unpleasant feelings were depression, anxiety and anger. Lazarus and Folkman (1984) stated that stressful situations produce emotional reactions, ranging from exhilaration to common emotions of anxiety, anger, discouragement, and depression.

When asked to discuss how the social-problems impacted on their lives, eight of the girls stated that their problems affected their lives negatively, and they all said that these effects were personal (for example, emotions, abilities, health related behaviour and self control). Around half of the participants raised a point about the social effects of problems, in addition to the personal effects. These included, for example, an inability to hold down work, a breakdown in relationships, conflict with others and withdrawal. It is well-documented that the first year of college represents a highly stressful life changing experience, involving academic, social and emotional demands that may severely affect a student's coping resources (Nezu & Ronan, 1985; Weinberg et al., 1987). In the current study, most students mentioned that the problem affected them in their social lives and they had to find solutions.

All of the participants in this study described several outside and personal influences that had an adverse effect on how well they coped with their social-problems. With respect to external factors, the majority of participants highlighted the effect of social factors on solving their problems, for instance lack of communication with others, and misunderstanding with others. The second external factor that participants outlined as having complicated their coping process involved issues within family; most participants felt that trying to deal with the problems was often made more difficult by not being able to ask support from their mothers. In addition, their feelings were rarely acknowledged and often overlooked. Another external factor that participants identified as having had a negative effect on coping were cultural factors, including traditions, norms, and values. Fifty percent of the girls stated that cultural factors affected their way of solving their social-problems (e.g. strict values and principles). Ninety two percent said that personal

factors played a role with coping problems, for example, lack of confidence**,** lack of experience and lack of ability.

The findings from this study also confirmed that the environment that surrounds young adults is a powerful determinant of how well they cope with their problems. For example, at the level of the family, a lack of support, perceptions of parental overprotection, and the sometimes incongruent styles of coping each family member uses make handling the problems difficult for this group of individuals. With regard to individual social relationships, being surrounded by understanding people helps coping (Huang & Chiang, 2001, Schwarzer & Knoll, 2003). Finally, the larger social system within which the individual exists may either facilitate or hinder effective coping, based on the degree to which their ideals with regard to the effects of social-problem resolution are compatible with those of the young adults (Edwards & Trimble, 1992; Whatley et al., 1998; Hampel & Petermann, 2005). The coping skills individuals exhibit, as well as their surrounding environment, are important in determining their ability to effectively manage stress (Smith et al., 1990). These, combined with their personal characteristics, lead girls to exhibit either "adjustment" or "maladjustment" when resolving their socia-problems (Frydenberg & Lewis, 2004). According to Platt & Sigal (1976), adjustment is a term which refers to the ability to cope with problematic situations, whereas maladjustment refers to an ineffective performance of social roles, and the failure to obtain satisfaction from one's social activities. Finally, the study gave a clear idea about undergraduate students in the Saudi community. It also illustrated their stressors and the coping strategies most of them use. For example, religion was viewed as one of the most important coping strategies supporting most of the participants. Some students pointed

out some social-problems that are related specifically to Saudi culture (e. g., driving a car, the need for freedom, inequality ...). Since existing questionnaires that measure social-problems and stressors as well as coping strategies do not totally address these aspects and sometimes are not applicable to Saudi culture and life-style, the findings of this study emphasize the requirement to develop a new scale that reflects a conceptualisation of the social-problems faced by Saudi women and the identification of the coping strategies that they use to solve them.

To our knowledge this is the first study on coping and social-problems among Saudi young women. The results were compared with those of studies performed on western college students. Comparisons with other research results have to be understood with caution because of cultural differences.

4.7 Chapter summary

The qualitative interview asked the participants questions that allowed them to elaborate in their own words on the topics of the research questions. The questions addressed the ways in which participants cope with their social-problems, their mood, and how they seek help. In addition, it is highlighted that Saudi culture may have specific beliefs or traditions that must be accounted for in the translated and developed scales. The hypothesis that different people will have a different perception of stress, variable symptoms, and a variety of coping strategies was supported. All respondents reported different perceptions, different coping strategies, and some different symptoms. There were however similarities in general coping style and the consequences of the problems

in their lives, which include disrupted sleeping and eating patterns, a prevailing sense of loneliness and less successful relations with others.

This study provides a picture of how students in Saudi Arabia think about themselves, their peers and their families. Moreover, it indicates the problems they experience and the problem solving strategies they use. In addition, it was noted that religious and cultural issues were viewed as importantly almost all of the students.

These findings highlight that college students in non-western and Islamic societies (e.g. Saudi Arabia) share similar problem solving and coping strategies with the same outcomes as described in the western literature. For example, college students generally face daily problems, which may arise from both interpersonal sources, such as parental problems and intrapersonal sources such as changes in sleeping habits. Furthermore academic sources of stress arise from school-related activities and issues, such as an increased class workload or transferring schools. Finally, environmental stressors result from non-academic problems such as computer problems (Ross et al., 1999). The support role from family, friends, and significant others is essential, as it influences college students in most cultures (O'Brien et al., 2000; Zalaquett, 2005). Problems, such as, adolescent pregnancy and suicide are not common in Islamic culture. However other problems such as, females needing to prove their equality with men and pursue their freedom are more common in the Saudi culture.

This similarity means that the social-problem solving model (D'Zurilla et al., 2002) based on western culture might be appropriate to non-western culture if any cultural features and differences are taken into account. Although coping is a universal

process, one's cultural background and values may shape what coping patterns are appropriate and valued in a given culture (Lazarus & Folkman, 1984).

The next chapter explores and describes the procedures for developing a new questionnaire to reflect the sources of stressors and problem solving strategies used by young Saudi women. It will also describe the translation processes for all measures used in the main quantitative study, taking into account the psychometric properties of these scales and checking the validity and reliability of the Arabic versions.

CHAPTER FIVE: QUESTIONNAIRE DEVELOPMENT AND TRANSLATION PROCESS (STUDY 2)

5.1 Introduction

The aim of Study 2 was (i) to develop a questionnaire that reflects the sources of stressors and problem solving strategies used by young Saudi women (ii) to translate and test the conceptual and linguistic equivalence of questionnaires related to measuring stress, problem solving and mental health in a Saudi context and to (iii) establish norms for these questionnaires. The need to translate questionnaires related to social-problem solving and mental health reflected the lack of work carried out on exploring community mental health problems in Saudi Arabia (Khusaifan, 2005). It is also important to establish the equivalence of measures when translating a questionnaire from English into another language, to ensure the validity of the translated instrument. Therefore, a systematic process involving translation and adaptation of instruments was followed.

The following self report measures were translated into the Arabic language: Social-problem solving inventory - revised (D'Zurilla et al., 2002), The Perceived stress scale (Cohen & Williamson, 1988), the inventory of college student's recent life experiences (Kohn et al., 1990), The brief COPE (Carver, 1997), The Multidimensional Scale of Perceived Social Support (Zimet et al., 1988), and Life satisfaction of young Saudi women (Arab, Hadwin, Stopa & Sonuga-Barke, 2006).

Cross-cultural research has led to a need to translate instruments from one language to another. If the instrument is to be used appropriately, then the process of

translation must include validation (Banville et al., 2000). The cross-cultural adaptation of questionnaires for use in a new country, culture and/or language requires a unique methodology in order to attain equivalence between the original source and target languages. It is now recognized that if measures are to be used across cultures, then the items must be translated well in terms of linguistic skill and also adapted culturally, in order to maintain the validity of the instrument. For example, it is possible that some concepts exist in one culture, but are not meaningful in another (Brislin, 1980; Hui & Triandis, 1985). Therefore, it is crucial to check the validity of instruments in different cultures. After initial translation, equivalence of meaning should be checked, where this process has been considered an important aspect of translation (Nida, 1964). Banville et al. (2000) noted that the translation process should take place before any research is conducted using the instrument. The translation process should be considered as a pilot study to determine whether or not the instrument is appropriate for the target population. In order for the research to be comparable with Western studies, it is important to use well established measures. However, some concepts are culture specific, which makes it essential to delete or change some items.

This chapter contains outlines of the aims of the study and describes the procedures and instruments used in it. It also examines the psychometric properties of the translated questionnaires. The translation and adaptation process will be illustrated, and will include (a) cross-cultural adaptation, (b) pre-testing and (c) analysis of validity, reliability, internal consistency and factor analysis.

5.2 Purpose of the study and research questions

The general purpose of this study is to translate the scales that measure social-problem solving, stress, coping and social support in Saudi culture and to assess the equivalence of Saudi and Western versions of the SPSI-R, ICSRLE, PSS, Brief COPE and MDPSS. In addition, this study aims to measure psychometric properties, as well as establishing norms for all these scales and for already translated questionnaires, including STAI-T, STAEI-T and BDI. To achieve these goals the following specific research questions were addressed:

1. To what extent are the questionnaires applicable to Saudi culture?
2. What is the reliability of the developed, translated, and modified questionnaires?
3. What is the validity of the developed, translated, and modified questionnaires?
4. What are the factor structures of the Arabic version?
5. Are the validity and reliability of the scales maintained in the Arabic versions?

5.3 Questionnaire development

The results from the first study highlighted the necessity for developing a questionnaire that is appropriate for the social and cultural context of Saudi Arabia, especially for the sample of Saudi women.

The 'life satisfaction of Saudi women' (LSYSWQ) questionnaire was designed to assess the problems that many Saudi women have faced and how they use religion to cope with these stressors. It is a self-report questionnaire that has 29 items, divided into four sub-scales, which are religion (9 items), family (9 items), and culture (11 items). Respondents were asked to rate their responses on a 4-point scale (never, sometimes, often, always).

Four sources of information were used to develop the content of the LSYSWQ: firstly, the literature on Saudi women and adolescents and their well-being; secondly, existing religious measures; thirdly, expert opinions about problems commonly reported by Saudi adolescents (these experts were counsellors and social workers at the King Abdul Aziz University and high schools in Saudi Arabia); fourthly, qualitative semi-structured interviews were conducted with 12 participants and used to verify the concepts that might relate to the measures.

The development phase of the questionnaire included three steps. First, potential items for the questionnaire were created and compiled following the results of the interviews described above. Items were chosen specifically for their potential value, and scaled responses were used, generally on the basis of problem frequency. Secondly, the initial items that were developed and compiled were reviewed by three experts. Each

reviewer evaluated the items for language, content, relevance and completeness. The items were revised according to their critiques. Thirdly, the questionnaire was translated into Arabic. The researcher followed Vallerand's (1989) methodology for cross-cultural application in the psychology field; the application of this methodology to translation is described in the next section. Lastly, the items were piloted on 28 female undergraduate students from King Abdul-Aziz University, the purpose being to identify ambiguous or misleading items.

5.4 Methods

5.4.1 Procedure

In this study, the methodology developed by Vallerand (1989) to translate and validate questionnaires and inventories was used (see Figure 5.1 below). The translation method is well known and recommended as a rigorous process that can highlight weaknesses in instruments that other methods may not (Banville et al., 2000). Vallerand's (1989) translation method includes several dimensions: a back translation technique, a bilingual committee, and statistical procedures that contribute to the provision of an applicable and rigorous cross-cultural translation technique. The dimensions and the various techniques used to translate and adapt the measures in this study will be illustrated later in this chapter.

Vallerand's (1989) proposed seven steps to translate and adapt measurements are:

(1) Preparation of preliminary versions of questionnaires;

(2) Evaluation of preliminary versions and preparation of an experimental version;

(3) Pre-test of the experimental version;

(4) Evaluation of the concurrent and content validity;

(5) Evaluation of the reliability;

(6) Evaluation of the construct validity;

(7) Establishing norms.

A systematic procedure of translation and adaptation of the instruments was followed, so that cultural equivalence from the English to the Arabic version of the item statements would be achieved. Before starting translation, permissions for the translation and use of all questionnaires were obtained from the original authors of the instruments. For those instruments not available in Arabic, English questionnaires were translated into Arabic by the researcher and a professional translator. The characteristics of the participants who responded in the translation study varied as each step in the translation processes required different approach and a different sample size. Therefore, the sample characteristics will be described in each step in the translation technique section.

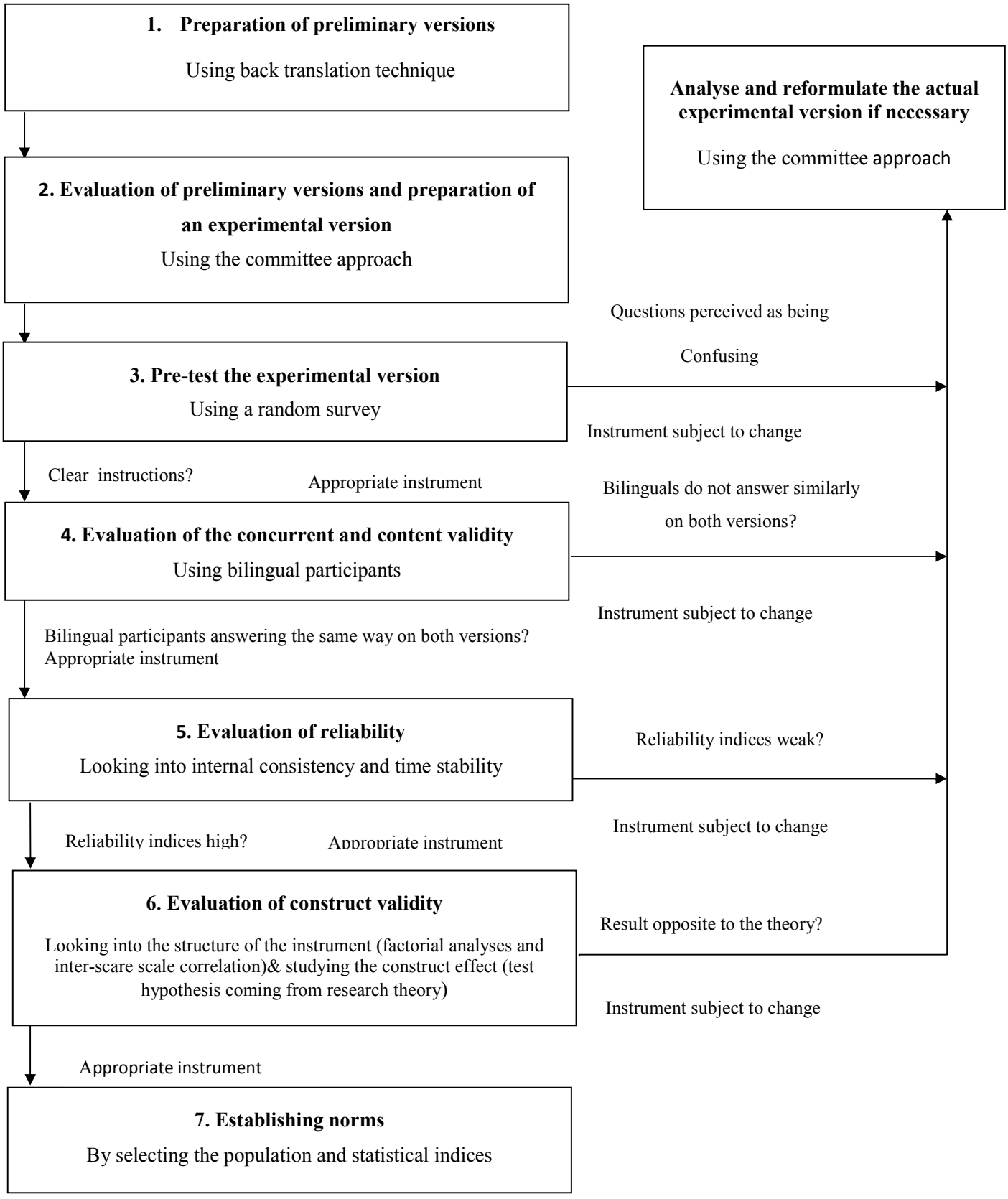
1. Preparation of preliminary versions
Using back translation technique
Analyse and reformulate the actual experimental version if necessary
Using the committee approach
2. Evaluation of preliminary versions and preparation of an experimental version
Using the committee approach
Questions perceived as being
Confusing
3. Pre-test the experimental version
Using a random survey
Instrument subject to change
Clear instructions?
Appropriate instrument
Bilinguals do not answer similarly on both versions?
4. Evaluation of the concurrent and content validity
Using bilingual participants
Instrument subject to change
Bilingual participants answering the same way on both versions?
Appropriate instrument
5. Evaluation of reliability
Looking into internal consistency and time stability
Reliability indices weak?
Instrument subject to change
Reliability indices high?
Appropriate instrument
6. Evaluation of construct validity
Looking into the structure of the instrument (factorial analyses and inter-scare scale correlation)& studying the construct effect (test hypothesis coming from research theory)
Result opposite to the theory?
Instrument subject to change
Appropriate instrument
7. Establishing norms
By selecting the population and statistical indices

Figure 5.1: Vallerand's cross-cultural translation techniques (from Banville et al., 2000)

5.4.2 Questionnaires

Demographic information

Demographic questions in this study were developed to gather specific information about each participant's background, including age, socioeconomic status, marital status, major of study, and grade point average series (see Appendix 2).

Social-problem-Solving Inventory—Revised (SPSI-R; D'Zurilla **et al.***, 2002)*

The SPSI-R is a 52-item self-report scale assessing socia-problem-solving ability. Respondents are asked to rate their affective, behavioural, or cognitive response to problem situations that occur in life, based on a 5-point Likert scale ranging from 0 (not at all true of me) to 4 (extremely true of me). The SPSI-R contains five problem-solving dimensions:

1- Negative Problem Orientation (NPO) (10 items): This is a general set of cognitive-emotional scheme items that inhibit successful problem solving. NPO includes viewing problems as threats, believing that problems are unsolvable, experiencing frustration, having little tolerance when experiencing problems, and doubt in one's own ability to successfully solve problems (e.g. "I feel nervous and unsure of myself when I have an important decision to make").

2-Positive Problem Orientation (PPO) (5 items): This is a meta-cognitive process, which primarily serves a motivational function in social-problem solving, generally facilitates successful problem solving. PPO includes appraising problems as challenges, believing that problems are solvable, addressing problems rather than avoiding them, believing that

successfully solving problems requires time and effort, and believing in one's own ability to solve problems successfully (e.g. "Whenever I have a problem, I believe it can be solved").

3-Rational Problem Solving (RPS) (20 items): This involves an approach to problems that is systematic and rational and effectively applies problem-solving methods (e.g. "When I am trying to solve a problem, I think of as many options as possible until I cannot come up with any more ideas."). These methods are measured with the following RPS sub-scales: Problem Definition and Formulation (PDF), Generation of Alternative Solutions (GAS), Decision Making (DM), and Solution Implementation and Verification (SIV).

4-Impulsivity/Carelessness Style (ICS) (10 items): This scale involves the use of problem-solving strategies in an impulsive and careless manner (e.g. "When I have a decision to make, I do not take time to consider the pros and cons of each option.").

5-Avoidance Style (AS) (7 items): This refers to a style of problem solving that includes avoidance of problems, dependency on others to solve one's problems, and procrastination (e.g. "I put off solving problems until it is too late to do anything about them.").

A total Social-problem-Solving score (SPS) may also be obtained with this inventory, the greater the SPS score, the more effective a person's social-problem-solving skills.

The Brief COPE (Carver, 1997)

The brief Cope is a 28-item scale that measures various aspects of coping. It includes 14 scales, 8 of which measure adaptive coping strategies and 6 of which focus on maladaptive coping. Each of the 14 scales is captured in two items, and responses are made on a 4-point scales (1 – *I haven't been doing this at all*; 4 – *I've been doing this a lot*).

The items for the 14 Brief COPE scales are as follows: (1) Active coping; (2) Planning; (3) Use of emotional support; (4) Use of instrumental support; (5) Positive reframing; (6) Acceptance; (7) Religion; (8) Humour; (9) Venting; (10) Denial; (11) Substance use; (12) Behavioural disengagement; (13) Self-distraction; (14) Self-blame. Scales 1 through 8 can be regarded as measuring adaptive coping, whereas scales 9 to 14 are presumably measuring maladaptive coping. Evidence indicates that adaptive coping scales tend to be linked with desirable (pleasant and positive) outcomes, whereas maladaptive coping scales tend to be associated with undesirable (negative and unpleasant) outcomes (e.g., Carver et al., 1993).

The Inventory of College Students' Recent Life Experience (ICSRLE) (Kohn* et al., *1990)

This inventory is a measure of daily stress that addresses how much everyday stressors adversely affect physical and mental health. The ICSRLE is a 49-item measure on a likert-type scale, which rates the extent of one's experience with a particular stressor over the past month on a 4-point scale (1 not at all part of my life, 2 only slightly part of my life, 3 distinctly part of my life, and 4 very much part of my life).

The Inventory of High School Students' Recent Life Experiences (IHSSRLE) (Kohn & Milrose, 1993).

The items of the ICSRLE were adapted for use with high-school students. However, the authors simplified the items' phrasing and changed their reference to suit the context (e.g., professors to teachers in some items). On the IHSSRLE, respondents are asked to rate each item of hassles over the past month across a four-point Likert-type scale: 1 = *not at all* part of my life, 2 = *only slightly* part of my life; 3 = *definitely* part of my life, and 4 = *very much* part of my life. Higher scores on the IHSSRLE reflect experience of greater recent hassles. The IHSSRLE showed adequate internal-consistency reliability and validity against the criterion of subjectively appraised stress including the Perceived Stress Scale (*r'*s = 0.63 – 0.68) (Kohn & Milrose, 1993**).**

The Perceived Stress Scale (PSS) (Cohen and Williamson 1988)

The PSS is a self-report global measure of perceptions of stress. The scale includes 10-items designed to measure the degree to which individuals cognitively appraise their lives as unpredictable, uncontrollable, and overloaded. Respondents rate how often they have experienced a particular feeling or thought during the past month on a 5-point scale, ranging from (never) 0 to (very often) 4. The items are summed for a total perceived stress score; the higher the score, the higher the perceived stress.

State-Trait Anxiety Inventory (STAI) (Speilberger* et al.*, 1983)

This measure has been widely used in previous problem-solving research. Its use affords comparisons with past research. The inventory consists of two distinct scales: state "current feelings of anxiety" and trait "more generalized feelings of anxiety". Each

of 20 statements required participants' rating on a four-point scale. The S-Anxiety scale (measuring state anxiety) evaluates feelings of apprehension, tension, nervousness, and worry "right now". This scale has been used in situations of real-life stressors, such as job interviews. The STAI-T-Anxiety scale (measuring trait anxiety) measures an individual's relatively stable tendency towards anxiety, that is, general stress in situations perceived as dangerous or threatening; reactions to them may have varying levels of intensity (Spielberger, 1996). Test-retest reliability has proved to be high for the STAI-T Anxiety scale and low for the S-Anxiety scale (Rule & Traver, 1983). Furthermore, the measure has been shown to have good concurrent, convergent, divergent and construct validity (Spielberger & Sydeman, 1994). Only T-Anxiety will be used in this study, because it is believed that it more adequately reflects the impact of chronic, ongoing problems over a period of 2 months.

In this study, the Arabic version of STAI (Abdullatif, 2004), which has recently been adapted, was used. It has been tested on Lebanese university students. The internal consistency was .91 for trait anxiety and .90 for the total scale. Item and factor analyses were conducted on responses of the calibration sample to obtain the final set of Arabic items, which was validated using the responses of the validation sample.

The State Trait Anger Inventory (STAXI) (Spielberger, 1991)

This self report scale measures experience and expression of anger and consists of 44 items in five components of anger: State Anger, Trait Anger, Anger Outbursts, Anger Suppression, and Anger Control. For the purposes of this investigation, the trait anger scale was administered to assess the frequency of anger, and how angry one generally feels. This scale has 10 items scored on a 4-point Likert-type scale, ranging from 1

(almost never) to 4 (almost always). Participants rated the frequency with which they experienced and expressed anger. Higher scores on each of the measures indicate higher levels of either state anger or trait anger.

In this study the Arabic version of the scale of trait anger was used, which has been validated in the Kuwaiti culture (Alqourashi, 1997). Internal consistency reliability was estimated using Chronbach's alpha was 0.79, and the split half was 0.71.

The Beck Depression Inventory (BDI) (Beck* et al.*, 1961)

The BDI is a 21-item self-report measure of depressive symptoms that was developed according to criteria for depressive disorders. Item responses range from zero (the absence of the symptom) to three (symptoms are severe). The BDI is a widely used measure in both clinical and research settings. Higher scores represent higher levels of depressive symptoms and all 21 items are summed. Cutoff scores can serve as guidelines: (0-13) mild depression, (14-19) moderate depression, (20-28) and severe depression (29-63).

The Arabic version of the BDI (Abdel-Khalek et al., 1998) was administered in this study. The BDI has been shown to have acceptable reliability in Arabic culture with reliability coefficients ranging from .67 to .89 (Abdel-Khalek, 1998). The alpha coefficients were computed for samples of male and female undergraduates recruited from Egypt (alpha = 0.77, $N = 100$), Saudi Arabia (alpha = 0.82, $N = 80$), Kuwait (alpha = 0.89, $N = 100$), and Lebanon (alpha = 0.67, $N = 100$). The test–retest r was .88 (Hamdi et al., 1988).

The Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet* et al.*, 1988)

This measure has been used to assess self-reported amounts of social support. The MSPSS is a 12-item questionnaire that involves three sub-scales measuring perceived social support from friends, family, and significant others. Items are scored on a 7-point Likert-type scale, ranging from 1 (very strongly disagree) 7 (very strongly agree) for each item. Each sub-scale consists of four items and has a possible score range of 4 to 28. High scores reflect high levels of perceived social support.

It may be worth mention that some items of these questionnaires were reverse-scored in the analysis to reflect the framing of the question. For example, the negatively worded questions in STAI-T were reverse-scored (e.g. 0 = 4, 1 = 3 etc), so higher score indicated high anxiety.

5.5 Translation technique

5.5.1 Initial Translation of the Instrument

After permission for all questionnaires had been obtained from all authors to use their instruments and translate them into Arabic, the English version of the questionnaire was translated into Arabic carefully and as closely as possible to the English version by a native English-speaking bilingual translator.

However, it is necessary to translate the intended meaning rather than the words. Idiomatic equivalence is the most difficult aspect of translation, because culture-specific idioms may differ considerably. They have to be re-formulated to express the content as far as possible. Experiential equivalence means that situations described in the

questionnaire are relevant to the Saudi context. Conceptual equivalence is a frequent topic in consensus discussions, because the same concept can have different meanings in different cultures (Banville et al., 2000). Criterion equivalence can be problematic if two cultures have different ideas and beliefs (Streiner & Norman, 1995). Therefore, a literal translation using dictionary equivalents is not bound to ensure conceptual equivalence (Hambleton, 2002). Words may carry a range of meaningful associations; a variety of meanings, emotional charge, familiarity, etc. Observed differences between languages may be real or imagined (Sirecci, 1997). Ambiguity can severely affect the interpretation of results. Care needs to be taken to ensure that conclusions derived from the instruments are valid and fair for all linguistic and cultural groups.

Streiner and Norman (1995) argued that the translation processors should be fluent in both English and the target tongue and also knowledgeable about the content area, with an attendant awareness of the intent of each item and of the scale as a whole. Brislin (1980) stated that familiarity with the culture is an important aspect in determining the quality of the translation. Vallerand (1989) recommended the technique that requires two bilingual translators for the process of translating from the original English version to the target language. The reason for having two persons to do the translation is to avoid errors and bias that may occur with one person. Kvamme et al., (1998) made an interesting point that the quality of the outcome can be improved if several translators work independently. It has been found that the number of translators increases the possibility of finding different interpretations of expressions in the original language. The researcher requested the help of two bilingual Senior Lecturers from the Faculty of Psychology at King Abdul-Aziz University; both were familiar with western

and Saudi culture. The versions were compared to identify differences in each translated item. There was agreement over most of the questionnaires, and disagreement on some items was resolved by the construction of phrases that would convey equivalent meaning to Saudi culture.

5.5.2 *Preparation of the Preliminary Version: Back Translation, Comparison, Revision and Development of Preliminary Versions*

At this stage all translated questionnaires resulting from the first step were all back-translated into English.

The back-translation technique is the most commonly applied method (Brislin, 1970), and it has the power to identify ambiguities and misunderstandings (Kvamme et al., 1998). On the other hand, Vijver (1997) showed that the back translation technique can also contribute errors. For example, the method requires precision, which may tend to produce more literal translations, which may not truly reflect the nature of the content in the original version. Furthermore, the back translation technique pays more attention to words and less to connotation, context, and comprehensibility. Vijver (1997) recommends avoiding errors by employing a bilingual committee and statistical procedures to establish equivalent instruments and to check translation accuracy.

Three bilingual translators were required for this stage, one from a translation agency in Saudi Arabia was consulted; the second was a Ph.D. from the UK and the third was a UK Doctor of Linguistics, along with the researcher. None of the translators had seen the original English version. They were asked to back-translate all the Arabic questionnaires into English. Then, they were asked to compare each item on the original English version with each item on the back-translated English version, to check for

mismatches. The social-problem solving inventory was revised and modified by (MHS) Multi-Health Systems Inc. (Psychological publishing company).

5.5.3 Experts on the Saudi Committee: review and evaluation of the preliminary version

In this study, a committee approach was used to improve the quality of the translated versions. The committee approach involves two or more bilingual individuals to translate from the original to the target language and then compare their translation (Brislin, 1980). The committee members were five senior lecturers at the Faculty of Psychology at King Abdul-Aziz University and one specialist in psychometric testing. They were asked to check and modify the Arabic versions for grammar and the content of the instrument and to pay attention to particular items and expressions, to see whether they would be acceptable and easily understood. The expert committee's role was to strengthen all the components of all versions of the questionnaire, including the original instrument, instructions and scoring documentation.

The measures are implemented to ensure a high level of measurement validity: (content validity, face validity and concurrent validity). Content validity is a non-statistical type of validity that involves "systematic examination of the test content to determine whether it covers a representative sample of the behaviour domain to be measured" (Anatasi & Urbina, 1997, p.114). Face validity is very closely related to content validity. It assesses the accuracy of the translated statement by measuring the concept associated with each statement, and relates to whether a question may provide good measure or not. This judgment is made on the "face" of the test. The assessment of face validity was qualitative in nature and the experts gave their feedback to the

researcher in a joint meeting. In order to obtain face validity in the Arabic version of all questionnaires, the composition of the expert committee was crucial (to achieve cross-cultural equivalence of the translated instrument). According to Alderson, Clapham and Wall (1995, p. 177) “concurrent validity refers to the extent to which a measure relates to a current, existing criterion. It measures the relationship between measures made with existing tests. The existing tests are thus the criterion”.

While most items did not have major differences in meaning in the Arabic questionnaire, differences in grammar or context were identified in some items. Contextual and grammatical differences on all items were resolved by discussion yielding valuable recommendations and suggestions, to form the basis for additional changes to the survey instruments. After discussion, the committee either agreed to keep one version in the case of a mismatch, or make revisions to address ambiguities. Finally, the committee developed the pre-final version of the questionnaires for field testing, approved the translation and confirmed its appropriateness for and accessibility to Arabic readers.

As a result of this stage, two statements from Brief COPE were judged to be inappropriate for Saudi culture, namely statements about the use of alcohol and going to the cinema. These statements were changing using other terms (TV instead of cinema and medicine instead of alcohol). Regarding BDI, one item was deleted, which was “I have not noticed any recent change in my interest in sex”, as it is unacceptable to discuss sexuality in Saudi culture.

5.5.4 Sample testing the translation (pre-test)

After the translation process, the instruments were pilot tested. Several researchers have examined the reliability of questionnaires at this stage. Vallerand (1989) insists that no statistical testing should be performed at this stage.

The versions that resulted from the previous step were delivered to 10 Saudi lecturers and professors in the Faculty of Arts and Humanities and 20 students from different schools in King Abdul-Aziz University. Participants were asked to complete the new version, taking particular note of language expression, and any items that they did not feel comfortable with or understand. They were asked to underline those items. They were also asked to write down any suggestions next to the statements. No significant or major suggestions or comments were made in this step. However, the committee decided to change the order of words in two sentences (grammatical change) to make it easier to understand.

5.5.*5 Pilot Testing the Instrument: A study of bilingual participants (validity)*

In this stage, the researcher used another technique, the purpose being to determine the validity of the translation. The method has been used by many researchers (Benville, 2000, Sperber et al., 1994, Vallerand, 1989), and it involves the use of participants who are bilingual (Benville, 2000). Thirty-five bilingual participants were asked to complete both the English and Arabic questionnaires. They were English teachers, doctors, postgraduate students and university lecturers.

A self-evaluation test developed by Vallerand (1983) was used to test participants' ability to read, write, speak and understand both languages (Arabic and English) (see Appendix 3). The range of scores is from 1 (very little) to 4 (perfectly) for

all four abilities. Participants should score at least 3 in each domain to be considered as functionally bilingual but, a score of 12 or more can be judged as acceptable for each language, according to Banville (2000). The results indicated a very good language level, with all participants scoring 15 or 16 (the maximum) for Arabic self evaluation, which means that their Arabic is excellent. For English, 28 of the 35 participants scored 15 or 16. Six participants scored 13-14 and one scored 11 out of 16; this participant was dropped from the study. The mean age of the group of 28 participants was 23.08 (*SD* = 3.30, range = 24.00). Fifteen of the participants were female and thirteen were male. Nineteen were single, eight were married and one was divorced. Half of the participants completed the Arabic versions first, and half of them completed the English version first. Four weeks later, the participants were asked to respond in the other language from the one they had used before.

This process is a validation step conducted to examine the reliability and construct validity of the translated Arabic questionnaire. Since all questionnaires had already been validated, the scores for the original and new versions should be compared using different methods: first, a paired t-test, secondly, a Pearson correlation test and thirdly, the internal consistency using Cronbach's alpha. In this study, the underlying assumption was that the responses to each question would be identical, notwithstanding which of the versions were used.

5.5.6 Evaluation of Concurrent Validity

According to Berg and Latin (1994), this kind of validity aims at correlation of test results of new instruments with already validated instruments. In this study, concurrent

validity assessed how a new instrument correlated with criterion measures, both being administered at the same time.

Since the SPSI-R, Brief COPE, PSS, ICSRLE and MSPSS have already been validated, the score of the original and the experimental versions were compared, using a paired t-test and Pearson correlation.

1- The paired t-test

The paired *t*-test is generally used when measurements are taken from the same subjects to determine the significance of a difference.

According to Vallerand (1983), a non-significant *p* will indicate similarities in statements. The results showed that there were no significant differences between the original version and the Arabic translated version for all scales, which means that the two versions were very compatible. The result of a paired *t*-test calculated to check the significant differences between the original and Arabic questionnaires was that there were no significant differences between the original and translated questionnaires (see Table 5.1).

Table 5.1 *Mean Differences, SD and t-test of All Questionnaires*

Scales	Versions		*t*	Sig
	English ***M(SD)***	**Arabic** ***M(SD)***		
SPSI-R	1.99 (0.35)	1.99 (0.37)	0.09	0.92 (ns)
PSS	2.00 (0.86)	2.09 (0.84)	1.51	0.14 (ns)
ICSRLE	1.40 (0.50)	1.39 (0.49)	- 0.47	0.63 (ns)
MSPSS	5.42 (1.10)	5.39 (1.11)	1.80	0.08 (ns)
COPE	2.65 (2.27)	2.64 (0.27)	0.62	0.53 (ns)
LSYSWQ	2.95 (0.31)	2.61 (0.31)	1.29	0.20 (ns)

Note.(a) Social-problem solving inventory-revised (SPSI-R), Perceived stress scale (PSS), The Inventory of College student's recent life experiences (ICSRLE), The Multidimensional Scale of Perceived Social Support (MSPSS),The brief cope (COPE), Life satisfaction of young Saudi women (LSYSWQ). (b) *N = 28*

2- Pearson correlation

One of the basic ways to evaluate and understand the relationship between two variables is to use correlation coefficients (McMillan and Schumacher, 2001). Banville et al. (2000) reported that a high correlation will indicate similarities in statements.

It has been shown that there were significant positive correlations between the English and the Arabic versions of all questionnaires. These results indicate that there is a strong relationship between the English and Arabic versions. Correlations were high

(all *r's* > .9 and all *p's* < .01) for all questionnaires, which illustrated that all English and Arabic versions were similar in their meanings.

Table 5.2. *Zero-order Correlations Between English and Arabic Versions*

Scales	**Correlation**	**N of Items**
SPSI-R	.98**	52
PSS	.94**	10
ICSRLE	.99**	49
MSPSS	.99**	12
COPE	.98**	24
LSYSWQ	.95**	29

Note.(a) Social-problem solving inventory-revised (SPSI-R), Perceived stress scale (PSS), The Inventory of College student's recent life experiences (ICSRLE), The Multidimensional Scale of Perceived Social Support (MSPSS),The brief cope (COPE), Life satisfaction for Saudi women (LSYSWQ).
(b) ***p < .01. N = 28*

Regarding the sub-scales, there were highly significant levels of correlation between the English and Arabic versions for all questionnaires. For the Social-problem-Solving Inventory revised, the sub-scales ranged from .85 to .98. The Perceived Stress Scale items demonstrated significant levels of correlation (between .80 and 1.00). Significant levels of correlation were also found (from .61 to .87) on all English and Arabic Life Satisfaction of Young Saudi Women sub-scales. In addition, the level of correlation between the Arabic and English Multi Dimension Scale of Perceived Social Support was above .83. For the Inventory of College Students' Recent Life Experience, a highly significant level of correlation was found (between .98 and .99). Finally, there was

a highly significant level of correlation between English and Arabic Brief COPE sub-scales, the correlations ranging from .84 to .86.

5.5.7 Evaluation of reliability

Reliability relates to the extent to which a measure's items are consistent, correlate with each other and follow a similar trend. In this study, internal consistency and test-retest were used to assess the reliability of the translated questionnaires (Bryman, 2001).

Estimations were based on the correlation among the variables comprising the set. Many techniques have been suggested to assess internal reliability, among which, the split half and Cronbach's alpha approaches are most used. In this study, the Cronbach's alpha statistic was used to examine internal consistency. It is based on the average correlation among items and the number of items in the scale or sub-scale. In other words, it assesses the degree of homogeneity in the items within each area and indicates the extent to which each area is internally consistent (Bryman, 2001). The normal range of values is between 0.0 and + 1.00, and higher values (0.500– 0.900) reflect a higher degree of internal consistency. On the other hand, Howitt and Cramer (2005) reported that, if the correlation between an item and its hypothesized scale was greater than 0.4 that item was considered to have "succeeded" in the test of item-internal consistency (Howitt & Cramer, 2005). In the scales based on the sample of college students, the internal consistency for all English and Arabic questionnaires was determined to be very good on four out of six scales and acceptable for the other two; all experimental scales obtained acceptable alpha levels for the total scale of all Arabic versions (between .67

and .94). All these estimates point to a level of acceptability (Howitt & Cramer, 2005) (see Table 1).

Table 5.3. *Cronbach's Alpha for Arabic Questionnaires*

Scales	Alpha	N of items
SPSIR	.80	52
PSS	.87	10
LSYSWQ	.75	29
ICSRLI	.92	49
MSPSS	.94	12
COPE	.67	28

Note. (a) Social-problem solving inventory-revised (SPSI-R), Perceived stress scale (PSS), The Inventory College student's recent life experiences (ICSRLE), The Multidimensional Scale of Perceived Social Support (MSPSS),The brief cope (COPE), Life satisfaction for Saudi women (LSYSWQ). (b) *N = 82*

The results show that there were differences in the alpha levels for each sub-scale. A satisfactory alpha level was achieved for the English and Arabic **Social-problem Solving Inventory- Revised** between (.65 to .90) for the English version and (.63 to .88) for the Arabic version. The mean difference for internal consistency between the Saudi and the original scale was also calculated *M* .64 (*SD* = .41) for rational problem solutions (generating alternative solutions) and *M* .89 (*SD* = .79) for negative problem orientation.

The results also demonstrate a high alpha for the **Perceived Stress Scale**. All of the alpha items had an alpha level of at least .83. Regarding the mean differences between Arabic and the original scale, the alpha was almost the same for all sub-scales, ranging from .84 (*SD* = .70) for item 8 to .88 (*SD* = .77) for item 6.

A high level of alpha between .81 to .92 for the English sub-scales was found, and from .82 to .91 with on the Arabic sub-scales for the **Multi Dimension Scale of Perceived Social Support**. The mean differences were .82 (*SD* = .66) for friend support, (*M* = 85, *SD* = .71) for family support and (*M* = 92, *SD* = .84) for significant other. The results illustrate an acceptable alpha level for all English and Arabic ICSRLE sub-scales (between .62 and .78), except for "Assorted Annoyances", which had an alpha level of .46 for the English version and .45 for the Arabic version (*M* = .46, *SD* = .21)

I also found that there was a satisfactory alpha level for all of the **Life Satisfactions of Young Saudi Women** sub-scales, apart from the religion sub-scale, which had a .33 alpha level in the English version. For the Arabic version, the alpha level was higher than the English ranging from .53 to .82. The mean difference for the total scale was .69 (*SD* = .48).

Regarding the **Brief COPE** an acceptable alpha level for both versions' was found (.66 for the English version and .67 for the Arabic version). The means ranged between .64 (*SD* = .40) and .69 (*SD* =.47).

To assess item-internal consistency, coefficients of correlation for each item with its hypothesized scale were computed. Success rates on the tests of item-internal consistency were acceptable for some scales and high for others. All items passed the test of item-internal consistency, with the sole exception of the religion sub-scale in

LSYSWQ (r = .33). Test-retest reliability will be used in the next step to examine stability for the Arabic versions.

5.5.8 Stability reliability - Test–retest reliability (N=71)

In order to test the stability of the instrument scores, the test-retest method was used (Bryman, 2001; Cohen et al., 2000). In this method, the test is applied on a certain sample and then repeated on the same sample after an interval (Howitt & Cramer, 2005). The reliability of the translated instrument is assessed by comparing the degrees of test-retest reliability to determine the quality of translation for the Arabic instruments. The final versions of the scales were administered on one occasion, and after six weeks, the same scales were re-administered to the same sample in order to calculate the correlation coefficient between the responses on both occasions (Bryman, 2001). In this stage, a group of one hundred female undergraduate students in the Faculty of Arts and Humanities at King Abudl-Aziz University were surveyed. Their mean age was 20.18 (SD = 1.11). All of them were Saudi. 73 % of them were single, 14% were engaged and 13% were married. Students were asked to complete the demographic information sheet and 9 questionnaires during class time (SPSI-R, Brief COPE, BDI, STAI-T, STAX-T, MSPSS, PSS, ICSRLE and LSYSWQ) (see Appendix 4). About 6 weeks later, the same questionnaires were sent again to all students. 71 students complete the second questionnaires, and only their data was included for analysis. Test-retest correlations were calculated.

The finding was that the test-retest correlation index for the Arabic version was good. The ICSRLE scored lowest (r = 0.56) while LSYSWQ scored highest (r = 0.70). These results indicate that the instrument is an empirically reliable measure and other comparisons for translation equivalency determined that they were appropriate for use among the intended target population. Using parameters set forth by Cohen and Cohen (1983), weak correlations are in range of 0.25 and 0.44; moderate correlations are between 0.45 and 0.50, and strong correlations > .60. It may be worth noting that the inventory of college students' recent life experience and Brief COPE had the lowest correlations, the reason perhaps being that both evaluated how respondents felt at a particular time in the recent past.

5.6 Chapter summary

The purpose of this chapter was to describe the methodical translation of scales from English to Arabic, as recommended by Vallerand (1989). A number of statistical tests were employed to determine the equivalence between the translated and the original scales.

Translating and validating an instrument into another language and culture is a process requiring several stages, as well as time and financial investment. The appropriateness of the translated instrument can plausibly be assessed for the first time only after pilot testing. This study revealed that the translation processes and pilot testing are just the starting point for instrument validation in another culture. Development is needed if the instrument is intended for use in another culture (Banville et al., 2000). This work requires continuing of data collection, utilization of various statistical methods, expert groups and the use of a triangulating approach. However, developing the validity

of the instrument calls for collaboration in order to maintain the equivalence of the original and translated versions.

After following the steps recommended by Vallerand's methodology for cross-cultural translation, the findings of this study showed that the adaptive versions of all questionnaires administered to the Saudi sample had achieved satisfactory validity and reliability.

The questionnaire, developed and designed specifically for the current study, enquired about life satisfaction among young Saudi women. It was found that LSYSWQ offers a reliable and valid means of assessing Saudi university and high school students' life satisfaction. Using it as a screening tool may help in discriminating between different domains responsible for young female adult problems.

A non-significant *t*-test revealed similarities between the English and the translated questionnaires and a high level of correlation between English and Arabic scales. The overall results of the questionnaire showed that there was no significant difference between the two versions.

Furthermore, the internal consistency of the Arabic version of the questionnaire was examined, and was used as a means to estimate equivalence. Standardized alpha coefficients were used to calculate internal consistency. In the Arabic test sample, Cronbach's alpha values were between .74 and .93 in the final versions for all scales. This means equivalence between English and Arabic was high, as indicated by the level of item and scale equivalence as well as the scale and total reliability coefficient.

It is worth mentioning that the Brief COPE, ICSRLE and PSS obtained a better alpha score in this study compared to the original studies. STAI-T and MSPSS had a similar alpha to the ones reported in the original studies. However, SPSI-R had a lower alpha than in the original studies. Although SPSI-R had a lower alpha than in the original studies, the differences were not significant.

As a measure of homogeneity of items in a scale, Pearson's correlation coefficients (two-tailed probability) were computed between each sub-scale in the Arabic versions. Homogeneity of the correlation coefficients and thus the statements in the sub-scale were good, with one exception, namely in Brief COPE. The conclusion was drawn that further research is needed to understand the psychometric properties of Brief COPE in relation to Saudi samples.

Regarding test-retest reliability stability (N = 71), the correlations were significant at the 0.01 level (2-tailed) for all Arabic scales in a range from .56 to .80. In addition, the correlation of the Arabic scales and other scales were tested. Results showed that all Arabic scales correlated significantly with each other, except the Arabic Brief COPE, which was correlated with all scales apart from BDI, PSS and STAI-T. The findings presented in this chapter showed that the Arabic translations of all scales are culturally acceptable, relevant and consistent with the original versions. The statistical tests showed moderately high reliability between the translated and original instrument. There seemed to be little difference between the subjects' responses in both versions. However, the results presented here are to be considered critically, as the sizes of the test and comparison groups were different.

In conclusion, this study covered the translation from the source version, refinements of the translation, and preliminary studies of reliability and concurrent validity. The results achieved are robust enough to recommend the use of the questionnaire in the investigation of the social-problem solving impacts of mental health. However, as with any instrument, the validation of a translated questionnaire is an ongoing process. In the next step, studies are needed to confirm the results from this study and generate more precise estimates of scale properties. The following chapter contains the main study, which tests social-problem solving ability, coping, stress, anxiety, depression, anger, and social support in a large sample. The empirical assessment of the interplay between stress and problem solving and social support in relation to distress is to identify whether there is an association, and to determine the direction and the size of the effect.

CHAPTER SIX: TESTING THE EQUIVALANCE OF SAUDI QUESTIONNAIRES (UNIVERSITY STUDENT SAMPLE)

6.1 Introduction

In the preceding chapter, the preliminary validity and reliability of key questionnaires were tested. The primary aims of the current empirical chapter are (i) to confirm the results of the previous chapter with a large sample, (ii) to explore the relationships between the variables in order to test the model (see Figure 7.1 and 8.1).

This chapter is divided into three sections. The first discusses the purpose of the study, the data collection methods, the sample and population and the instrumentation employed. The second section presents the factor analysis and reliability findings for the Arabic questionnaires. This chapter concludes with a discussion of the main findings in relation with the literature and conceptual framework.

6.2 The purpose of the study

As mentioned in Chapter 5, in translating the study questionnaires, the researcher followed a seven-step methodology for translation and validation (Vallerand, 1989). The first five steps were discussed in the previous chapter, and the last two steps (evaluation of construct validity and establishing norms) will be dealt with in this chapter with a large sample. Descriptive statistics, correlations, Cronbach's alpha and factor analyses are used at this stage.

The current chapter assesses the equivalence of the Saudi and Western versions of the following questionnaires, Social-problem Solving Inventory - Revised (SPSI-R), the Perceived Stress Scale (PSS), The inventory of college Students' Recent Life Experiences (ICSRLE), the Multidimensional Scale of Perceived Social Support (MSPSS), the brief cope (Brief COPE), Life satisfaction for Saudi Women (LSYSWQ), the Trait Anxiety Inventory (STA-T), the Trait Anger Inventory (STAX-T), and the Beck Depression Inventory (BDI).

A significant rationale of this chapter is to introduce the hypothesised model to investigate relations among stress, social-problem solving, social support, life satisfaction and mental health (anger, depression and anxiety) in young women from Saudi Arabia. To achieve the goals of this study, the following questions are identified and addressed:

1) What is the factor structure of the translated Arabic scales?

2) Are the validity and reliability of the scales maintained in the Arabic versions?

6.3 Methods

6.3.1 Participants.

The total number of students invited to participate was 800 out of approximately 13,000 and the final number of students included in the study was 630 (79%) undergraduate students, representing about 5% of the total student population. A description of the student sample by age, marital status, college affiliation and grade point average (GPA) appears in the table below. The mean age of the participants was 19.60 years (*SD* = 1.47); 81.3% were single and 43.5% of students were enrolled in the College of Arts and Humanities. A large percentage of participants in the study had a

grade point average equivalent of B (60.8 %). This sample may be viewed as representative of the student population of King Abdul Aziz University as indicated by the documents available at the department of student affairs.

Table 6.1. *Distribution of Participants*

	Frequency	Percent
Family income per month (Riyal)		
2,000 or less	24	3.8
2,001-5,000	124	19.7
5,001-8,000	101	16.0
8,001-11,000	123	19.5
More than 11,000	230	36.5
Grade Point Average		
4.0-5.0	383	60.8
3.0-3.9	173	27.5
2.0-2.9	67	10.6
1.0-1.9	2	.3
College affiliation		
Art & Humanities	274	43.5
Management	96	15.2
Domestic economy	35	5.6
Science	51	8.1
Medicine	32	5.1
Medical school	67	10.6
Other	72	11.4
Marital status		

Single	512	81.3
Engaged	59	9.4
Married	51	8.1
Divorced	4	.6
Widowed	1	.2

Note. One Sterling Pound equal to approximately 6 Saudi Riyal

Ethical issues were taken into account to protect the rights of participants in the conduct and writing up of the research (BACP, 2006). Ethical approvals for all stages of the study were obtained from the Psychology ethics committee of the School of Psychology, University of Southampton. Permission was also obtained from King Abdul Aziz University before data collection began. Additional permission was obtained from all deans of faculties, heads of departments and lecturers to distribute the questionnaire to students at mutually agreed times. In addition, the researcher was given approval by six high schools to work with students.

6.3.2 Measures.

The measures used in this chapter were described in detail in Chapter 5 and will also be used with the participants in Chapter 7. They comprise the LS for Saudi Women Questionnaire (Arab, Hadwin, Stopa & Sonuga-Barke, 2006), the Social-problem Solving Inventory - Revised (D'Zurilla et al., 2002), the Perceived Stress Scale (Cohen and Williamson 1988), the Inventory of College Student's Recent Life Experiences (Kohn et al., 1990), The Brief COPE (Carver, 1997), the Trait Anxiety Inventory (Speilberger et al., 1983), the Trait Anger Inventory (Spielberger, 1996), the Beck Depression Inventory

(Steer & Brown, 1996) and The Multidimensional scale of Perceived Social Support (Zimet et al., 1988).

6.3.3 Procedure.

The questionnaires were collectively administered in a classroom group setting to ensure a high response rate (Punch, 2003). In addition, to collective administration, several factors were taken into account to improve the response rate. For example, the researcher explained the general purpose of the study, dealt with issues of confidentiality and anonymity and included instructions for completing and returning the questionnaires (Punch, 2003). Written consent was obtained from all participants. The study recognized the necessity for confidentiality and the anonymity of participants, who were informed about the nature and purpose of the investigation. Before collecting the data, participants gave informal consent and had the choice to participate or withdraw at any time (see appendix 5).

The researcher made it clear that participants were also free to withdraw information and consent prior, during and after the process of collecting the data. The researcher explained the project to the students, summarized the conditions of consent, and answered any questions. A package consisting of an informed consent form and the questionnaire was distributed to the students by the researcher during classes. Students completed the questionnaire and returned it to the researcher in the classrooms.

6.4 Results

The results of the preliminary analysis of the means, standard deviations, zero-order correlations and factor analysis for all study variables and factor analysis are presented.

6.4.1 Construct Validity (correlation)

According to Vallerand, the main objective of this step is to check the translated instrument measures "what is defined" in the literature. It also shows that the underlying theory is applicable to other cultures (Vallerand, 1989). It is further verified by studying the "structure of the instrument's inter-scale correlation" (Banvile et al., 2000).

Several studies emphasize the need for assessment tools that are valid across different ethnic groups (Eddy, 1998; Krause, 2005; Hoe & Brekke, 2009). Therefore, this research seeks to test the validity of all the Arabic versions (and correlations with each other).

Zero-order correlations for all Arabic scales for female undergraduate student were presented in Table 6.2. The Pearson correlation coefficient, in order to be significant at the $p < .01$ level with a sample size of 600, has to be $\geq .115$ (Howitt & Cramer, 2005). The usual interpretation is that a correlation of anything greater than 0.5 is large, down to 0.3 is moderate, down to 0.1 is small, and anything smaller than that is trivial. The correlations ranged from .15 to .66, with a sample size of 630.

As the table shows, scores on social-problem solving were significantly related in the expected direction to scores on depression (Cheng, 2001; Frye & Goodman, 2000), anxiety ((Nezu et al. 2004) and anger (Nezu, 2004**,** Nezu & D'Zurilla, 1989). Negative problem-solving appraisal was related to self report ratings of lower levels of social

support (Wong et al., 1997; Heppner et al., 2004), life satisfaction (D'Zurilla, 2002) and stress (D'Zurilla & Sheedy, 1991). The Life Satisfaction of Young Saudi Women Questionnaire was found to be correlated with all study measures, namely anxiety, depression (Pavot & Diener, 1993; wong et al., 2007), anger (Valois et al., 2001), social support and stress (Oliva et al., 2009). In this study stress is also linked to negative outcomes, like anxiety, depression and anger (Jaser et al., 2005).

Table 6.2 *Zero-order Correlations Between Study Variables*.

	STAXI-T	BDI	STAI-T	PSS	ICSRLE	MSPSS	LSYSWQ	SPSI-R	COPE
STAX-T	1	.39**	.48**	.35**	.21**	-.15**	-.28**	-.43**	.11**
BDI		1	.61**	.51**	.37**	-.32**	-.46**	-.35**	.001
STAI-T			1	.66**	.33**	-.34**	-.55**	-.53**	.017
PSS				1	.34**	-.24**	-.52**	-.39**	-.026
ICSRLE					1	-.16**	-.36**	-.13**	.16**
MSPSS						1	.51**	.21**	.28**
LSYSWQ							1	.37**	.079
SPSI-R								1	.19**
COPE									1

Note. Social-problem solving inventory-revised (SPSI-R), Perceived stress scale (PSS), College student's
Note.(a) Social-problem solving inventory-revised (SPSI-R), Perceived stress scale (PSS), The Inventory of College student's recent life experiences (ICSRLE), The Multidimensional Scale of Perceived Social Support (MSPSS),The brief cope (COPE), Life satisfaction for Saudi women (LSYSWQ).
(b) *$p < .05$; **$p < .01$. $N = 630$

6.4.2 Establishing Norms (Factor Analysis)

The last step in the translation process is to establish norms. This step should be done when the instrument has been judged valid, reliable, and meaningful in the new culture (Vallerand, 1989). In order to establish norms, a large number of participants would be needed (Banville et al., 2000). About 800 volunteer undergraduate students from a variety of schools at King Abdul-Aziz University in Saudi Arabia were invited to participate. When incomplete or blank student questionnaires were excluded, 630 usable questionnaires remained. All respondents were female. Descriptive statistics, factor analysis, internal consistency tested and inter-scale correlations for the Saudi scales were performed and compared with previously reported data from Western culture. Table 6.3 presents the range, means and standard deviations of the Arabic scales. The results indicated that, some of the students (N = 186) had mild depression (M = 13.14, SD = 7.54) (Beck et al., 1996). In ICSRLE the mean was 56.69 (SD = 23.43, Range = 142.00), which indicates a moderate chance of experiencing negative feelings as a result of daily hassles (Kohn et al., 1990). Regarding STAI-T and STAXI-T, the results shows that the participants had an average level of anxiety (M = 43.78, SD = 10.62) and moderate level of anger (M = 22.40, SD = 4.88) levels. The results also show a high level of perceived social support (M = 64.80, SD = 12.64, Range = 69.00). For SPSI-R, the Mean was 12.20 (SD = 2.50, Range = 14.28), which indicated that the participants of this study fell with the normal group average (D'Zurilla et al., 2002).

Table 6.3 *Descriptive Statistics of All Scales*

Scales	N	Range	M (SD)
SPSI-R	629	14.28	12.20 (2.50)
PSS	613	38.00	19.58 (6.47)
ICSRLE	616	142.00	56.69 (23.43)
MSPSS	622	69.00	64.80 (12.64)
COPE	624	92.00	71.76 (8.85)
LSYSWQ	613	61.00	59.96 (8.59)
STAI-T	615	57.00	43.78 (10.62)
STAXI-T	621	29.00	22.40 (4.88)
BDI	627	39.00	13.14 (7.54)

Note.(a) Social-problem solving inventory-revised (SPSI-R), Perceived stress scale (PSS), The Inventory of College student's recent life experiences (ICSRLE), The Multidimensional Scale of Perceived Social Support (MSPSS),The brief cope (COPE), Life satisfaction for Saudi women (LSYSWQ), Trait Anxiety Inventory (STAI-T), Trait Anger Inventory (STAXI-T), Beck Depression Inventory (BDI). (b) $N = 630$

6.4.2.1 Exploratory Factor Analysis for All Scales.

Factor analysis was used to examine each scales' characteristics and investigate the factor structure of all Arabic versions on the basis of Saudi students' scores. It further ensured identification of similarities or differences from the originals. The construct validity of the translated questionnaires was conducted by using exploratory factor analysis (EFA). Gorsuch (1997) indicated that exploratory factor analysis can be used for identification and validity purposes if factors are found to be similar to those in previous studies.

EFA can also provide early indications of underlying factor differences from results from different ethnic communities. It may also assist in identifying underlying factor structures of the Arabic versions for the Saudi sample.

Factor analytic findings from previous studies (see section 5.4.2) can be used to estimate how many dimensions (underlying constructs) account for most of the variance within data obtained from an instrument (Stevens, 2002). If factor analysis of the scale produces the same dimensions as the original scale, this supports the construct validity of the scale.

When determining the number of factors to extract, visual scree plots and an eigenvalue greater than or equal to one are used (Benson & Nasser, 1998) (see Appendix 9). An eigenvalue represents the total variance explained by the factor (Benson & Nasser, 1998). However, in this study, it was appropriate sometime to explore alternative factor structures other than those suggested by the eigenvalue greater than one criterion. This allowed for the exploration of factor structures that are more meaningful or conform more closely to established theory.

Communalities represent the percentage of variance in variables with common factors, which are then extracted (Fabrigar et al., 1999; Floyd & Widaman, 1995). When the communalities are between .40 to .70 (moderate in nature), to produce an accurate estimate of population parameters, a sample size of 200 or more is advised for factor analysis (Fabrigar et al., 1999).

Once the factors have been extracted, the next step is to rotate them to assist interpretation. The main goal of factor rotation is to show a simple structure (Gorsuch, 1997) in which each variable has the highest loading on its major factor, and the lower

loading on the other factors. The pattern matrix is more appropriate than the structure matrix because of interest in the "unique variance accounted for by each factor" (Morgan & Casper, 2000). Finally, items were considered for retention when the loading value was above .30.

The factor structure, correlation and internal consistency are illustrated below for all scales. Then an explanation is given of how the questionnaires are similar or different from the original.

6.4.2.2 Social-problem Solving Inventory Revised

The factor analysis yielded 4 factors accounting for 38.47 % of the variance. The factor loadings are shown in Appendix 8. Twenty-five items were included in the first factor: positive problem orientation sub-scales and rational problem solving sub-scales (problem definition and formulation, generating an alternative solution, decision making, and solution implementation and verification). The second factor consisted of thirteen items, namely: all negative problem orientation items, avoidance style (2 items) and impulsive and carelessness style (1 item). The third factor combined 8 items, all of which included impulsivity/carelessness style. The fourth factor included five items, all of them related to avoidance style. Item 16 was deleted as it does not load with any factors (I go out of my way to avoid having to deal with problem in my life).

Table 6.4 examines the internal consistency of the SPSI-R for the inventories of the four new social-problems. The results show a high alpha in the four sub-scales. The total alpha increased from .80 to .83 after deleting item 16. The correlation within the sub-scales ranged from .24 to .52.

Table 6.4 *Factors and Item Description for New SPSI-R Sub-scales*

Factor	Sub-scales	Items	N of items	Alpha
Factor 1	Rational problem solving / positive problem Orientation	48 , 40 , 29 , 49 , 44 , 37 , 18 , 47 , 24 , 11 , 25 , 20 , 33 , 46 , 39 , 27 , 35 , 26 , 38 , 5 , 28 , 9	25	.90
Factor 2	Negative problem orientation	50 , 41 , 32 , 12 , 2 , 13 , 1 , 36, 6 , 17 , 22 , 42 , 51	13	.82
Factor 3	Impulsivity / carelessness style	8 , 21 , 34 , 3 , 15 , 45 , 52 , 4	8	.72
Factor 4	Avoidance style	30 , 14 , 31 , 23 , 10	5	.71

6.4.2.3 Life Satisfaction of Young Saudi Women Questionnaire

In factor analysis testing for the life satisfaction of young Saudi women, the Varimax rotation analysis showed items loading from (.32 to .82). The factor analysis indicated that four factors accounted for 36.34 % of variance. The results showed that the first factor contained 8 items all related to interpersonal satisfaction. The second factor consisted of 11 items all under the cultural and social role. The third factor included 4 items related to religion support. The fourth factor consisted of 4 items under Religion-strategy. Table 6.5 shows that all four sub-scales had a moderate level of alpha. The elimination of two items (15 and 18) was necessary to achieve a maximum alpha value of .80. Significant levels of correlation were also found (from .18 to .31) on all Life Satisfaction of Young Saudi Women sub-scales.

Table 6.5 Factors and Item Description for New LSYSWQ Sub-scales

Factor	Sub-scales	Items	N of items	Alpha
Factor 1	Interpersonal Satisfaction	29 , 25 , 27 , 28 , 2 , 6 , 4	7	.72
Factor 2	Cultural (Social role satisfaction)	19 , 20 , 16 , 13 , 21 , 9 , 11 , 26 , 22 , 8	10	.64
Factor 3	Religion support	7 , 10 , 12 , 14	4	.71
Factor 4	Religion strategies	1 , 3 , 5 , 17	4	.63

6.4.2.4 Brief COPE.

The Brief COPE, revealed four extracted factors, explaining 36.77 % of the variance The first factor consisted of twelve items related to positive steps/reframing. The second factor included eight items related to negative emotion/denial. The third factor combined four items related to instrumental and emotional support. Finally, the fourth factor included two items relating to substance use. Items 5 and 19 do not load on any factors, and were therefore excluded from the scale.

The results in Table 6.6 show a moderate level of alpha for all of the new four sub-scales. The total alpha increased from .67 to .71 after 2 items related to the humour sub-scale were deleted.

Table 6.6 *Factors and Item Description for New Brief COPE Sub-scales*

Factor	Sub-scales	Items	N of items	Alpha
Factor 1	Positive stops / reframing	17 , 2 , 16 , 3 , 18 , 15 , 11 , 4 , 20 , 6 , 9	11	.75
Factor 2	Negative emotions / denial	28 , 14 , 24 , 27 , 10 , 23 , 25 , 13	8	.62
Factor 3	Instrumental / emotional support	22 , 21 , 8 , 7,	4	.72
Factor 4	Substance use	12 , 26	2	.78

6.4.2.5 The Inventory of College Students' Recent Life Experience

The factor analysis for this inventory revealed that nine factors were extracted accounted for 52.87 % of the variance. The factors loadings are shown in Appendix 8. Three items (19, 36, and 49) were omitted, as they did not load on to any factors, although they were in the original scale (Dissatisfaction with your mathematical ability, social conflicts over smoking and dissatisfaction with your athletic skills). Table 6.7 shows the internal consistency for the Inventory of College Students Recent Life Experience.

It was found that the maximized reliability coefficients ranged from .60 to .89, indicating that some sub-scales are more reliable than others. The total alpha increased from .92 to .93 after items 19, 36 and 49 were deleted. A significant level of correlation was found between sub-scales (.18 and .61). The internal consistency for scores on all 49 items on ICSRLE was good (overall alpha .89); however, the alpha coefficients for the sub-scale scores varied considerably, from .47 for Assorted Annoyances to .80 for Time

Pressure. The ICSRLE has lower correlations among its nine sub-scales (.15 to .60) than did the original Hassles Scale (.38 to .71), with 20 of the 21 ICSRLE inter-sub-scale correlations being less than .40 (Kohn et al., 1990).

Table 6.7 *Factors and Item Description for New ICSRLE Sub-scales*

Factors	**Sub-scales**	**Items**	**N of items**	**Alpha**
Factor 1	General social mistreatment	2-8-31-39-9-10-4-1-12-24-28-44-17-33	14	.89
Factor 2	Time pressure	30-13-18-5-15-27-29-6-41	9	.80
Factor 3	Developmental challenge	11-20-23-32-14	5	.75
Factor 4	Dissatisfaction	22-25-40-45	4	.66
Factor 5	Assorted annoyance	35-37-38-42-43-46	6	.70
Factor 6	Problem with teacher	3-26	2	.71
Factor 7	Unexpected outcome	47-48	2	.67
Factor 8	Academic alienation	16-34	2	.60
Factor 9	Financial problems	7-21	2	.74

6.4.2.6 Perceived Stress Scale

For the PSS, the factor analysis yielded 2 factors accounting for 52.87 % of the variance. The factors loading are shown in Appendix 8 and they ranged from .59 to .77. The first factor consisted of six items related to positive items. The second factor consisted of four items related to negative items. The results of the factor analysis in Table 6.8 show two factors on the Perceived Stress Scale. All the positive items were combined in the first factor and all the negative items combined in the second factor, with a moderate level of alpha. The factors demonstrated significant levels of correlation (.38).

Table 6.8 *Factors and Item Description for New PSS Sub-scales*

Factor	Sub-scale	items	N of items	Alpha
Factor 1	Negative items	1,2,3,6,9,10	6	.81
Factor 2	Positive items	4,5,7,8	4	.70

6.4.2.7 Multidimensional Scale of Perceived Social Support

A Varimax rotational analysis for the multidimensional scale of perceived social support was also carried out. The factor analysis performed for the original version of the MSPSS indicated that three factors accounted for 69.71% of variance. Factor 1 (43.29 % of variance) consisted of the four items related to support from friends; Factor 2 (15.40 % of variance) consisted of the four items about family support; and Factor 3 (11.2 % of variance) of the four items related to significant others.

The first factor consisted of family support with four items; the second factor consisted of friends support with four items. Finally, the third factor consisted of significant other support also with four items. One item had second order factor loading and was included in the third factor. It is worth mentioning that the Arabic MSPSS which developed in the current study has the same number of factors, and its factors are very similar to the original scale.

Table 6.9 below shows the internal consistency of the MSPSS for the three new sub-scales. Results showed a high level of alpha in the sub-scales. In addition, the level of correlation between the Arabic and English Multidimensional Scale of Perceived Social Support was high, between .35 and .47.

Table 6.9 *Factors and Item Description for New MSPSS Sub-scales*

Factors	Sub-scales	Items	N of items	Alpha
Factor 1	Friends	6, 7, 9, 12	4	.84
Factor 2	Family	3, 4, 8, 11	4	.85
Factor 3	Significant of others	1, 2, 5, 10	4	.84

6.4.2.8 The Trait Anger Inventory

Factor analysis for the Trait Anger Inventory were examined and all items loading on their respective factors were satisfactory, significant and sizable (ranging from .41 to .80). Principal component analysis extracted 2 factors, explaining 74.78 % of the variance. The first factor consisted of four items and the second consisted of six items.

Table 6.10 below examines the internal consistency of the STAXI-T. Results showed a high level of alpha in the two sub-scales (.66 - .69).

Table 6.10 *Factors and Item Description for New STAXI-T Sub-scales*

Factors	Sub-scales	Items	N of items	Alpha
Factor 1	Reaction	4,5,8,11	4	.66
Factor 2	Temperament	1,2,3,6,7,9	6	.69

6.4.2.8 The Trait Anxiety Inventory.

For the Trait Anxiety Inventory, the factor analysis indicated two factors accounting for 48.00 % of the variance. The factor loadings are shown in Appendix 8. The first factor consisted of ten items. The second factor consisted of ten items.

Table 6.11 shows the internal consistency for the four new sub-scales of the Trait Anxiety Inventory. The alpha was .88 for trait anxiety absent and .87 for trait anxiety present. The inter-correlations among the sub-scales were .41 for both.

Table 6.11 *Factors and Item Description for New STAI-T Sub-scales*

Factors	Sub-scales	Items	N of items	Alpha
factor 1	absent	21,23,24,25,28,30,31,34,39, 40	10	.88
factor 2	present	22,26,27,29,32,33,35,36,37, 38	10	.87

6.4.2.9. The Beck Depression Inventory

For the Beck Depression Inventory scale (with Varimax rotation analyses), four factors emerged (from .34 to .65) explaining 40.08 % of the variance. The first factor consisted of 7 items, the second factor of 5 items, the third factor 5 items and the fourth factor of only 4 items. Seven items had second-order loading. One item was deleted as it contained a sexual reference which is not allowed in Saudi culture (item 21: I have not noticed any recent change in my interest in sex). The items of the translated version gave different factors from that in the original scale. The number and nature of the resulting factors possibly refers to the background, sample (patients, university students ...) and type of factor analysis. As Beck et al. (1996) speculated, some affective symptoms shifted from loading on one dimension, to another dimension depending on the background and diagnostic compositions of the samples.

Cronbach's alpha was calculated to assess internal consistency and reliability for the Beck Depression Inventory. The results demonstrated an acceptable internal consistency, ranging from .50 to .68. The correlations between the sub-scales were from .31 to 52 (see Table 6.12).

Table 6.12 *Factor and Item Description for New BDI Sub-scales*

Factors	Sub-scale	Items	N of items	Alpha
Factor 1	Cognitive distraction	1-3-4-14-16-17	6	**.68**
Factor 2	Negative self attitude	5-6-7-8-9	5	**.54**
Factor 3	Physiological/somatic elements	10-11-18-19-20	5	**.50**
Factor 4	Cognitive affect (hopelessness)	2-12-13-15	4	**.57**

6.4.3 Differences between Saudi and western (USA/UK) versions

The values for the reliability of the questionnaires, as counted in the current study were fairly consistent with what has been found in the literature (See Table 6.13). In the current study, some of the Arabic scales have a slightly higher alpha level compared with the original scales, namely Brief COPE (Carver, 1997), ICSRLE (Kohn et al., 1990) and PSS (Cohen & Williamson, 1988). It may be worth noting that all translated scales were used in subsequent studies (see Chapters 7 and 8), except The Brief Cope questionnaire, which was dropped from the model, due to the lack of significant difference from other scales.

Regarding test-retest reliability, it has been mentioned that the longer the time gap, the lower the correlation (Bryman, 1989). In this study, test-retest was made over a five-week period, and the correlation coefficient scores for all of the Arabic scales exceeded more than .56, which is considered acceptable, indicating that the instrument is stable and the participants' responses can be relied upon (Bryman, 2000).

Table 6.13 *Summary of the Scale Results*

Scale	*Alpha (Original scale)*	*Alpha (Current study)*	*Test –retest (Original scale)*	**Test-retest (Current study)**
SPSI-R	.90 (D'Zurilla et al.,2002)	.83	.68- .91 (D'Zurilla et al., 2002)	.68**
Brief COPE	.67 (Carver,1997)	.71	.46-.81 (Carver et al., 1999)	.58**
ICSRLE	.89 (Kohn et al.,1990)	.93	.77 (-)	.56**
PSS	.78 (Cohen & Williamson, 1988)	.80	.85-.55 (Cohen et al., 1983)	.60**
MSPSS	.88 (Zimet et al., 1988)	.87	.85 (Zimet et al., 1988)	.66**
STAI-T	.86-.90 (Spielberger, 1983)	.90	-	-
STAXI-T	73 -93 (Freeman & Klecker, 2003)	.74	-	-
BDI	.81 (Beck et al., 1988)	.81	-	-

Note. Social-problem solving inventory-revised (SPSI-R), Perceived stress scale (PSS), The Inventory of College student's recent life experiences (ICSRLE), The Multidimensional Scale of Perceived Social Support (MSPSS),The brief cope (COPE), Life satisfaction for Saudi women (LSYSWQ), Trait Anxiety Inventory (STA-T), Trait Anger Inventory (STAX-T), Beck Depression Inventory (BDI).

6.4 Chapter summary

The present study aimed to explore the reliability and validity of all questionnaires used with a large sample. One of the aims of this chapter was to determine whether the structure of the scales would be different in different cultures and how far each of the Arabic (translated) scale factors differed from the original English scales.

The first section of this chapter highlighted that the correlation of the Arabic scales and other scales were to be tested. The results showed that all Arabic scales correlated significantly with each other, except the Arabic Brief COPE, which was correlated with all scales apart from BDI, PSS and STAI-T.

Regarding factor analysis with a sample of 631, the loading of items was characterized by an interpretable simple structure, meaning that they had high loadings on the major factors and low cross-loadings on the other factors. Almost all items in all scales constructs hypothesized in the Arabic version of the instrument emerged. Further, when the factor structure for the current study was compared with those in the literature, sometimes the results showed differences in the divisions of the sub-scales in most of the questionnaires (e.g. ICSRLE, SPSI-R, DBI, STAI-T, PSS and Brief COPE) and sometimes item loading on those factors was highly consistent with the original scale items (e.g. MSPSS, STAXI).

The findings presented in this chapter showed that the Arabic translations of all scales were culturally acceptable, relevant, sensitive to fluctuation and consistent with the original versions. The statistical tests showed moderately high reliability between the translated and original instrument. There seemed to be little difference between the subjects' responses in either version. However, the results presented here must be

considered critically, as the sizes of the test and comparison groups were different but large.

In conclusion, this study included the translation from the source version, refinements to translation, and preliminary studies of reliability and concurrent validity. The results achieved are robust enough to recommend the use of the questionnaire in the investigation of the social-problem solving impacts of mental health. However, as with any instrument, the validation of a translated questionnaire is an ongoing process. In a next step, studies are needed to confirm the results from this study and generate more precise estimates of the scale properties.

The following chapter contains the main study, to test social-problem solving ability, coping, stress, anxiety, depression, anger, and social support in a large sample. In addition, the hypothesized model will be examined. The empirical assessment of the interplay between stress and problem solving and social support in relation to distress is to identify whether there is an association, and to determine the direction and size of effect.

CHAPTER SEVEN: TESTING THE MODEL (UNIVERSITY SAMPLE)

7.1 Introduction

The aim of this study was to test a hypothesized model to investigate the relationships between stress, social-problem solving and students' well-being, as well as life satisfaction, and social support following the social-problem solving model (D'Zurilla et al., 2000). Specifically, it examined the relationship between stress, social-problem solving, social support, life satisfaction and distress (depression, anxiety and anger) in a sample of Saudi young adults, to explore the role of social-problem solving and social support as potential mediators or moderators of the link between stress distress (anxiety, anger and depression) and life satisfaction in the Saudi female undergraduate group.

7.2 Data Analysis.

According to previous research, there is an important reciprocal relationship between social-problem solving and adjustment (D'Zurilla & Nezu, 1999). Therefore, it can be hypothesized that social-problem solving, as measured by the SPSI-R, is negatively and significantly associated with distress in young women, and stress is positively associated with distress (depression, anxiety and anger). Findings have indicated how stress may negatively affect social-problem solving (D'Zurilla & Nezu, 1999, 2007) and based on these it is predicted that social-problem solving could mediate the association between stress and distress (see Figure 7.1 below). In the social-problem

solving model (D'Zurilla et al., 2000), stress is seen as a function of the reciprocal relations between three major variables: (a) stressful life events, (b) emotional stress responses and (c) problem solving. Several empirical studies have supported the social-problem solving model (D'Zurilla & Nezu; 1999, Nezu, 2004), and have examined the relation between social-problem solving and psychological distress (e.g., depression, anxiety), and positive psychological well-being (e.g., life satisfaction, self esteem).

An individual's level of social support helps in student adjustment during the transition to university life. Previous research has found that a lack of social support is a risk factor for poor adjustment (Lamothe et al., 1995), where good social support helps in the management of the effects of stress (Oliva et al,. 2009; Cutrona & Russell, 1987). Further studies have highlighted the importance of social support in terms of better adjustment; showing that students with better social support and higher adjustment levels had fewer behavioural problems compared to those with less social support (Pratt et al., 2000).

The present study assesses the relationship between stress and psychological distress, and examines how social-problem solving and social support mediate and moderate these relationships. Because we had no theoretical reason to favour either a mediational or moderational model in our study, we examined both models. In any given sample, an examination of the relations between any three related variables may reveal a mediator, moderator or both. Nonetheless, many studies in the social-problem solving literature have examined one of these potential relationships while ignoring the other.

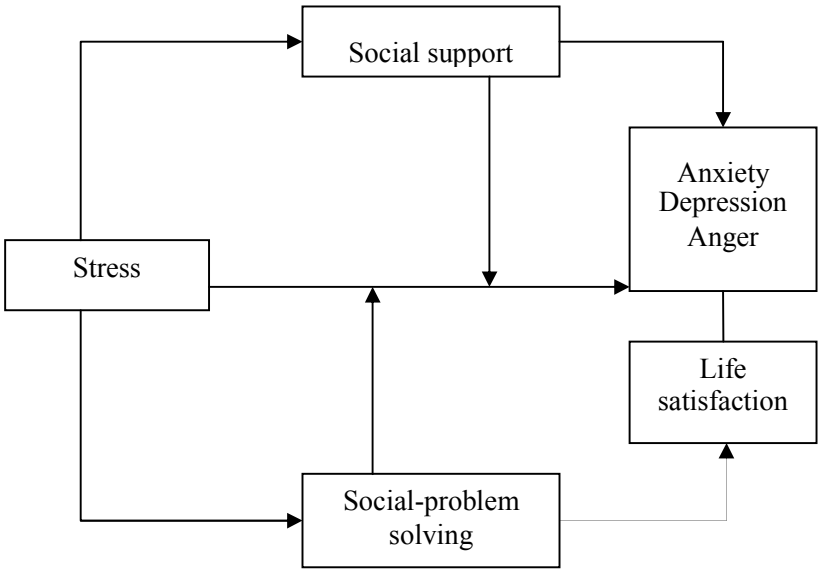

FIGURE 7.1 A model of the role of social-problem solving and social support in response to the relationship between stress and distress and life satisfaction.

7.2.1 Moderators and mediators

Distinctions must be made between moderators and mediators for conceptual and statistical purposes. Moderators are different from mediators and the statistical methods used to test their effects are also different (Baron & Kenny, 1986). Baron & Kenny, 1986 defined the moderating variables as follow " in general terms, a moderator is a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of relation between predictor variable and a creation variable". In the present study, for example, the relationship between stress and distress

may be affected by the interaction between the level of social-problem solving and social support. In other words, stress associated with distress may have a stronger effect under conditions of low social-problem solving or social support. This study takes the main view that greater social-problem solving and support can lead to better adjustment (less depression and anxiety) see Figure 7.2 below.

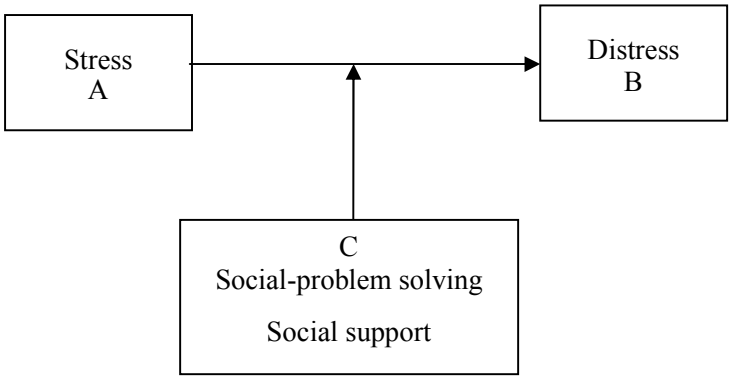

FIGURE 7.2. The hypothesised moderation model, where the association between stress (A) and distress (B)is moderated by social-problem solving and social support (C).

On the other hand the term mediator is used to describe a concept or mechanism through which stress impacts psychological symptoms in a statistically clear way (Kim et al., 2001). The following four criteria are necessary for mediation: (I) the predictor (stress) is significantly associated with the outcomes (anxiety, depression, anger, life satisfaction), (II) the predictor is significantly associated with the mediator (social-problem solving/social support), (III) the mediator is associated with outcome variables, and (IV), the addition of the mediator to the full model reduces the relationship between the predictor and criterion variable (Baron & Kenny, 1986; Pearl, 2000).

In this model, direct effects include the paths of the stress on distress (I → D), the path of stress on social-problem solving and social support (I → M) and finally the path of social-problem solving and social support on distress and life satisfaction (M → D) (see Figure 7.3). The direct effects of the indicators are the regression weights. Indirect effects include the influence of one variable on another that is not specified by a path in the model.

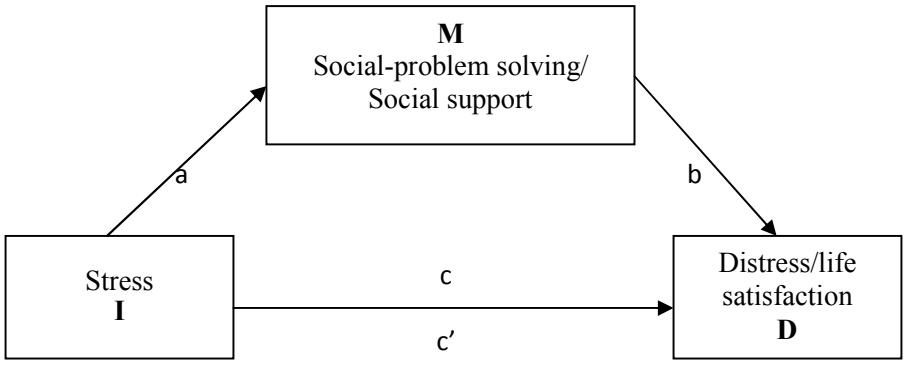

FIGURE 7.3. The hypothesised mediation model, where the association between stress (I) and distress (D)is mediated by social-problem solving and social support (M). c represents the association between predictor and outcome before controlling for the mediator. c' represents the association between predictor and outcome after controlling for the mediator. c-c' represents the size of the mediation effect. ab is equivalent to c-c' (Mackinnon et al., 1995).

7.3 The path model for this study

The main statistical methods used in this study are multiple correlation, path analysis and Structural Equation Modelling (SEM) in AMOS 17.0. For SEM, a hypothesis-testing approach is used to determine the theoretical model of a phenomenon (Byrne, 2001). In structural analysis, the proposed theory is compared to the sample data to estimate goodness of fit. Adequate fit implies support for the hypothesized model. Path

Analysis is the technique used to examine causal relationships between two or more variables.

Path analysis belongs in the family of Structural Equation Modelling (SEM), and is the multivariate procedure that Ullman (1996) defined as allowing "examination of a set of relationships between one or more independent variables, either continuous or discrete, and one or more dependent variables, either continuous or discrete" (p. 431). SEM deals with measured and latent variables. Measured variables that can be observed directly are also known as observed variables, indicators or manifest variables. A latent variable is a variable that cannot be observed directly and must be inferred from measured variables. Latent variables are implied by the covariance among two or more measured variables e.g. stress. They are also known as factors (as in factor analysis), constructs or unobserved variables.

7.4 Components of a Structural Equation Model

Structural Equation Models are divided into two sorts: a measurement model and a structural model. The measurement model deals with the relationships between measured variables and latent variables. The structural model deals with the relationships between latent variables only.

The required sample size for SEMs causes disagreement among statisticians. There are many ways to estimate what an adequate sample size will be. Numerous studies have addressed the issue and proposed different methods. Some suggest using a rule of thumb. Comrey and Lee (1992) suggest minimum sample size values, with 50 being very poor, 100 poor, 200 fair, 300 good, 500 very good, and 1,000 excellent. In this study 630 participants were included in the model.

In order to test model fit, basic measurement and fit indices were used, as presented below, with summary information on their function and interpretation (Byrne, 2001; Ullman, 1996). One of the goodness-of-fit indices to assess model fit was χ^2 and associated *p* - value, χ^2 /*df*. Goodness-of-fit was judged with a non-significant χ^2 value. As χ^2 is affected by sample size the χ^2 ratio is also reported (χ^2 /*df*) which will be <2 if good model fit is obtained (Tabachnick & Fidell, 2007). Since χ2 alone is not an adequate indicator, it is interpreted in terms of degrees of freedom. *df* refers to the difference between known values and unknown value estimates and the ratio of χ2/*df* determines the model identity. As a large sample size has effect on chi-square, other measures of fit were used as a way to determine model acceptance or rejection. Therefore, other indices are considered to have goodness of fit to test how the hypothesized model fits the data.

CFI (comparative fit index) is a goodness-of-fit measure with values ranging from zero to one. It is derived by comparison of the hypothesized model and the independence model (it implies the null model, in which all paths in the structural model are zero) (Byrne, 2001). The objective of SEM is that the proposed model represents the sample data. Greater similarity between the models is associated with higher CFI values; consequently, it is desirable to have a CFI value of .95 or higher (Byrne, 2001).

RMSEA is the root mean square error of approximation which assesses how well the model, with unknown but optimally chosen parameter values, would fit the population covariance matrix, if available (Browne & Cudeck, 1993). Values equal to or less than .05 indicate good fit, whereas values of .08 represent reasonable errors of approximation in the population (Brown & Cudeck, 1993). Schermelleh-Engelleh et al. (2003) stated that *RMSEA* values of between .08 and .10 are a mediocre fit, and values

> .10 are not acceptable. The null hypothesis is that the RMSEA is ≤ .05, which indicates a close-fitting model. The *p* value examines the alternative hypothesis that the RMSEA is greater than .05. If *p* is over .05, then it might be concluded that the fit of the model is "close".

Hoelter's Critical is a measure of sample size that is distinct from SEM. The purpose of Hoelter's Critical is to estimate a sufficient sample size to yield an adequate model fit for the chi-square test (Hu & Bentler, 1995). A value greater than 200 might indicate an adequate sample size for the data. Hoelter's Critical will be examined to determine if the sample size meets the criteria for this measure, with values greater than 200.

AMOS also reports a 90% confidence interval for the RMSEA. While the RMSEA value may be small, a wide confidence interval may suggest imprecision and result in an inability to accurately determine the degree of fit in the population. By contrast, a very narrow confidence interval suggests good precision in reflecting the fit of the model with the population (MacCallum et al., 1996).

Because SEM is basically a series of regressions, it is important to consider the assumptions of regression analysis. Regression assumes that the predictor variables are measured without error. Random error can lead to biased estimation of regression coefficients (Pedhazur & Schmelkin, 1991). Although measurement error is factored into SEM, it is still necessary to control for error as much as possible. Using measures that are reliable and valid reduces the amount of error in the analysis. For this study, validity and reliability have already been established for all variables.

7.5 Analysis with Structural Equation Modelling

It is important to observe the fit of the model using several different fit statistics. The many fit statistics used to evaluate this study will provide a more accurate account of the true fit of the model to the sample data.

7.5.1 The mediation hypothesis

Structural equation modelling was used to study the associations between stress, social-problem solving, social support, life satisfaction and distress (depression, anxiety and anger). Initially the models of stress (perceived stress and daily stressors) predicting distress (depression, anxiety, anger) were specified to test the direct effect. Then, the model (presented earlier in this chapter) was used to test the hypotheses of the study (see Figure 7.1). The mediating effects of all the variables were examined for each set of variables separately, which means, firstly, the social-problem solving was examined as a mediator in an independent regression analysis. Secondly, social support was examined in the second regression analysis.

Before testing of the meditational hypotheses, the paths between independent variable and dependent variables were examined in order to determine the direction and size of effect between stress and distress and life satisfaction. The main path of interest was the structural one between the stress latent variable and either the distress or the life satisfaction latent variable, which was controlled as the path between the two types of latent variable of main importance. The stress-distress path will be examined first, followed by the stress-life satisfaction path. First, the stress-distress tests structural equation model (Figure 7.4) provided an excellent fit to the data (CFI = .98, RMSEA = .07, PCLOSE = .10). As expected, there was a significant positive pathway between

stress and distress (β = -.95, $p < .001$), showing higher levels of stress predicted higher level of distress scores.

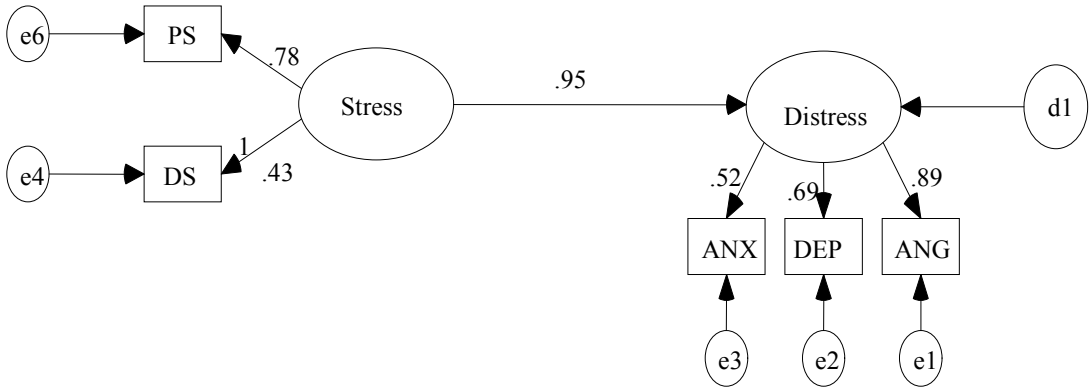

FIGURE 7.4. An illustration of a structural equation model diagram showing the relationship between stress and distress. PS = stress measures by PSS (Perceived Stress Scale). DS = daily stressors measured by the ICSRLE (The Inventory of College Student's Recent Life Experiences). DEP = depression measured by the BDI (Beck Depression Inventory). ANX = trait anxiety measured by the TAI (Trait Anxiety Inventory) and ANG = anger measured by the TAXI (Trait Anger Inventory).

Figure 7.5 also shows the stress-life satisfaction structural equation model. It provided an excellent fit to the data (CFI =.97, RMSEA = .07, PCLOSE = .12). As expected, there was a significant negative pathway between stress and life satisfaction (β = -.70, $p < .001$), showing that higher levels of stress predicted lower life satisfaction scores.

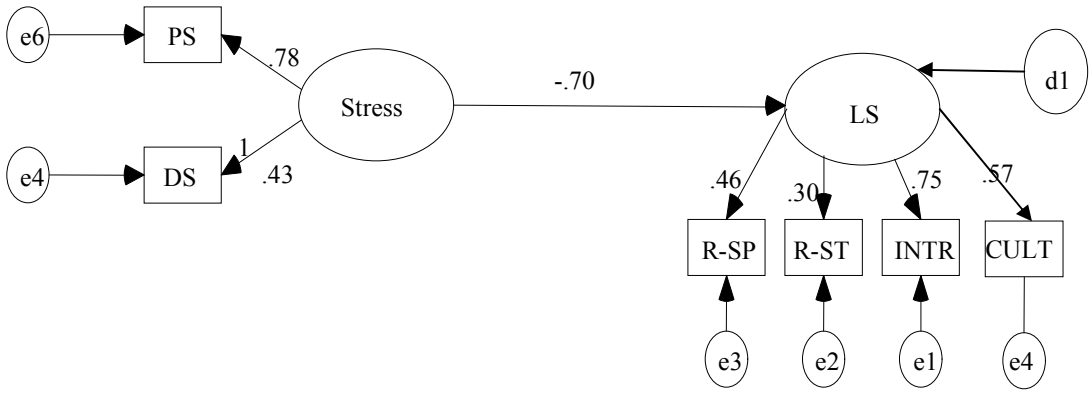

FIGURE 7.5. An illustration of a structural equation model diagram showing the relationship between stress and distress. PS = stress measures by PSS (Perceived stress scale). DS = daily stressors measured by the ICSRLE (The Inventory of College Student's Recent Life Experiences). LS = life satisfaction measured by LSYSWQ (Life Satisfaction of Young Saudi Women Questionnaire). R-SP = religious support. R-ST = religious strategy. INTR = interpersonal problems and CULT = cultural problems.

7.5.1.1 The mediating effect of social-problem solving

Regression coefficients were calculated to assess the strength of the associations in each of the paths illustrated in Figure 7.6. A series of scenarios were examined to test the effect of social-problem solving dimensions as a mediator of the stress-distress relationships, first, the effect of social-problem solving as a global scale, secondly, the effect of rational problem solving (RPS) and finally, the effect of dysfunctional problem solving dimensions. These models were tested separately.

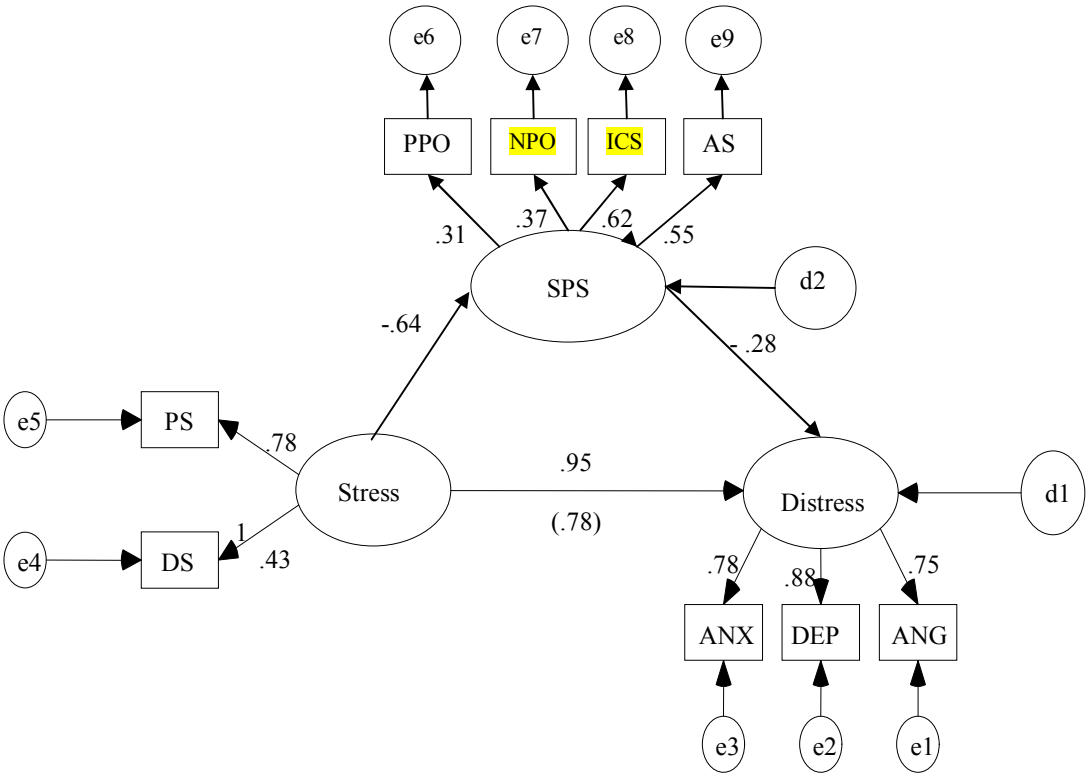

FIGURE 7.6 A structural equation model diagram showing the mediated relationship between stress and distress. STRESS: DS = daily stressors measured by the ICSRLE (The Inventory of College Student's Recent Life Experiences). DEP = depression measured by the BDI (Beck Depression Inventory). ANX = trait anxiety measured by the TAI (Trait Anxiety Inventory) and ANG = anger measured by the TAXI (Trait Anger Inventory). SPS = social-problem solving measured by (Social-problem solving inventory revised). PPO = positive problem orientation and rational problem solving, NPO = negative problem orientation, ICS = impulsiveness and carelessness style, AS = avoidance style.

The Pearson correlation coefficients of the variables used in the study were presented in the previous chapter. Depression, anger and anxiety were significantly correlated with the SPS subscales and remain the highest in terms of negative problem orientation, impulsiveness and carelessness style. In addition, NPO was the highest factor on the social-problem scale that was negatively correlated with stress (Chang et al., 2001).

The coefficients and associated *p*-values are given in Table 7.1. Stress was positively associated with distress. Stress was negatively associated with social-problem solving. Social-problem solving was also negatively associated with distress.

Table 7.1 *Standardized Regression Weights of Paths Between Independent and Dependent Variables*

Independent variables		**Dependent variables**	**β**	**SE of β**	***P*- value**
Stress	→	Distress	.78	.07	< .001
Stress	→	Social-problem solving	-.64	.11	< .001
Social-problem solving	→	Distress	-.28	.05	< .001

When the indirect effects were considered, it was seen that stress had an indirect significant effect on distress through social-problem solving (β = .18, *p* = <.03). Although a model specifying social-problem solving as mediating the effects from stress to distress remained significant, it gave a poor fit of the data (CFI = .91, RMSEA = .11). This suggests that social-problem solving as a global scale is potentially important in reducing distress but not important in explaining the relationship between stress and distress in the university female Saudi sample. On the other hand, based on some previous literature, social-problem skills (problem definition and formulation PDF, generation of alternative solutions GAS, decision making DM and solution implementation and verifications) may found to be mediating the relationship between stress and distress. Studies have indicated

that stressful experiences may lead to greater negative functioning by decreasing problem solving skills (e.g., Bell & D'Zurilla, 2009, Lyubomirsky et al., 1999). When this assumption was tested it provided a good fit to the data (CFI = .97, RMSEA = .06, POLOSE = .06). Although, there was a significantly positive direct path between stress and distress ($\beta = .93$, $p < .01$), it was small, as the regression beta weight for the indirect effect was ($\beta = .02$).

Regarding the third set of the analysis, the dysfunction social-problem solving dimension (NPO, AS, ICS) was tested as a mediator. The results in Figure 7.7 below show that, a model specifying stress as mediating the effects of distress through dysfunctional problem solving had a good fit to the data (CFI = .96, RMSEA = .09). Further, there was a significant indirect effect from stress to distress via dysfunctional social-problem dimensions ($\beta = .16$, $p < .03$).

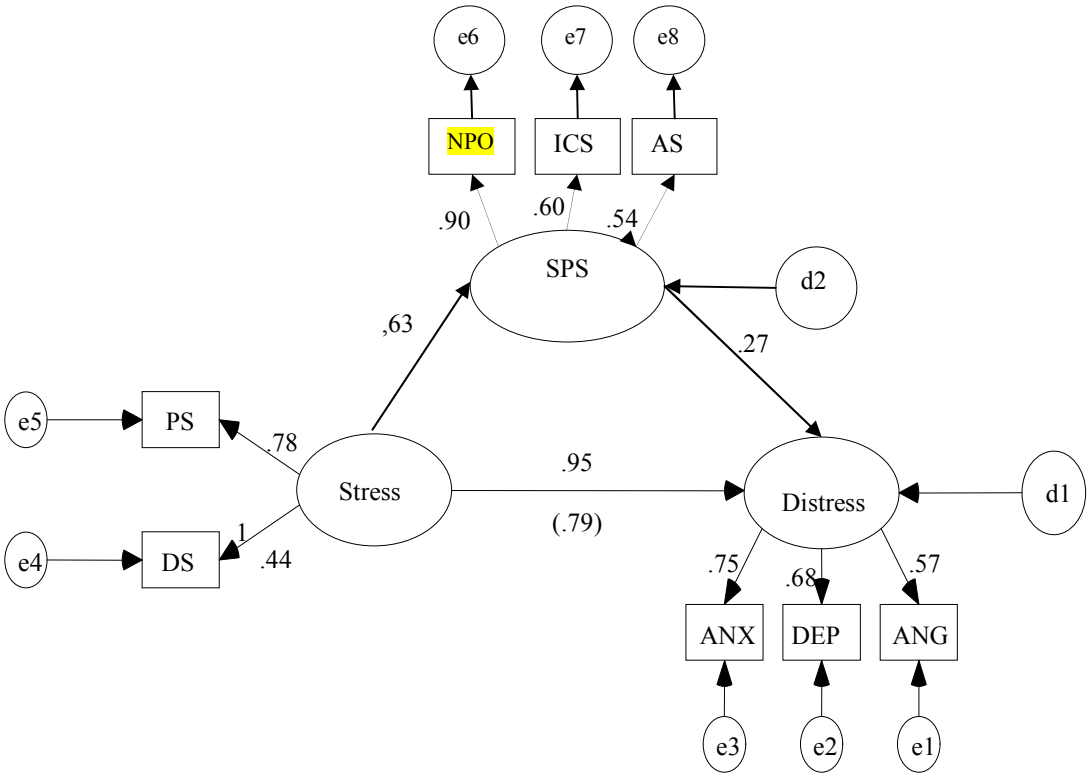

FIGURE 7.7 A structural equation model diagram showing the mediated relationship between stress and distress (anxiety, depression and anger) via social-problem solving. STRESS: DS = daily stressors measured by the ICSRLE (The Inventory of College Student's Recent Life Experiences). DEP = depression measured by the BDI (Beck Depression Inventory). ANX = trait anxiety measured by the TAI (Trait Anxiety Inventory) and ANG = anger measured by the TAXI (Trait Anger Inventory). SPS = social-problem solving measured by (Social-problem Solving Inventory Revised). NPO = negative problem orientation, ICS = impulsiveness and carelessness style, AS = avoidance style

A model specifying stress as mediating the effects of life satisfaction through SPS (all models) showed a poor fit to the data and the direct path between stress-life satisfactions was higher when the mediating variables were included in the analysis. There was therefore no evidence to support the notion that SPS was acting as a mediator in the stress-life satisfaction relationship.

7.5.1.2 The mediating effect of social support

Figure 7.8 below illustrates social support as mediating the effects of stress to distress.

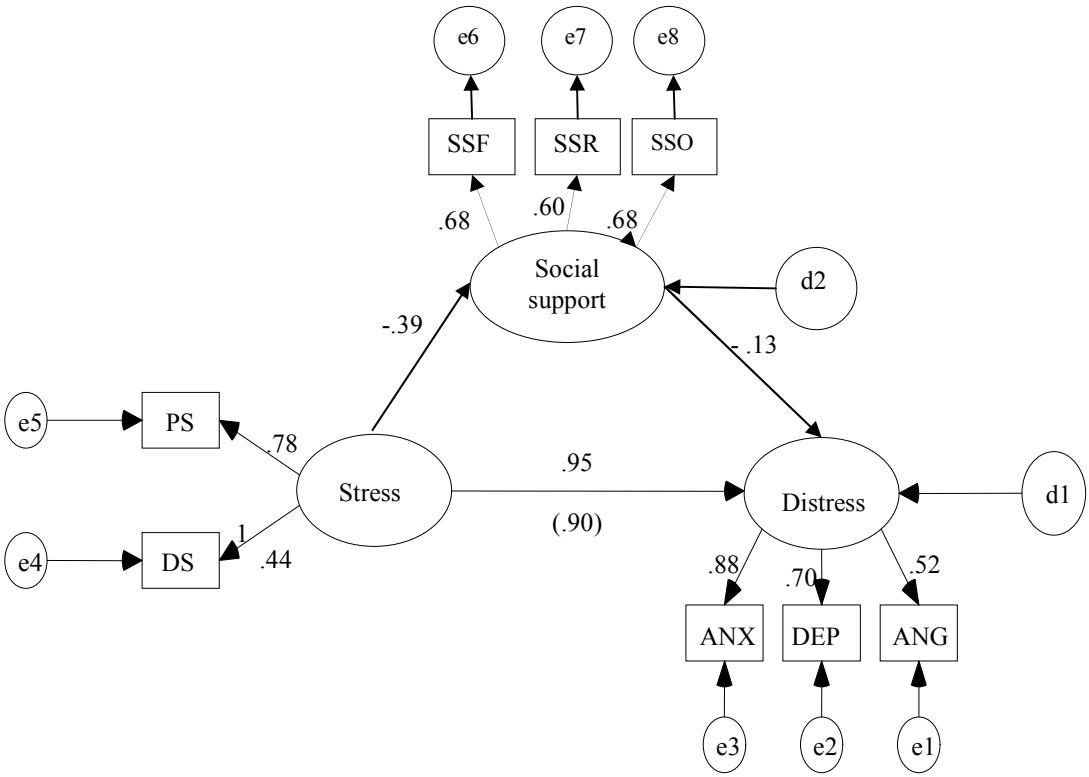

FIGURE 7.8. A structural equation model diagram showing the mediated relationship between stress and distress. Anxiety, depression and anger via social-problem solving. PS = stress measures by PSS (Perceived stress scale). DS = daily stressors measured by the ICSRLE (the inventory of university student's recent life experiences). DEP = depression measured by the BDI (Beck Depression Inventory). ANX = trait anxiety measured by the TAI (Trait Anxiety Inventory) and ANG = anger measured by the TAXI (Trait Anger Inventory). Social support measured by the MSPSS (The Multidimensional Scale of Perceived Social Support). SSF = social support (family), SSR = social support (friends), SSO = significant others.

Social support was significantly and negatively correlated with stress (r = -44), anxiety (r = -.97), depression (r = -.82) and anger (r = -.49). It has been found that social support mediates the relationship between stress and anger among adolescents and young people, affects the person's perception of self-esteem, and reinforces intimacy and dependability (Eckenrode & Wethington, 1990). In addition, family support has been found to be a largely negatively correlated component with these negative factors (Haj-Yahia, 2000).

Stress was positively associated with distress and negatively associated with social support. Social support was also found to be negatively related to distress; see Table 2.

Table 7.2 *Standardized Regression Weights of Paths Between Independent and Dependent Variables*

Independent variables		**Dependent variables**	**β**	**SE of β**	***P*- value**
Stress	→	Distress	.90	.28	< .001
Stress	→	Social support	-.39	.23	< .001
Social support	→	Distress	-.09	.04	.03

The social support test model (Figure 7.8) gave a good fit to the data (CFI = .95, RMSEA = .08). There was a significant indirect effect from stress to distress via social support, which reduced from .95 to .90 (p < .03), yet the path remained as only a small indirect effect (β = .05).

When life satisfaction was added to the model as an outcome variable, there was an excellent fit to the data (CFI = .99, RMSEA = .02, PCLOSE = 1.00). There was a significant indirect effect from stress to distress via social support which was reduced from -.85 to -.30 ($p < .002$). When the variances were explained in the mediating variables, it was seen that 55% of the variance was explained by social support.

7.5.2 The moderation hypothesis

Previous studies have indicated that social-problem-solving is a significant moderator between major negative life events and internalised depression and anxiety (see reviews by D'Zurilla & Nezu, 2007; Nezu, 2004; Nezu et al., 2004), but not many have examined the influence of social-problem solving on the relationship between daily stressful events and adjustment (Bell & D'Zurilla, 2009).

Aiken & West (1991) centred predictor variables for each set of variables involved in moderation analysis and created an interaction term using the centred variables. In their model they showed that daily stress and externalised symptoms were stronger when negative problem orientation was high rather than low.

It was hypothesized that (a) social-problem solving would moderate the effects of stress on distress; (b) social support would moderate the effects of stress on distress. Social-problem solving and social support were analyzed using the Baron and Kenny (1986) moderator model. Baron and Kenny (1986) state in this model that the arrow from the independent variable to the dependent variable (Path a) represents stress → distress. The arrow from the moderator variable to the dependent variable (Path b) represents social-problem solving/social support → distress, and the arrow from the interaction of

the independent variable and moderator variable to the dependent variable represents Path C (see Figure 7.9 below). The moderator hypothesis is supported if the interaction in Path c is significant. There may be effects from the independent variable and the moderator (Paths a and b) but they are not directly relevant to the moderator hypothesis.

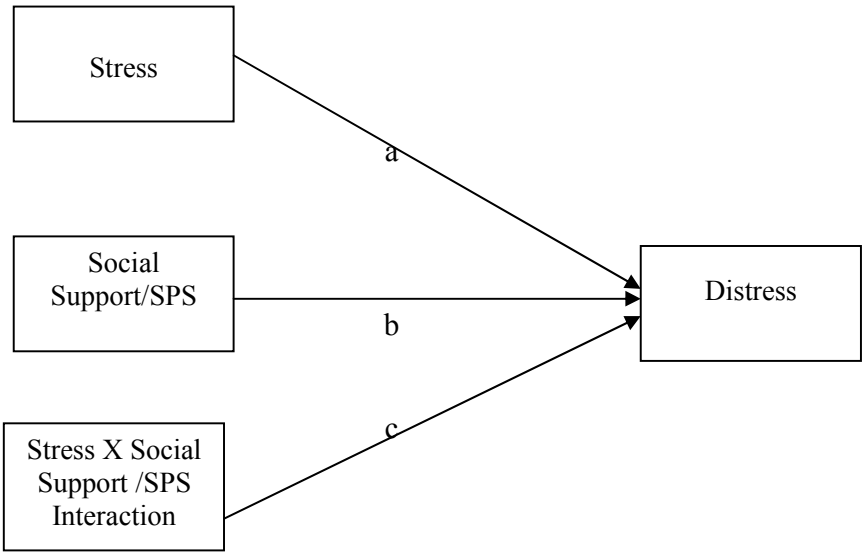

FIGURE 7.9. A Diagrammed Example of Moderation. Note: each individual effect of stress, social support/ social-problem solving (SPS), and the interaction of stress and social support/social-problem solving can be separated and is supposed to be related to distress. There are no causal connections between stress and social support.

7.5.2.1 The moderating effect of social-problem solving

To determine whether evidence could be found for a significant social-problem solving x stress model, SEM was used to test the interaction effect.

The results of SEM show a significant moderating effect of social-problem solving on the relation between stress and distress ($\beta = .09$, $p = < .02$). However, the results indicate that the model provides a poor fit to the data (CFI = .91, RMSEA = .09).

This might be because a large number of studies using SPSI-R have found evidence of convergence for the hypothesis that, with similar levels of high stress, individuals that have poor problem solving abilities may experience significantly higher levels of psychological distress, or depression (Chang, 2001; Nezu & Ronan, 1985; Fry & Goodman, 2000) and anxiety (Miner & Dowd, 1996), although, individuals with poor problem solving may be predicted to suffer the negative effect of stress (Chang et al., 2004).

Consequently, to explore the data further, PPO/RPS was excluded from the next analyses. In addition, anger was also excluded. The reason for this was that, although there is a strong relationship between SPS and anger, there was no evidence as far as the researcher knows to suggest that social-problem solving moderates the relationship between stress and anger. When PPO/RPS and anger were excluded from the model, it was improved. The path analysis results showed that the path NPO, ICS and AS scales of SPSI-R significantly interacted with stress to predict a high level of distress (anxiety and depression) in Saudi female university students (see Figure 7.10 below).

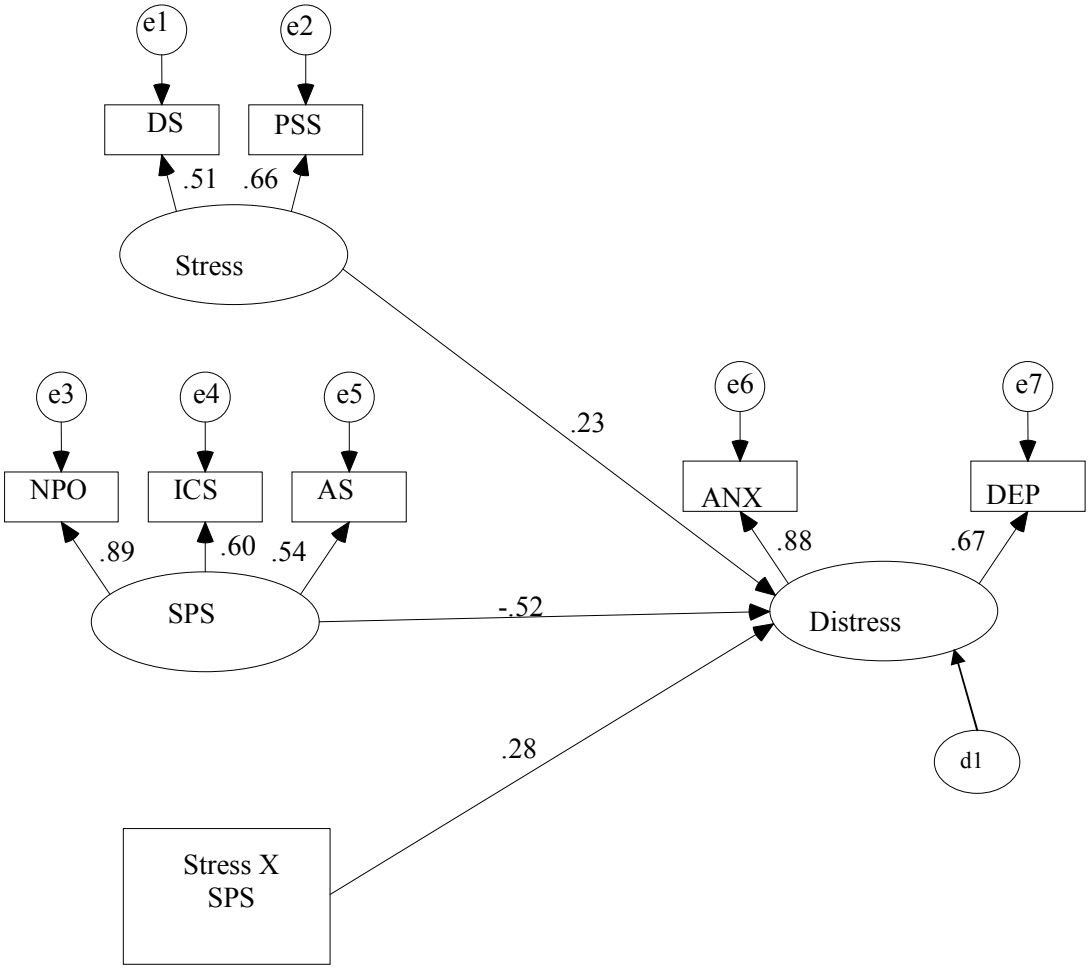

FIGURE 7.10. The structural equation model diagram showing the interaction between stress and social-problem solving. STRESS: PS = stress measures by PSS (Perceived stress scale). DS = daily stressors measured by the ICSRLE (The Inventory of College Student's Recent Life Experiences). DEP = depression measured by the BDI (Beck Depression Inventory). ANX = trait anxiety measured by the TAI (Trait Anxiety Inventory). SPS = social-problem solving measured by (Social-problem Solving Inventory Revised). NPO = negative problem orientation, ICS = impulsiveness and carelessness style, AS = avoidance style.

The results demonstrated that, the model gave an acceptable fit to the data (CFI = .98, RMSEA = .09). The path from the interaction latent variable to the distress latent variable (anxiety and depression) was statistically significant (β = .28, p = < .001). To support the hypothesis, Nezu et al. (1986) conducted several multiple-regression studies and found significant interactions between stressful life events and problem-solving that predicted both depression (Nezu et al., 1986; Nezu & Ronan, 1988) and anxiety (Nezu, 1986). Here, the relations between stressful life events and psychological distress were high for individuals with lower problem-solving ability.

7.5.2.2 The moderating effect of social support

This study has suggested that perceived social support can act as a buffer, moderating the relation between stress and distress. Students who indicated low levels of perceived social support were more likely to show distress, while students who indicated high levels of perceived social support would be less likely to show distress when stressed. This finding is consistent with previous research which has found that social support is an important way to protect children and adolescents from the negative effects of stressful life experiences (Demaray et al., 2005; Malecki & Demaray, 2003; Seiffge-Krenke et al., 2008).

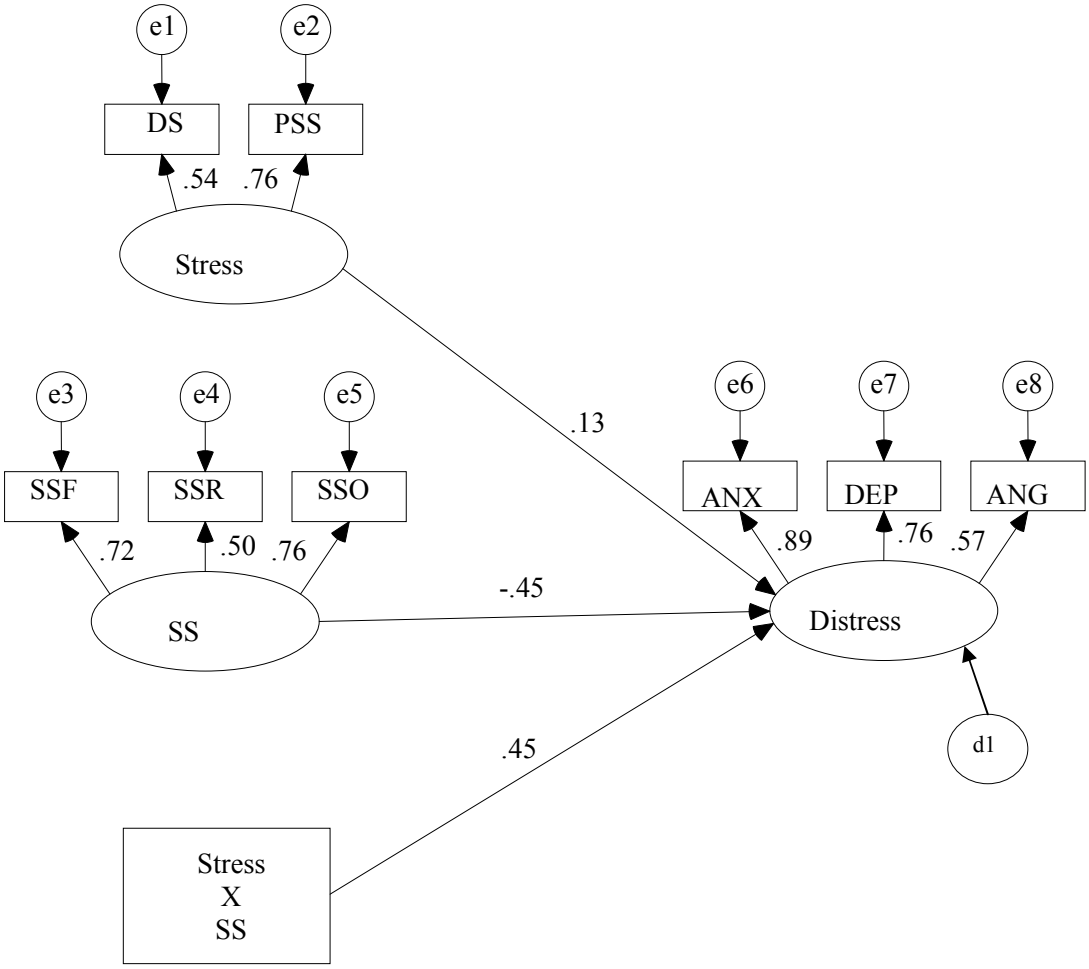

FIGURE 7.11. The structural equation model diagram showing the interaction between stress and social support. PS = stress measures by PSS (Perceived Stress Scale). DS = daily stressors measured by the ICSRLE (The Inventory of College Student's recent life experiences). DEP = depression measured by the BDI (Beck Depression Inventory). ANX = trait anxiety measured by the TAI (Trait Anxiety Inventory) and ANG = anger measured by the TAXI (Trait Anger Inventory). SS=Social support measured by the MSPSS (The Multidimensional Scale of Perceived Social Support). SSF = social support (family), SSR = social support (friends), SSO = significant of others.

Previous empirical studies have shown social support to be a positive stress buffer, and greater levels of stress are associated with psychological and behavioural problems in individuals with low levels of social support (Dubow & Tisak, 1989).

Results indicating significant interactions between perceived social support and stress show an acceptable fit to the data (CFI = .98, RMSEA = .07, POCLES = 05); the path from the interaction latent variable to the distress latent variable was (β = .45), which was statistically significant (p = < .001) see Figure 7.11. Research on social support highlights its contribution to an individual's well-being and the reduction of psychological distress (Chang et al., 2001; Larson, 2006; Zimet et al., 1988).

7.6 Chapter Summary

The present study assessed the relationship between stress and distress and the mediating and moderating role of social-problem solving. In addition, it tested the possibility that social support for Saudi women can mediate or moderate the relation between stress and distress.

The results of the present chapter found a positive association between stress and distress, a relationship that was clear on all measured variables (anxiety, depression and anger). It also found a negative association between these variables and social-problem solving (D'Zurilla et al., 1995; Nezu et al., 1986; Chang et al., 2004), social support (Mosher et al., 2006; Crockett, 2007) and life satisfaction (Bulut, 2007; D'Zurilla & Nezu, 1999, Heppner et al., 1995; Dora, 2003, Hamarat, 2009).

The results also revealed that social-problem solving mediated the relationship between stress and distress, as the global scale of social-problem solving has a poor fit with the data, but remained significant. On the other hand, the findings indicate that the psychological well-being of young Saudi women may be strongly affected by both the direct impact and the indirect impact that stress has on the dysfunctional problem solving

dimensions. In other words, the relationship between stress and distress was mediated by the dysfunctional social-problem solving dimensions (NPO, AS and ICS) but not the constructive dimensions (PPO and RPS). Several studies that have used the SPSI-R found a relationship between problem solving skill factors, negative solving skills and various measures of distress (e.g., Chang et al., 2004).

The second finding was that the relation between stress and distress has a small indirect effect explained by social support ($\beta = .05$). This suggests that social support was potentially important in reducing distress but not important in explaining the relationship between stress and distress in the female university sample in Saudi Arabia. Some investigators have proposed that an important aspect of social support is its influence on the coping strategies individuals engage in under stress. For example, Lazarus and Folkman (1984) defined resources such as social support as what an individual "draws on in order to cope," and they argued that such resources "precede and influence coping" (p. 158). Similarly, Thoits (1986) viewed social support as a source of coping assistance. For instance, advice and support from an intimate may increase the possibility that a person will rely on logical analysis, information seeking, or active problem solving (Compas, 1995). It seems that within the context of the current model, perceived support is more consistent with the view of social support as a coping resource.

The results also showed that the relation between stress and adolescents' life satisfaction was partially mediated by social support (McKnight et al., 2002), but not by social-problem solving. This finding suggests that helping young people to maximize opportunities to experience positive events each day in family, peer, school/university,

and community environments will have a cumulative effect on building life satisfaction, well-being and eventually positive development (Park, 2004).

Consistent with Chapter four, which indicated that social support is an important factor for most Saudi women, the results from this chapter determined that the link between stress and life satisfaction was partially mediated by social support and the models might be appropriate for Saudi culture. Clinical and social psychological research has demonstrated that perceived effective social support from members of a social network (i.e. friends and family or others) is related to lower depressive symptoms, lower anxiety, high self-esteem, and greater life satisfaction (Bradley et al., 2005; Wong et al., 2007). In addition to coping strategies, social support appears to be an important mediator of the effects of life stress in general (Heller, et al., 1986).

In the present study we also investigated the role of social-problem solving and social support as a moderator that interacts with stress to influence the effects of stress on anxiety, depression and anger (see D'Zurilla et al., 2002). First, the results of this study demonstrated that dysfunctional social-problem solving dimensions moderate the relation between stress and distress (anxiety and depression). The published literature strongly suggests that social-problem solving is a significant moderator between stressful life events and psychological distress (Nezu, 2004). Specifically, when individuals report experiences of high levels of stress, those who were found to rely less on a problem solving strategy were more likely to experience a higher level of anxiety compared to those who used more social-problem strategies (Nezu, 2004; Nezu, 1986). The same was found for depression (Nezu et al., 1986; Frey & Goodman, 2000).

Regarding the moderatoring role of social support, the findings of the present study contribute to the theoretical understanding of how and under what conditions social support may protect young women from the negative effects of stress on distress. The results of the present study demonstrated that social support was effective in reducing the likelihood that stress would lead to increased psychological distress. Negative events, such as task failure and distress in relationships may lead people to seek social support, and such support can be emotional or instrumental (e.g. Vaux, 1988). One main reason why people seek social support is to obtain reassurance that they are or will be in reasonable condition, and that they can live a reasonable life. The available data suggest that such reassurance can be quite comforting (e.g. Cobb, 1976). Moreover, some have suggested that people do not actually have to obtain support to obtain relief; the simple knowledge that support is available may be enough to provide relief (e.g. Sarason, et al., 1990).

Social-problem solving can be seen as an intrapersonal and interpersonal process that leads to quality relationships and an enhanced quality of life (Felce & Perry 1995; Wallander et al., 2001). On the other hand, the stress-process model (Folkman & Lazarus, 1988) holds that the relationship between stress and distress operates through coping resources and coping responses. Coping resources include relational factors, such as social support (Cohen & Wills, 1985). Coping responses refer to the ways in which individuals manage stress, including support coping (e.g., seeking help from others in addressing the problem). Social-problem solving and social support were found to have an interactive effect on adjustment and well-being (Heller et al., 1986). This is not surprising, as the effective use of a social support system can also be viewed as a coping

strategy. Since many measures of coping include aspects of social support, such as shared feelings with friends or talking to others about problems, there may also be some conceptual overlap between the two constructs that could partially account for similarities in their functional similarities (Runtz & Schallow, 1997).

It may be concluded that the individual has to develop strategies to lessen the psychological pain that may result from encountering difficult daily life events. The extent to which the person effectively uses the resources available to them in the environment determines the likelihood of successful adaptation and lessens the consequences, regardless of the type of problem (Gibson-Cline et al., 2000).

The next chapter explores the relationships between the same variables to explore the role of social-problem solving and social support amongst a high school population.

CHAPTER EIGHT: TESTING THE MODELS (HIGH SCHOOL SAMPLE)

8.1 Introduction

This is the final of four chapters presenting the research findings. The previous chapter presented the data obtained from undergraduate university students at King Abdul-Aziz University in Jeddah. This chapter presents the corresponding data from female high school students in Jeddah, using the model of social-problem solving and social support as mediators and moderators of the relationship between stress and distress (anxiety, depression and anger). The aim of the study was to test a hypothesized model of these relationships (D'Zurilla et al., 2000).

The chapter is divided into three sections. The first section begins with the study method and a presentation of the demographic characteristics of the participants. The second section presents the results from testing the hypothesized model (see Figure 8.1) and utilised structural equation modelling to examine the mediating effects of social-problem solving and social support (described in Chapter 7), which were examined separately. It should be said that the stress-life satisfaction model is excluded in this chapter, as it has a poor fit to the data. Finally, the moderating role of social-problem solving and social support was also examined. The chapter concludes with a summary of the main findings in relation to the literature and the conceptual framework of this study (Social-Problem Solving).

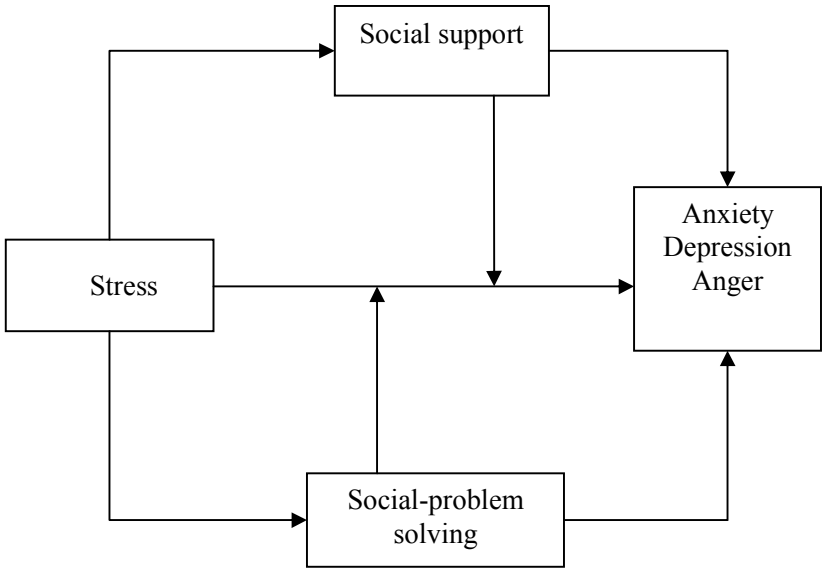

FIGURE 8.1 A model of the role of social-problem solving and social support in response to the relationship between stress and distress.

8.2 Methods

8.2.1 Participants

The total number of students that were invited to complete the questionnaires was 500 and the total number of students who made a valid response was 390 (78%). A description of the student sample by age, marital status, subject and score appears in Table 8.1 below. The mean age of the participants was 17.76 years (*SD* = .82); 8.2% were married and 8.2% were engaged. 47.2% of students were enrolled in arts subjects and the remainder in science. A large percentage of participants had a grade score equivalent to A (60.8%) and only 10.6% had a grade score equivalent to C.

Table 8.1 *Distribution of Participants*

	Frequency	**Percent**
Family income per month (Riyals)		
2,000 or less	18	4.6
2,001-5,000	88	22.6
5,001-8,000	59	15.1
8,001-11,000	81	20.8
More than 11,000	126	32.3
Grade Point Average		
100-90 (A)	383	60.8
89-80 (B)	173	27.5
79-70 (C)	67	10.6
69-60 (D)	2	.3
Tracks		
Scientific	206	52.8
Arts and Literacy	184	47.2
Marital status		
Single	324	83.1
Engaged	32	8.2
Married	32	8.2
Divorced	0	.0
Widowed	1	.3

Note. One Sterling Pound equal to approximately 6 Saudi Riyal.

8.2.2 Measures

The measures used in this chapter were described in detail in Chapter five. They comprise: the Life Satisfaction for Young Saudi Women Questionnaire (LSYSWQ) (Arab, Hadwin, Stopa & Sonuga-Barke, 2006), the Social-problem Solving Inventory - Revised (SPSI-R) (D'Zurilla et al., 2002), the Perceived Stress Scale (PSS) (Cohen and Williamson 1988), the Inventory of High School Students' Recent Life Experiences (IHSSRLE) (Kohn et al., 1990), the Trait Anxiety Inventory (STAI-T) (Spielberger et al., 1983), the Trait Anger Inventory (STAXI-T) (Spielberger, 1996), the Beck Depression Inventory (BDI) (Steer & Brown, 1996) and The Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet et al., 1988).

8.2.3 Procedure

The data were collected following the same procedures as in the previous chapter. Before the questionnaires were administered, permission was obtained from six girls' schools (Rawdhat Al Sulaymaniah Ideal School, Dar Altarbia Alhaditha School, Hadegat Al Atfal School, Dar Alzeker Islamic School, Jazerat Al Olom School and Alharas Al Watanti School).

The purposes of the study had been explained, and issues of confidentiality and anonymity were covered. Instructions for completing and returning the questionnaires were included. Participants first of all gave informal, verbal, and then formal, written consent to participate, and were given the option to withdraw at any time. They also had the option to withdraw any information and consent before, during and after the process of collecting the data. The researcher offered to answer any questions that the participants

might have. A package was distributed to the students during class time, and the students also completed it in the classroom.

8.3 Results

8.3.1 Preliminary Analyses

The means, standard deviations and correlations for female high school students are presented in this section. The Pearson correlation coefficient, in order to be significant at the $p < .05$ level with a sample size of 390, has to be $\geq .119$ (Howitt & Cramer, 2005).

Table 8.2 below presents the range, mean and standard deviation for all Arabic scales. The results indicate that the majority of Saudi students had moderate depression ($M = 14.01$, $SD = 7.60$) (Beck et al., 1996). In IHSSRLE, the mean was 55.27 ($SD = 27.31$, range = 131), which indicates a moderate chance of experiencing negative feelings as a result of hassles (Kohn et al., 1990). The STAI-T results show that the participants had a moderate anxiety level ($M = 56.02$, $SD = 11.68$) and a mild level of anger ($M = 21.87$, $SD = 5.02$). The results also show high levels of perceived social support ($M = 61.67$, $SD = 17.05$, Range = 78.00). For SPSI-R, the Mean was 12.37 ($SD = 2.46$), which indicates that the participants in the study fell within normal group averages (D'Zurilla et al., 2002).

Table 8.2 *Descriptive Statistics of All Scales*

Scales	Range	M (SD)
SPSI-R	12.46	12.37 (2.46)
PSS	31.00	18.65 (6.33)
IHSSRLE	131.00	55.27 (27.31)
MSPSS	78.00	61.67 (17.05)
LSYSWQ	53.00	57.58 (9.37)
STAI-T	73.00	56.02(11.68)
STAXI-T	28.00	21.87 (4.02)
BDI	44.00	14.01 (7.60)

Note. Social-problem Solving Inventory-Revised (SPSI-R), Perceived Stress Scale (PSS), The Inventory of High School Student's Recent Life Experiences (IHSSRLE), The Multidimensional Scale of Perceived Social Support (MSPSS), Life Satisfaction of Young Saudi Women (LSYSWQ), Trait Anxiety Inventory (STA-T), Trait Anger Inventory (STAX-T), Beck Depression Inventory (BDI)

The correlations between all variables are given in Table 8.3. As expected, apart from the relation between anger and social support and life satisfaction which remained insignificant, the correlations between stress and distress were all negative and of a similar magnitude to those found in previous studies. The correlations were significant between stress and positive problem orientation, negative problem orientation, impulsive

and carelessness style and avoidance style. Depression, anxiety and anger were similarly related to social-problem solving with a mean correlation of r = -.42. The correlations between stress, anxiety, depression, social-problem solving and social support were all significant.

Table 8.3 *Zero-order Correlations Between Study Variables.*

	STAXI-T	BDI	STAI-T	PSS	IHSSRLE	MSPSS	LSYSWQ	SPSI-R
STAX-T	1	.33**	.43**	.35**	.23**	-.09	-.04	-.42**
BDI		1	.61**	.51**	.33**	-.24**	-.46**	-.39**
STAI-T			1	.66**	.32**	-.39**	-.55**	-.56**
PSS				1	.30**	-.25**	-.41**	-.44**
ICSRLE					1	-.16**	-.22**	-.16**
MSPSS						1	.52**	.12*
LSYSWQ							1	.19**
SPSI-R								1

Note. (a) Social-problem Solving Inventory-Revised (SPSI-R), Perceived Stress Scale (PSS), The Inventory of High School Student's Recent Life Experiences (IHSSRLE), The Multidimensional Scale of Perceived Social Support (MSPSS), Life Satisfaction of Young Saudi Women (LSYSWQ), Trait Anxiety Inventory (STA-T), Trait Anger Inventory (STAX-T), Beck Depression Inventory (BDI) (b) *p < .05; **p < .01. N = 390

8.3.2 Analysis with Structural Equation Modeling

The fit in the structural equation models was assessed in the same way as in Chapter seven. Several goodness of fit indices were used, the Comparative Fit Index (CFI) and the Root Mean Square Error Approximation (RMSEA). The CFI index should be > .95 and RMSEA < .06 for a good fit (Hu & Bentler, 1999). Other authors have provided more detailed guidelines on the use of RMSEA. Bollen and Curran (2006) suggested that an RMSEA value of < .05 indicates a very good fit, while .10 and beyond represents a poor fit.

The stress – distress structural equation model (Figure 8.2) was examined before the mediational hypotheses were utilised to determine the direction and size of effect between stress and distress. The indicators of the dependent latent variable (stress) were perceived stress and daily stress, while anxiety and depression were provided as indicators of an outcome latent variable (distress). The stress – distress model provided an excellent fit to the data (CFI =1.00, RMSEA = .07, PCLOSE = .26). As expected, there was a significant positive pathway between stress and distress ($\beta = -.99$, $p < .001$), showing that higher levels of stress predicted higher level of distress scores.

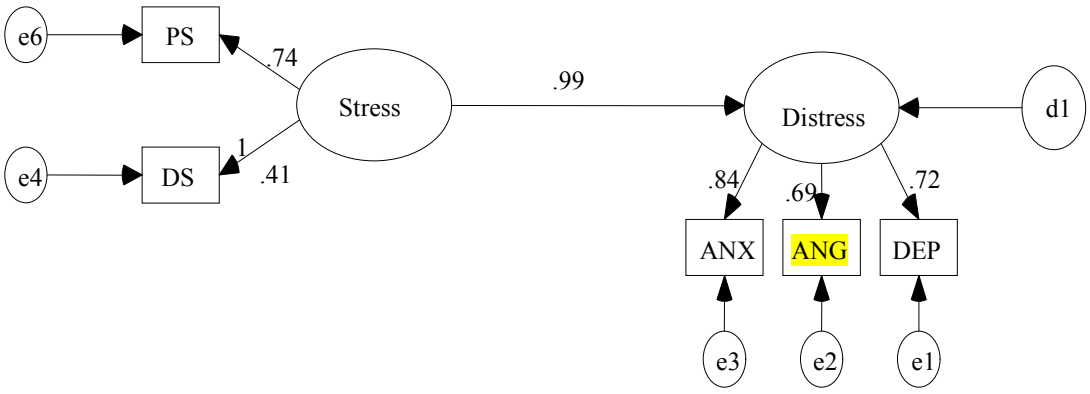

FIGURE 8.2. An illustration of a structural equation model diagram showing the relationship between stress and distress. PS = stress measures by PSS (Perceived Stress Scale). DS = daily stressors measured by the IHSSRLE (The Inventory of High School Student's Recent Life Experiences). DEP = depression measured by the BDI (Beck Depression Inventory). ANX = trait anxiety measured by the TAI (Trait Anxiety Inventory) and ANG = anger measured by the TAXI (Trait Anger Inventory)

8.3.2.1 The mediating effect of social-problem solving.

Regression coefficients were calculated to assess the strength of the associations in each of the paths illustrated in Figure 8.3. The Pearson correlation coefficients of the variables used in the study are presented in Table 8.3 above. It was found that depression, anger and anxiety were all significantly correlated with SPSI-R subscales and remained the highest in terms of negative problem orientation, impulsiveness and carelessness style (the same results as found in the previous chapter). In addition, NPO was the highest factor on the social-problem scale, and was negatively correlated with stress (Nezu, 1985). As expected, stress was positively associated with distress. However, stress and distress were negatively associated with social-problem solving.

Although a model specifying a global scale of social-problem solving as mediating the effects from stress to distress remained significant, it gave a poor fit (CFI = .92, RMSEA = .09, POLOSE= .00). Furthermore, when social-problem solving (skills) were tested as a mediator, the model gave a poor fit to the data (CFI = .93, RMSEA = .10, POLOSE= .00) and the results lacked significance as regards the partial effect of social-problem solving on distress (β = -.01, p = .80).

In order to explore the data further a hypothesis was made that excluding the positive problem orientation/rational problem solving and depression from the analysis would improve model fit. The rationale behind this hypothesis was based on the pattern in the correlational analyses that suggested that the stress variables were substantially less related to positive problem orientation/rational problem solving (r = -.43) than other scales (NPO, ICS, AS), and depression was less correlated with SPSI-R (r = -.39). The revised model (Figure 8.3) shows a good fit to the data (CFI =.96, RMSEA = .08, PCOSE= 03). There was a significant indirect effect from stress to distress (anxiety and anger) via social-problem solving, which was reduced from .94 to .78, (p < .03).

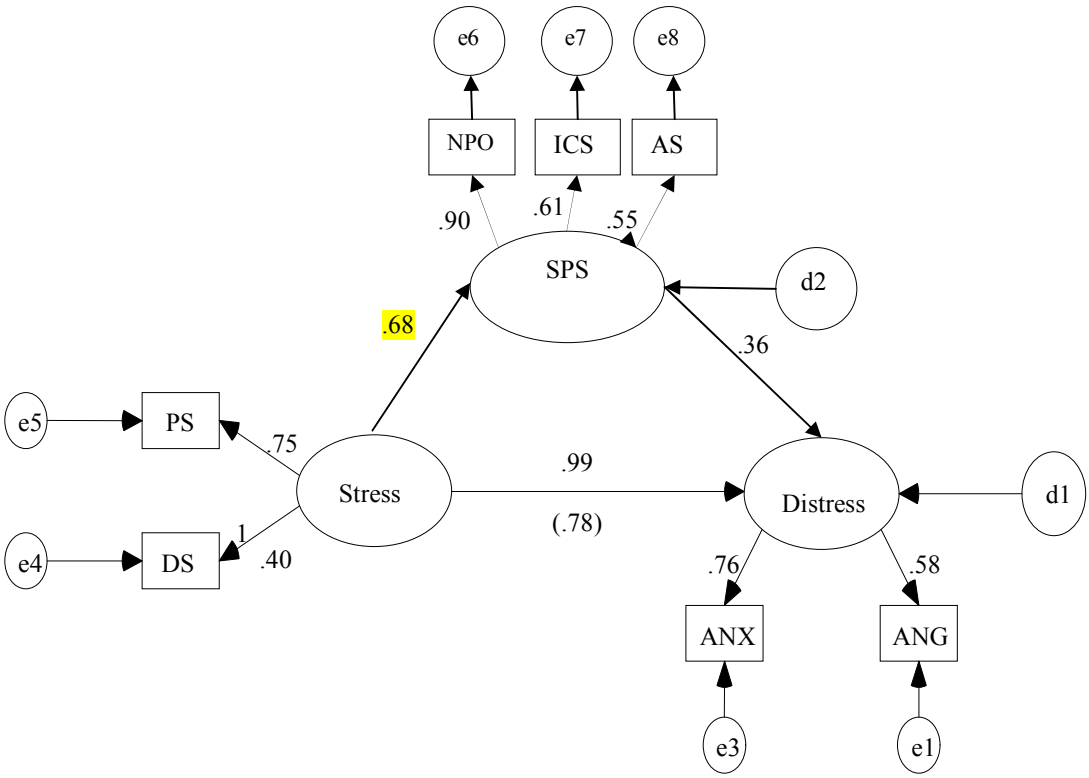

FIGURE 8.3 A structural equation model diagram showing the mediated relationship between stress and distress(anxiety and anger) via social-problem solving. PS = stress measures by PSS (Perceived Stress Scale). DS = daily stressors measured by the IHSSRLE (The Inventory of High School Student's Recent Life Experiences). ANX = trait anxiety measured by the TAI (Trait Anxiety Inventory). ANG = anger measured by the TAXI (Trait Anger Inventory). SPS = social-problem solving measured by (Social-problem solving inventory revised). NPO = negative problem orientation, ICS = impulsiveness and carelessness style, AS = avoidance style.

This suggests that the three dysfunctional social-problem solving dimensions were potentially important in predicting distress in the school sample and it is found important in explaining the relationship between stress and distress (anxiety and anger).

8.3.2.2 The mediating effect of social support

In the Figure 8.4 below, a model was specified to test whether social support would mediate the positive relationships between stress and distress (anxiety and depression).

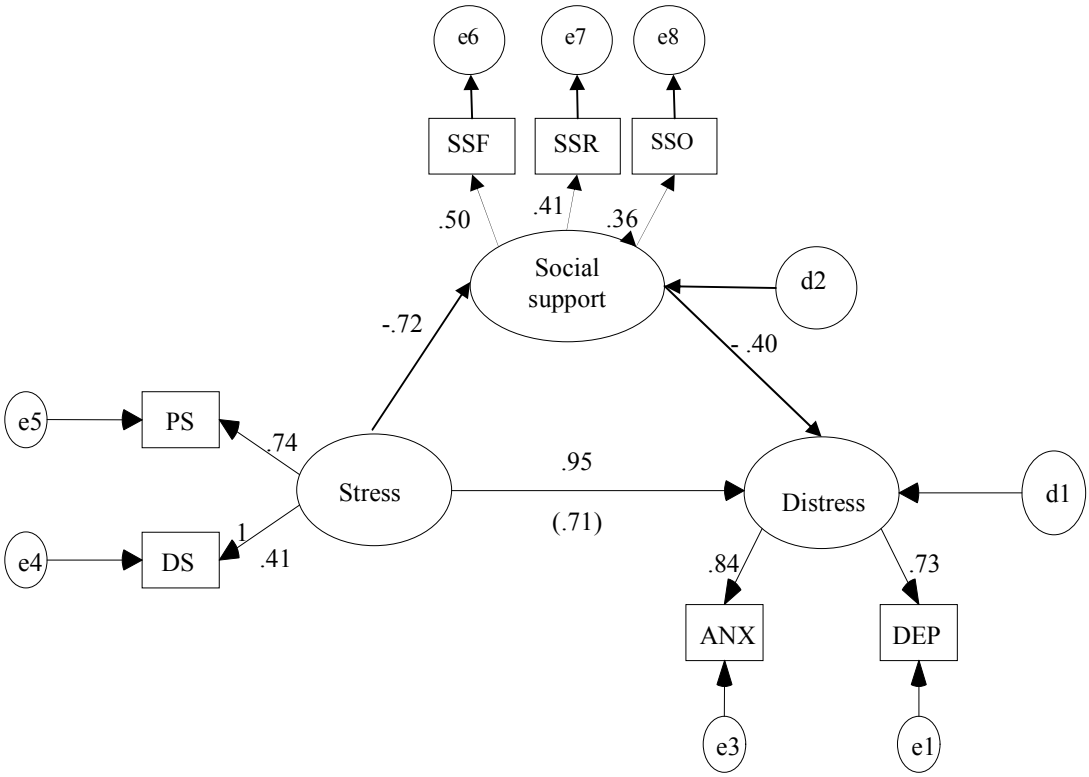

FIGURE 8.4. A structural equation model diagram showing the mediated relationship between stress and distress (Anxiety and depression) via social support. PS = stress measures by PSS (Perceived Stress Scale). DS = daily stressors measured by the IHSSRLE (The Inventory of High School Student's Recent Life Experiences). DEP = depression measured by the BDI (Beck Depression Inventory). ANX = trait anxiety measured by the TAI (Trait Anxiety Inventory). Social support measured by the MSPSS (The Multidimensional Scale of Perceived Social Support). SSF = social support (family), SSR = social support (friends), SSO = significant others.

It was found that social support was significantly and negatively correlated with stress (r = -.25), anxiety (r = -.39) and depression (r = -.24), but not with anger. Friends' support was found to be a largely negatively correlated component with these negative factors. This result is consistent with another finding, that friends appear to be the more frequent source of social support among youth; Schonet-Reichl (1994) found that when adolescents face stressful events, 76% of them resort to friends for help compared to 60% who resort to family.

As expected, it shows that stress was positively associated with distress and negatively associated with social support. Conversely, social support was negatively related to distress (anxiety and depression). The social support test model (Figure 8.4) has also been revised in order to explore the data further. A hypothesis was made that to exclude anger from the analysis would improve model fit, as social support variables were not substantially related to anger (largest r = -.09).

The revised model showed an excellent fit to the data (CFI = 1.00, RMSEA = .01, PCLOSE = .48). There was a significant indirect effect from stress to distress (anxiety and depression) via social support, which was reduced from .99 to .71 (p < .02). When the variances were examined in the mediating variables, it was seen that 28% of the variance was explained by social support in four of the variables.

8.3.2.3 The moderating effect of social-problem solving

The results found in the literature suggest that social-problem solving is a significant moderator of stressful life events and psychological stress (Nezu, 2004). Individuals reporting similar high levels of stress were found to be using less effective problem solving strategies while those using more effective social-problem solving

strategies were more likely to experience higher levels of anxiety (Nezu, 2004; Miner & Dowd, 1996) and depression (Frye & Goodman, 2000). Using the same criteria and covariate variables as described in the previous chapter, the moderating role of social-problem solving was examined in the relationship between stress and distress. The centred values of social-problem solving were correlated with all of the distress variables. To determine whether evidence could be found for a significant social-problem solving x stress model, a structural equation model was used to test the interaction effect.

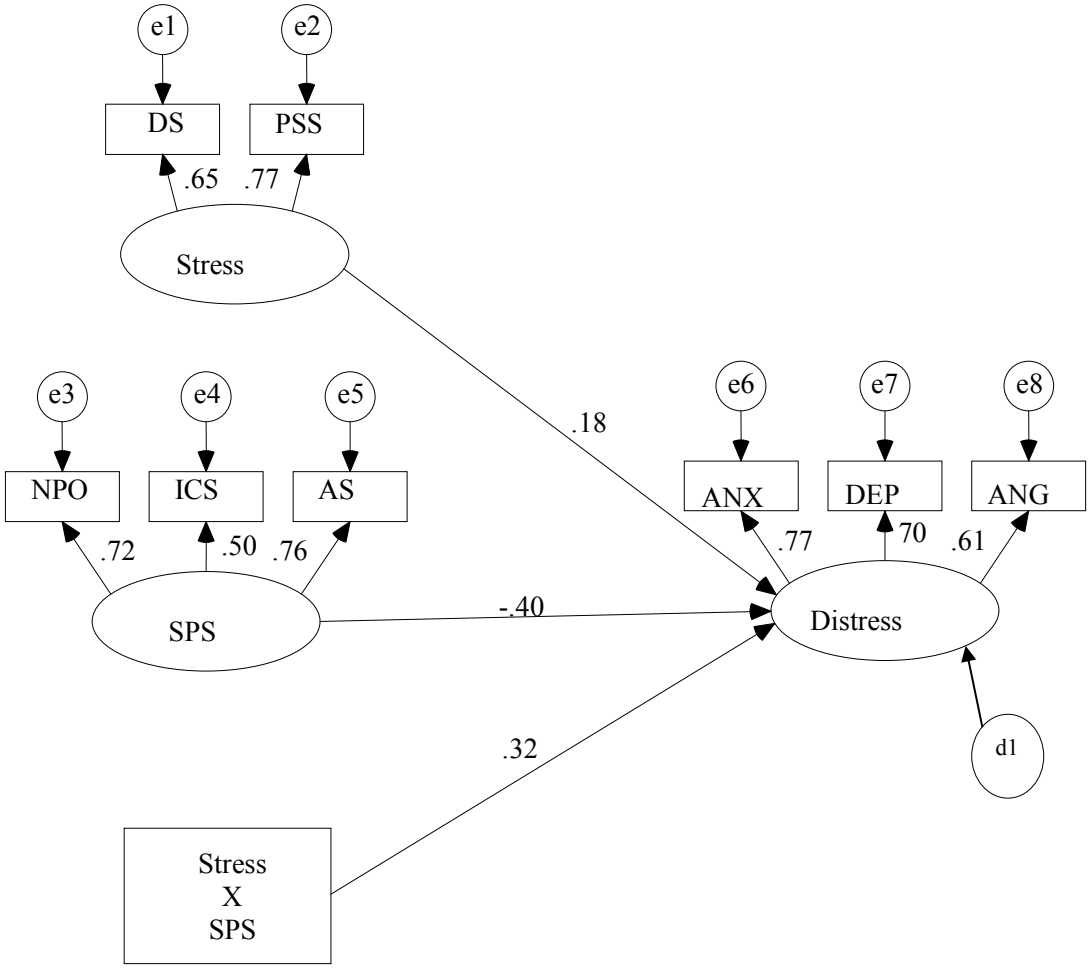

FIGURE 8.5. The structural equation model diagram showing the interaction between stress and social-problem solving. PS = stress measures by PSS (Perceived Stress Scale). DS = daily stressors measured by the IHSSRLE (The Inventory of High School Student's Recent Life Experiences). Distress: ANX = trait anxiety measured by the TAI (Trait Anxiety Inventory), DEP = depression measured by the BDI (Beck Depression Inventory) and ANG = anger measured by the TAXI (Trait Anger Inventory). SPS = social-problem solving measured by (Social-problem solving inventory revised). NPO = negative problem orientation, ICS = impulsiveness and carelessness style, AS = avoidance style.

It has been found that social-problem solving has a significant moderating effect on distress (anxiety, depression and anger), the path from the interaction latent variable to the distress latent variable (β = .32) being statistically significant (p = < .001). However, the results indicated that the model provided a poor fit to the data (CFI = .91, RMSEA =

.13). To test the data further, moderational analyses were conducted for each SPSI-R scale. Only NPO and AS scales demonstrated a statistically significant Beta weight when they were individually entered into hierarchical regression equations with the independent and covariate variables: NPO (t = 3.55, β = .326, p = .000), AS (t = -2.16, β = .130, p = .031).

8.3.2.4 The moderating effect of social support

A second series of moderational analyses was conducted to determine whether the interaction of social support and stress explains the variance in the distress measures. The results found in the literature suggest that that perceived social support can act as a buffer, moderating the relation between stress and distress. Students indicating low levels of perceived social support were more likely to show distress, while students who indicated high levels of perceived social support under stress would be less likely to show distress (Thoits, 1982).

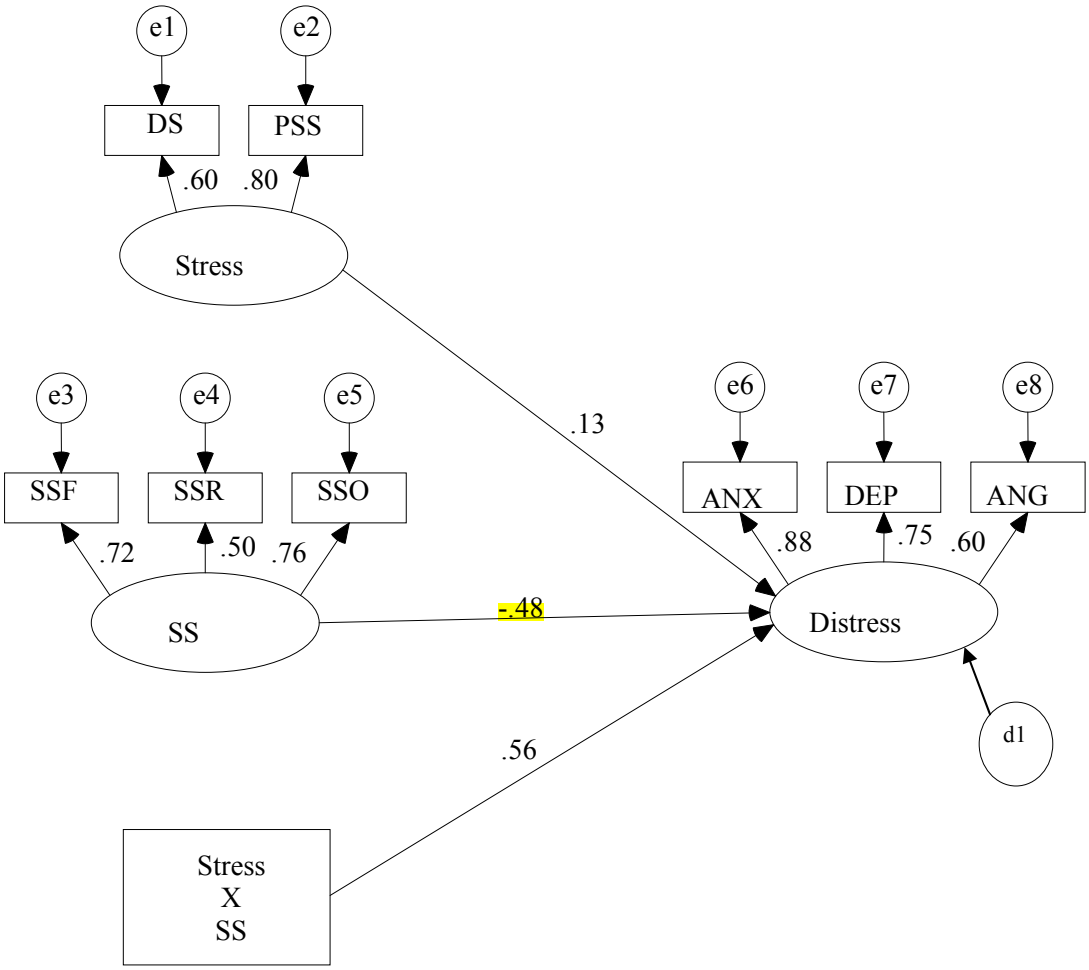

FIGURE 8.6. The structural equation model diagram showing the interaction between stress and social support. PS = stress measures by PSS (Perceived Stress Scale). DS = daily stressors measured by the IHSSRLE (The Inventory of High School Student's Recent Life Experiences). DEP = depression measured by the BDI (Beck Depression Inventory). ANX = trait anxiety measured by the TAI (Trait Anxiety Inventory) and ANG = anger measured by the TAXI (Trait Anger Inventory) SS = social support measured by the MSPSS (The Multidimensional Scale of Perceived Social Support). SSF = social support (family), SSR = social support (friends), SSO = significant others.

The results indicated significant interactions between perceived social support and stress, the model providing a good fit to the data (CFI = .97, RMSEA = .08, PCLOSE = .02) and the path from the interaction latent variable to the distress latent variable was .48, which was statistically significant (p = < .001). The results of the current study were in accordance with previous findings that social support is a main way to protect

adolescents from the negative effects of stressful life events (Demaray et al., 2005; Malecki & Demaray, 2003).

8.4 Chapter summary

Following the social-problem solving model (D'Zurilla et al., 2000), the present study assessed the relationship between stress and negative outcomes (anxiety, depression and anger) and the mediating and moderating role of social-problem solving and social support. The results of this chapter found a positive association between stress and distress, with the relationships clear on all measured variables (anxiety, depression and anger), and with negative associations between these variables and social-problem solving and social support.

It was also found that social-problem solving did act as a mediator in the relationship between stress and distress when the PPO & RPS and depression variables were excluded. The results showed that the relation between stress and distress was partially mediated by dysfunctional social-problem solving dimensions but not with PPO & RPS. Haaga et al. (1995) suggest that in some populations problem solving skills appear to be less important than problem solving orientation to the individual's psychological well-being. In the current study, the size of the mediated effect was (β = .21, $p < .03$) and it had a good fit to the data. These results are consistent with what has been found in the literature. Compared to adults, younger adults scored lower on the dimensions of positive problem orientation and rational problem solving and they scored higher on the dimensions of negative problem orientation, impulsivity-carelessness and avoidance style. In addition to these results, younger women were found to have less positive problem orientation and a more negative problem orientation than men

(D'Zurilla et al., 1998). Grant and Compas (1995) found that adolescent girls under stress were significantly more likely to exhibit a negative coping style of inadequate problem solving than boys, which was associated with increased depressive symptomatology. The findings of this study on stress and distress in adolescent girls suggest that certain dimensions of social-problem solving may be more likely than others to mediate the relationship between stress and distress.

In addition, it was found that the relation between stress and distress was partially explained by social support when anger was excluded from the analyses, as it has no correlation with social support. In other words, the results of the present study show that the indirect effect of stress on distress, through social support, is likely to amount to approximately 28% of the simple association between stress and distress (anxiety and depression) (Chou, 2005).

Another major finding of this study is the role of social-problem solving and social support as moderating variables. First, the social-problem solving scale demonstrated a statistically significant interaction with the stress scales and distress scales (anxiety, depression, and anger), but the model represents a poor fit to the data. The results of this study seem to suggest that only negative problem orientation and avoidance style help to moderate the development of distress in the school sample. One study of negative problem orientation that used a SPSI-R measure identified a moderating relationship between stress and depression in adolescent girls (Frye & Goodman, 2000). Another study on young Chinese adults also indicated that the impulsiveness/carelessness style of problem solving was not related to anxiety, but found a moderate to strong relationship between anxiety and problem orientation and avoidance style. The

relationship between anxiety and depression, and rational problem solving was relatively weak (Siu & Shek, 2010). Findings overseas replicate those on relationships between anxiety and social-problem solving (Nezu, 1986).

Concerning social support, a statistical trend was revealed, moderating the relationship between stress and distress with good fit. Findings are generally consistent with evidence that relations between stressors and negative effects are lower when social support is high (Heller et al., 1986; Chou, 2005). The findings of this chapter replicate the results found in Chapter seven.

It may be concluded that the mediation analysis was clearest via ineffective social-problem solving ability (NOP, ICS, AS) and social support. In addition, the findings on stress and distress in adolescent girls suggest that certain dimensions of social-problem solving (NPO, AS) may be more likely than others to moderate the relationship between stress and distress. The following chapter contains a discussion of the main findings of the study in connection with the literature, the conceptual framework, policies and practices.

CHAPTER NINE: GENERAL DISCUSSION

9.1 Introduction

Chapters six, seven and eight presented the findings obtained from the students' questionnaires. This final chapter discusses and summarises the themes and major findings of the research and relates them to the literature and current conceptual frameworks. A number of recommendations will also be made regarding the role of social-problem solving and social support. In addition, the main implications of the research for further studies are considered. Finally, the chapter concludes with an outline of the limitations of the study and summary statements.

9.2 Summary

The aim of this thesis was to explore the link between stress and distress through empirical investigation. The first study (Chapter Four) utilised a qualitative design to explore the students' points of view about stress, social-problem solving, social support, life satisfaction and how these variables affect their well-being in the Saudi community. The results of the study revealed their stressors and the coping strategies most of them used in relation to stressors, anxiety, anger and depression.

Study 2 (Chapters five and six) assessed the appropriateness of the questionnaires issued to young female students. This study described the translation of scales from English to Arabic (following Vallerand, 1989). A number of statistical tests were employed to determine the equivalence between the translated and the original scales.

Chapters seven and eight presented the empirical studies that assessed the relationship between stress, social-problem solving, social support, life satisfaction and distress in young Saudi women, using self-report measures and following current models of social-problem solving. It also explored the relationship between stress and distress and tested whether social-problem solving and social support would mediate and/or moderate this link. Chapter eight replicated the tests of processes identified in Chapter seven but with a different sample. To the best of my knowledge, this is the first application of the SEM on a large Saudi sample. It examines the indirect influence of social-problem solving and social support on stress and well-being as mediation and moderation variables. The best estimates possible were obtained by using modern SEM methods to fit the mediation and moderation models for young Saudi women, applying multiple measures to SPS, social support, life satisfaction and psychological mental health.

9.3 General discussion

9.3.1 Qualitative study

The results showed that there was no one single or specific coping strategy that the girls used when faced with problems, with all applying two or more strategies when dealing with their social-problems. For example, all of the girls mentioned rational problem solving (e.g., the deliberate and systematic application of four major problem-solving skills) as a strategy that they tried to use. However, they also reported using an avoidance style (e.g., they put off problem solving for as long as possible). Most of them also talked about problem solving strategies that reflect an impulsive/ carelessness problem solving style (e.g., going with the first idea that comes to mind inadequately).

In terms of social support, most girls reported that they had received support from someone. This could include family members, friends and teachers. It has been found generally that females engage in more active coping and support seeking than males (Compas et al., 2001; Tamres et al., 2002). According to earlier cross-sectional findings, coping style varies according to age and context. Zimmer-Gembeck and Skinner's (2008) study showed that older adolescents used "more active and wishful thinking" at school and more avoidance and wishful coping at home. Gamble (1994) compared early adolescents with young adults and found that relationships with others led to the use of alternative coping strategies, including seeking different sources of support.

In the current study, most students mentioned that problems affected them in their social lives and they had to find solutions. Problems might include conflict with friends and family. The results compared with what was found in the literature, that most adolescents confront mildly stressful situations in everyday life. This may occur when adolescents try to impose their will in relationships with parents at the same time as their social networks expand to include new friends of both genders (Seiffge-Krenke & Nurmi, 2009).

The findings of the present study also confirm that the environment that surrounds young adults is a powerful determinant of how well they cope with their problems. In Saudi Arabia, the young adults are facing a huge number of challenges, brought about by general change in the social, cultural and economic aspects, including general lifestyle changes, change in the workplace, opportunities remaining limited for women, and exposure to new concepts through the media and modern technology, which tends to lead

to conflict between modern and traditional ways (Yamani, 2000). Holmes and Lindley (1998) put forward the suggestion that there might therefore be a greater need for counselling on learning effective ways of coping with challenges and difficulties.

According to the study results, negative feelings (depression, anxiety and anger) are linked with social-problems. One reason might be that cultural restriction deprives young women of opportunities to flourish and achieve self-fulfilment, putting them at greater risk of feeling stressed, helpless and depressed (Moradi & Subich, 2002).

The results from the first study also highlighted the need to develop a questionnaire that specifically caters for the social and cultural context in Saudi Arabia, especially for women. The 'life satisfaction of Saudi women' (LSSWQ) questionnaire assessed the problems that many Saudi women encountered and their use of religion as a coping strategy. The self-report questionnaire had sub-scales that included religion (9 items), family and culture.

9.3.2 The translation study

Vallerand's methodology in cross cultural translation has proved to be a good way to find valid and reliable translated measures, although sometimes it might need one or more steps, as in the case of this study, to provide the researcher with a good start. In this case, interviewing was carried out, which was important before starting any further analysis. The interviews can provide an idea about the participants, their views, backgrounds and problems. In addition, they give an indication as to whether the measures are adequate for use in other cultures or with a specific group of participants.

The translation study showed a high level of correlation between the English and Arabic scales. In the examination of internal consistency, the Cronbach alpha values were between .74 and .93 in the final versions for all scales. This means that the equivalence between English and Arabic was high. Pearson's correlation coefficients (two-tailed probability) were computed between each sub-scale in the Arabic versions. Homogeneity among the correlation coefficients was found and thus the statements in the sub-scales were comprehensible, with one exception, namely in Brief COPE. As to test-retest reliability and stability (N = 71), the correlations were significant for all Arabic scales. However, some minor changes were made to the Beck questionnaire. Item 24 (*"I have not noticed any recent change in my interest in sex"*) was removed, as it is unacceptable to discuss sexuality in Saudi culture. In addition, some minor changes in some items of the Inventory of College/High School Student's Resent Life Experience (ICSRLE/IHSSRLE) were made (items 1 and 39). These items mentioned a boyfriend and girlfriend relationship, which is not expected to be discussed in Saudi culture.

As regards the factor structure of all the scales (study 3), three scales were the same as reported in the literature, namely the multidimensional scale of perceived social support (MSPSS), the perceived stress scale (PSS) and trait anger (STAXI-T). The MSPSS revealed three factors (family, friends and significant others), the STAXI-T revealed two factors (reaction and temperament), and finally the perceived stress scale (PSS) revealed two factors (positive and negative). All the items were factored in a similar way as in the literature.

Factor analysis for SPSI-R suggested that the PPO and RPS subscales could perhaps be combined. This is supported by a high correlation between the PPO and RPS subscales. An alternative explanation is that the meaning of the two RPS items in the PPO subscale, item 2 (*''try to think of different solutions''*) and item 4 (''*analyze the situation and identify obstacles''*), could be perceived as a positive orientation towards problem solving, in addition to a kind of rational problem-solving skill. The factor loadings obtained in the Arabic version of the questionnaire were close to those of the American version, except that the NPO factor contained three more items, two from the AS and one from the ICS of the original SPSI-R. This construct seems to need a different measure for this population. As a result, the relationships between the ICS scale scores and the remaining SPSI-R variables are a little different.

Regarding ICSRLE/IHSSRLE, a distinct factor structure for the Arabic version was found. Some of the factor structures are similar to the original structures found with the original scale. Time pressure, assorted annoyance, and developmental challenges are consistent stressful issues for both undergraduate and high school populations (Newman & Newman, 1995). Slight differences were exhibited in the results between the samples of the original scale and the female Saudi students, which might have been a reflection of cultural influences (Bodenhorn et al., 2007)**,** religious beliefs, lifestyle and principles of social organization. Although the suggested structure does not have the same factors, it does present a better fit than the original for this population.

Regarding BDI, the scale has the same four factors as found in the original scale. However, the items are loaded in slightly different ways. For example, somatic symptoms and physical worry combined in the same factor and the rest of the items were distributed

across two factors (Cognitive distraction and Cognitive affective "hopelessness"). The reason for these differences might be that the criteria for the study sample were different from the original sample. Also, the cultural and sample background factors influenced the results of the factor structures of the BDI (Al-Ansari, 2002). The last item in the BDI was deleted, as it relates to sexual interest, which is not a subject for discussion in Arabic culture.

There were some different factors in STAI-T, compared to the literature, but they were consistent with a study by Abdullatif (2004), which compared the adaptation of the state trait anxiety inventory in Arabic with the American STAI. The target culture is not shared with the original culture because of differential perceptions of anxiety-provoking situations (Abdullatif, 2004).

The results of the present study indicate that almost all scales display adequate psychometric properties in terms of internal consistency, content validity, concurrent validity, and construct validity, at least for young Saudi females. However, further research is needed to understand the psychometric properties of the Brief COPE with the Saudi sample.

9.3.3 The relationships between variables

It was expected that self-reporting would reveal a relationship between stress, social-problem solving, social support and negative emotions (anxiety, depression and anger). Zero-order correlations were computed for all the relations between social-problem solving, stress and distress. The results of these computations, the means, standard deviations, and internal consistencies, were presented in previous chapters. The

majority of the significant intercorrelations between scores on the five SPSI-R scales were in the medium to large effect size. Moreover, these correlations were in the expected direction. For example, scores on stress and distress were found to be positively correlated with each other, with this relationship clear on all measured variables (anxiety, depression and anger), but scores on social support and distress were found to be negatively correlated with each other. Likewise, scores on the five SPSI-R scales were found to be significantly correlated, and in the expected direction, with PSS scores, MSPSS, and scores on the three distress scales. For example, scores on SPSI-R were negatively correlated with PSS, but positively correlated with social support scales. However, PSS scores were significantly associated with scores on ICS and AS. As expected, PSS scores had significant negative associations, with small to medium effect sizes, with scores on each of the social support scales. Finally, it is worth noting that the significant intercorrelations between scores on the three distress scales all had large effect sizes. In sum, these findings indicate that both stress and social-problem solving have important associations with distress in young adults.

The results were the same with the high school sample, showing the theoretical importance of the role of social-problem solving in individuals' well-being. The linkages between social-problem solving and indicators of individual well-being were all in the expected directions and of the expected strength. This confirms the role of social-problem solving in individual well-being. Nolen-Hoeksema and Girgus (1994) put forward a theory that adolescent girls suffer more from depression than boys, because they experience more stress, and have personality traits and behavioural tendencies serve as vulnerability factors to depression that do not go well with stress. Their characteristics

may include low self-esteem, less self-confidence, and lower assertiveness, which may indicate low problem-solving abilities, and poor problem orientation. Another notable result in the current study was that two negative behavioural styles of social-problem solving scale (avoidance and impulsiveness/carelessness) were closely linked to distress (depression, anger, anxiety) (Sui & Shek, 2010). This result is consistent with what is found in the literature. For example, Grant and Compas (1995) found adolescent girls under stress to be significantly more likely to exhibit a negative coping approach reminiscent of poor problem solving, which was also associated with increased depression.

In the present study, high school students and first year university students apparently experienced about the same level of distress and daily hassles, but high school girls were even more anxious than university students, a finding that is in agreement with the literature (Al Gelban, 2009). It might be because the younger age group experience more uncertainty and indecision about their study choices and subsequent careers, and more anxiety about registering at university. However, university students seek more social support than high school students, perhaps because the latter already have the support of the family. Another point is that, while maintaining dependent relationships with others in adulthood is considered to be immature or unhealthy in many western cultures (Green, 1993), in many Arab Muslim societies, maintaining dependent relationships is not only acceptable but also desirable (Dwairy, 2006). In addition, responsiveness in relationships and a willingness to connect with others are important for many women (Gilligan, 1982, Kayal, 2007).

The findings also determined that university students tend to seek support from family, whereas high school students prefer to ask friends about their problems. It was found that those who choose either friends or teacher, but not parents, may report family problems, and less frequently sought spiritual support (Frydenberg, 2007). This finding may indicate that it is not just a matter of being able to ask for support, young people seem to be selective about whom they turn to for support.

Finally, in view of the severe lack of empirical findings on the linkage between social-problem solving and Saudi women's well-being, the present study provided support for the relationship between social-problem solving and measures of the distress and life satisfaction of young Saudi women. The results of this study clearly confirm the previous findings regarding significant relations between social-problem-solving deficits and depression and anxiety in young adult populations (see Haaga et al., 1995; Nezu & D'Zurilla, 1989).

9.3.4 Path model for the study

D'Zurilla et al. (2004) indicate that research on moderator and mediator roles in problem solving remains a fairly new topic. The Baron and Kenny (1986) methodologies have been used in few studies which has tended to complicate the role of social-problem solving and social support in the literature. The complication arises as some of the literature focuses on the mediating role and some on the moderating impact of social-problem solving with regard to the relationships between stressors and outcomes (Frye & Goodman, 2000; Davila et al., 1996). Analysis of relations in any given sample between any three related variables may reveal mediator effects, moderator effects, or both. By

examining both models, it is hoped to avoid missing valuable information regarding the relationships in question.

9.3.4.1 The mediation hypothesis

The mediation hypothesis that the positive link between stress and psychological distress would be mediated by social-problem solving and social support was tested in Chapters seven and eight. Support was found in university and school samples for the mediational models, which assumes that, in the university sample, the path between stress and distress was partially mediated by dysfunctional problem solving dimensions (NPO, ICS, AS) but not by constructive problem solving dimensions (PPO, RPS). Only ineffective social-problem solving aspects are an intervening variable that accounts to a significant extent for the causal relations between everyday problems and psychological distress. Lack of socia-problem-solving skills is associated with emotional and behavioural problems in all age groups: depression and anxiety in adults (Kant & D'Zurilla, 1997), and hostility in adults (Cassidy & Long, 1996). In the school sample, only two of the dysfunctional social-problem solving dimensions (NPO, AS) partially mediated stress-distress relationships. The reason might be that, the youth in the sample may have a deficit in rational problem solving, and their lack of problem solving skills may lead to ineffective attempts to solve stressful life events by using maladaptive problem orientation and impulsive or avoidant problem-solving style (Becker-Weidman et al.,2010).

The study confirms the limited scope of teenagers to engage in problem solving (D'Zurilla et al., 2002; Jaffee & D'Zurilla, 2003). This may not be surprising at this age, but their difficulties in problem-solving may make them more vulnerable to adjustment and relationship problems. Adolescents' approach to social tasks and manners may result in showing off their competence. A young person may feel able to practise intervention in a social context, while at the same time not considering that the skill may be useful in daily life (Selman et al., 1992). Cultural variations exist, with Saudi children for example being expected to follow their parents' advice and not answer back, however the children do not engage in problem solving with their parents.

Because social-problem solving does not fully mediate the link between stress and distress on a global scale, it may be that other mediators are involved, which also been linked to distress in young adults (e.g., religious coping and self-esteem). Problem-solving deficits may be an important factor in the development of distress and decreased well-being, as indicated by several studies (Linehan et al., 1987; Sadowski et al., 1994; Schotte, & Clum, 1987).

As discussed earlier, past studies have indicated that stressful experiences may lead to more negative functioning by decreasing problem solving ability (e.g., Lyubomirsky et al., 1999). In that regard, the current findings indicate that distress in young adults may be influenced by both the direct impact that stress has on distress and by the indirect impact of stress on social-problem solving skills in the older sample. With regard to the latter finding, although there may be a number of different explanations for why stress attenuates SPS abilities in young Saudi adults, one possibility is that the type of stress experienced in this population more often than in other populations may be as a

result of deadline pressures (academic tasks), concerns about the future (e.g., educational, occupational and marriage goals) (Nurmi et al., 1994) and lack of personal competence (e.g., cognitive, motivational). Emotion-focused strategies but not problem-focused strategies appear to naturally emerge in late childhood and increase with age, levelling off by late adolescence (Band & Weisz, 1988, 1990; Compas, 1987; Compas et al., 1988; Compas & Worsham, 1991). Another explored possibility is that the decision making capacity of adolescents may be more vulnerable to disruption by the stresses and strains of everyday living than that of adults (Spear, 2000). In turn, this pattern may result in a vicious circle that results in decreased psychological well-being and increased psychological distress.

At the very least, the findings point to a clear need not only to better understand why stress attenuates SPS abilities in female young adults, but also to work on ways to reduce stress and strengthen SPS abilities when facing stressful situations (D'Zurilla & Nezu, 1999). The present findings provide further support for the importance of distinguishing between problem orientation and problem-solving skills in social-problem-solving assessment and research (D'Zurilla & Nezu, 1990; Nezu & D'Zurilla, 1989; Nezu & Perri, 1989). Beyond a consideration of normative differences in social-problem solving across different cultural groups (Chang et al., 2004), it remains important to examine cultural differences in terms of what and how specific social-problem dimensions are related to different dimensions of psychological well-being in different populations.

One of the present study's aims was to evaluate the degree to which social support mediated the relationship between stressful life events and psychological well-being. There are many reasons behind this. First, social support plays a significant role in Saudi culture in general and in Saudi adolescents in particular. And social factors may influence appraisals of situations and of personal control in young adults. Secondly, as far as the researcher knows, the role of social support as a mediator factor between the stress-distress relationship has not been examined within this type of sample before. Therefore, an attempt was made to test the hypothesis that social support may mediate part of the influence of stress on distress in a young Saudi female sample; it is possible that cultural differences may be found. Thirdly, the question of social support was also stressed, because this could be seen as a potential for coping with stress in this sample or even become the coping style in itself. It has been found in the literature that coping strategy including social support, mediates the linkage between stress and psychological well-being (Lazarus & Folkman, 1984; Benight & Harper, 2002).

Another finding was that the relation between stress and distress was partially explained by social support in both samples. The higher scores on the social support scale among females might be related to the protective nature of the family towards females in Saudi culture. Although females are more restricted in terms of mobility, they might use more support seeking behaviour, as socialization allows them the benefit of seeking help more than males. This indicates that university students who have lower perceptions of social support from their families are more likely to have perceived life events as being stressful. The results support previous findings, in which higher perceptions of social support among young people were correlated with lower perceptions of stress (Deihl et

al., 1997). Social support was found to be effective in lowering stress (Larson, 2006; Solberg, & Villarreal, 1997) and in improving life satisfaction (Fagan, 1994; Tofi et al, 1996). Taken together, the evidence suggests that a lack of social support constitutes a risk factor for poor adjustment at university, and adequate social support serves to protect students and is related to better adjustment (Smith & Rank, 2007).

The importance of well-being on the overall quality of social and personal life has been documented. Research again finds various benefits of life satisfaction (Diener, 2000). Individuals who are happy and satisfied with life are good problem solvers, show better work performance, have meaningful social relationships, display virtues such as forgiveness and generosity, tend to be more resistant to stress, and experience better physical and mental health (Frisch, 2000; Veenhoven, 1989).

Developing formal cognitive skills during early adolescence allows individuals to consider various perspectives and evaluate future consequences. From mid-adolescence onwards, coping strategies becomes more diverse and flexible (Krenke, 1996). Between the ages of 12 and 18, adolescents acquire the ability to identify the best sources of support for particular problems (Skinner & Zimmer-Gembeck, 2007).
Changes in coping behaviour may be accounted for by an increasing understanding of others' internal emotions and control of one's own (Eisenberg et al., 1997).

9.3.4.2 The moderation hypothesis

In addition to the mediation effects described above, evidence was also found of moderating (interaction) effects in connection with stress and distress. A moderator is an independent variable influencing the relationship between two other variables, with the

magnitude of the relationship varying according to the level of the moderator. Based on social-problem solving theory, it was predicted that the magnitude of the relationship between stress and distress would be greater in the presence of high rather than low dysfunctional problem-solving ability. Statistically, a moderator effect is indicated by a significant interaction in a multiple regression analysis between the moderator variable and another independent variable in the prediction of a criterion variable. It has been demonstrated that good problem solvers show fewer symptoms of depression than poor problem solvers under similar levels of stress (Nezu & Ronan, 1988). The same pattern has also been shown for anxiety (Miner & Dowd, 1996).

Past research has suggested links between stress and distress in many samples (Carver et al., 1993; Frydenberg & Lewis, 2004; Flokman & Lazarus, 1988). The present study aimed to extend this research by exploring possible moderations of the links suggested in this growing body of research. Specifically, social-problem solving was examined as a moderator in the link between stressors that face young Saudi women and psychological distress. The results support the hypothesis that specific dimensions of social-problem solving interact with stress to moderate stress-distress relationships.

It was also found that the relation between stress and distress was moderated by social support in both samples. The results demonstrated that social support was effective in reducing the likelihood of stress leading to increased distress. This supports previous international research, which found that a higher perception of social support correlated with a lower perception of stress among young people (Deihl et al., 1997). Solberg (1997) also found that perceived social support moderates the relationship between stress and distress, and that those with a higher perception of social support had a lower distress

score. Chi and Chou (2001) found that social support could buffer the negative impact of life stressors on depression. This confirms the view of Thoits (1995). Social support is seen to protect young people (Solberg & Villarreal, 1997). Although females are more restricted in terms of mobility; their socialization behaviour means that they are more likely than males to display support seeking behaviour. This indicates that university students who have perceived lower social support from their families are expected to have higher perceptions of life events as being stressful. Zaitawi (1999), however, found that university students in Jordan had a higher perception of social support from their family than from female friends at university. It should be noted that a gap exists in the literature on social support and its impact on stress perceptions in Saudi Arabia and the Arab region. There is unpublished evidence from counselling services at universities and from mentors' opinions that students have unmet needs and widespread stress experiences. At the same time, support is lacking from family and other social spheres. The lack of social support constitutes a risk in terms of poor adjustment (Lamothe et al., 1995), while adequate social support buffers the effects of stress (Cutrona & Russell, 1987). Lower levels of stress make for better coping (Taylor, 2003). Social support has been found to strongly indicate well-being (Cohen, 2004) and good mental health (Gopal, 2006). It seems that, Saudi high school students who take advantage of social support, emotional and social resources are likely to cope more successfully with stressors, and their greater coping is likely to be reflected in higher levels of life satisfaction and a lower level of distress.

9.4 The social-problem solving model in the Saudi Arabian context

The SPS model describes constructive and dysfunctional styles of solving problems that affect health and adjustment (D'Zurilla & Goldfried, 1971; D'Zurilla & Nezu, 1989; Nezu, 2004). In this model, the primary components of SPS have specific, testable properties that theoretically influence adjustment. For example, the problem orientation component explains how individuals' motivations and mood regulatory properties affect perceptions of competencies, abilities and propensity to experience positive and negative moods when facing problems. The problem-solving skills component describes the ways in which a person may rationally solve problems, or be likely to ineffectively solve problems, in an impulsive, careless or avoidance manner.

Theoretically, these components work together to form SPS styles. A positive orientation is proposed to motivate an individual to rationally solve problems that are encountered, and together these components comprise a constructive problem-solving style (D'Zurilla et al., 2004). Conversely, individuals who possess a more negative orientation are more likely to rely on impulsive, careless, or avoidant ways to solve their problems, and this reflects a dysfunctional problem-solving style (D'Zurilla et al., 2004). While constructive and dysfunctional problem-solving styles are inversely related, they are not necessarily polar ends of a problem-solving continuum. It is possible for a person to have a negative problem orientation and when facing a problem have a strong negative emotional response. However, this person may still deal with the problem in a rational manner, despite displaying constructive and dysfunctional problem-solving tendencies in attempting to cope with the problem.

Cross-cultural research may help to identify additional dimensions of social-problem solving that facilitate greater understanding of problem solving and psychological adjustment across cultures (e.g., social support, religion). Mechanic (1974) considered that the effectiveness of individual coping is dependent on the availability of resources in any particular context. In a 1978 publication, he suggested that coping strategies regarding the most appropriate way to handle specific kinds of problems are influenced by cultural beliefs (Hamdan-Mansour, 2007: Mechanic, 1978).

Saudi culture, like many other Arab cultures, places a great deal of emphasis on particular values, such as collectivism and interdependence (Brilliant, 2000; Dwairy, 2002). In Saudi Arabia, family relationships are shaped by strong cohesion (Al-Garni, 2000). Several studies found that social support lessened the impact of adverse life events and enhanced well-being (Hastings, 2003, White & Hastings, 2004).

The results of the present study emphasise the role of social support and show it to be a vital and essential coping strategy used by most young Saudi women. Social support was also found to be an intervening variable mediating the relationships between stress and distress in both samples. Accordingly, social support is an essential coping strategy that could be added to the model of social-problem solving.

Individuals' levels of social support also play a role in their adjustment during the transition to university. Better social support was predicted to be associated with more positive perceptions of the transition experience, as well as better academic, social and personal/emotional adjustment (Calvete, 2006). The absence of social support was found to be a risk factor for poor adjustment (Lamothe et al., 1995), whereas the presence of

adequate social support appears to act as a buffer from the effects of stress (Cutrona & Russell, 1987).

Jung and Khals (2004) investigated the role of family support in stress appraisal among black and white college students, and suggested that perceived social support may help to promote a feeling of personal effectiveness that may enhance an individual's coping repertoire. Furthermore, supportive relationships may influence coping by (a) rendering an individual less vulnerable to the experience of a specific life event or (b) providing assistance in coping with a stressful event once it has occurred.

Evidence suggests that the availability of social support, as well as its receipt, may influence the manner in which an individual copes with a situation, as well as the outcome of these coping efforts (Pierce et al., 1996). Social support can be beneficial from two perspectives. First, it may help to prevent the individual from appraising an event as stressful. Second, because the individual is part of a supportive network, he or she may reappraise or revaluate an event as less stressful, or the availability of social support may lead to a more adaptive response (Brannon & Feist, 1992). During stressful situations individuals often seek and receive emotional, informational and tangible support from significant others. Research suggests that those who receive more social support seem to be less impaired by stressors (Jung & Khalsa, 1989). Thus, social support may lessen or eliminate the harmful effects of stress. Social support affects how individuals cope with stressful events and how individuals cope, particularly in terms of the outcome of their efforts, and may influence their use of social support in the future. Goodwin and Plaza (2000) found that those from a collectivist culture reported greater

support from their families following a stressful event and reported higher levels of perceived global support than those from individualistic cultures.

A religious strategy was found to be a significant one for students seeking to solve their problems in both samples. Some studies have been conducted on the relationship between religiosity, social well-being, and psychopathology among Arab Muslims in Kuwait and Algeria (Abdel-Khalek, 2002, 2008; Abdel-Khalek & Lester, 2007; Al-Kandari, 2003; Baroun, 2006). Two main results were that: (a) there was a positive relationship between religiosity and social well-being, including happiness, satisfaction with life, physical health, and mental health; and (b) there was a negative relationship between religiosity and psychopathology, namely anxiety and depression.

Lastly, it is important to note that there are distinction between the processes of problem solving and effectiveness in responding to problematic situations (D'Zurilla & Goldfied, 1971). Problem solving processes refer to the means used to attempt to find an effective solution to the problem situation. However, engaging in these processes, even in their most favourable form, does not always result in effective resolution of the problem. A number of factors which are conceptually distinct to problem solving skills (e.g., social skills, performance anxiety) can influence the effectiveness of responses.

9.5 Limitations of the present study

Although there are strengths in the present work (for example, the research utilised two separate samples of adolescents from King Abdulaziz University and several different high schools, which helps towards the generalisability of the findings, and a mix of qualitative and quantitative measures were used, not exclusively self-report measures), certain problems can be expected, as in any research, related to the design, measurement,

and sampling. The current investigation has some weaknesses that should be acknowledged.

First, the diversity of the participants is limited in a number of ways. First, a focus on distress in young adults (e.g. university students) is a worthwhile research pursuit on its own (e.g., Vredenburg et al., 1993), but generalization of the findings to members of different groups and to clinical populations must be investigated. Some studies have shown that problem solving differs between young and more mature adults (Chang, 2000 D'Zurilla et al., 2004). Secondly, only females were included in the study; the inclusion of males was problematic, for cultural reasons.

A second limitation of the present study is related to the use of self-report measures as a strategy for data collection. Although a self-report design was determined to be the most appropriate, given the time and financial parameters of the current project, such a method has weaknesses when used with adolescent populations. In particular, there is no way to know how truthful the participants were when responding to the items.

Thirdly, social desirability may have influenced the responses, regardless of the confidential and anonymous nature of the questionnaires. In addition it is not known whether the same relations would emerge with other methods of data collection (e.g., behavioural observations), as compared to self-report measures.

Moreover, given the cross-sectional design of the present study, one cannot draw strong inferences about cause and effect. Although examining a particular model involving problem-solving, stress, and psychological adjustment based on prior research and theory was the area of interest, other models could have been considered (e.g., psychological adjustment as an antecedent to problem-solving styles). No doubt, a

prospectively designed study that assesses all of the present measures across time would greatly help to clarify the direction of the hypothesized causal relations between problem-solving styles, stress, and psychological adjustment.

Accordingly, the relationships found among the study variables for the university population might vary from those found in the high school population. Furthermore, because the sample consisted of unequally sized groups of university and school participants, the larger size of the university student group might have exerted more influence on the results than the smaller group. Future research with large and equal sample sizes across groups would be valuable.

Finally, SEM was employed on data collected concurrently. Thus, the findings reflect associations and predictions, but not causal relations among the latent constructs. It should also be remembered that a well-fitting model is not proof that the model is in any sense true. Kline (2005) gave several possibilities. First, the model may accurately reflect reality. Secondly, the model might be an equivalent version of one that corresponds to reality, but is itself incorrect. Thirdly, the model might fit the data from a non-representative sample, but have poor fit in the population. Lastly, the model may have so many parameters that it cannot have poor fit even if it is severely wrong. Most pertinently, statistical models can only ever be disconfirmed. Therefore, one should be cautious about the interpretation of model fit. However, in this thesis a range of goodness-of-fit indices was used along with several different statistical techniques in an attempt to verify the hypotheses.

Despite these limitations, the present findings are interesting and pioneering additions to the literature on well-being and quality of life in Saudi society.

9.6 Implications for theory and practice

The present study provides a strong starting point for further exploration of the relationships between social-problem solving, social support, stress and well-being in adolescents. Several avenues for future research are suggested in the areas of theory, measurement and applied research. This study may also have implications for future research in the areas of education, psychology, counselling and student services in several ways. Counsellors can facilitate the growth and development of students and help them to identify their strengths and skills. In this way, the students can recognize themselves as being able to find their own solutions to problems.

The results of this might feed into Saudi practice in higher education and high schools in Saudi Arabia. The findings could add to the existing body of knowledge and provide a foundation for future research to build upon.

Various strategies may be planned and implemented to provide a developmental service on campus or at schools, such as designing outreach programmes (Kern, 2000), which need to be according to students' needs, problems and concerns. For example, in this study, students at university and in schools reported different types of academic, communicational, personal and psychological problems and different problem-solving approaches. Social-problem-solving intervention was found to help students resolve their daily stress, psychological stressors and other difficulties that may disrupt their personal

life. In addition, developing accessible and expert support groups in a variety of areas is also essential (Archer & Copper, 1998).

Individual counselling and group activities can assist students in dealing with their daily problems and decision making (Sharkin, 2006). The most prevalent concerns reported by the students in this study could be used as a significant benchmark in the development of appropriate and relevant themes for group activities and printed materials.

There are further important implications, suggesting the need for school-based programmes of psychosocial intervention to improve mental-health education, stress management, problem-solving and coping. Academic workloads could be lowered, to diminish mental health problems. It seems that religiosity is important in the lives of most of the Saudi population, so that there is a possibility that psychotherapeutic religious practices can be of use in treating distress. Abdel-Khalek (2009) stated that Islamic practices can potentially be integrated, implicitly or explicitly, in psychotherapeutic procedures. Religious coping skills could be of use in this context.

Consultation with faculty members or other administrative or teaching staff regarding strategies to help students is also important to facilitate the development of a safe environment supporting educational achievement and personal growth (Heppner & Johnston, 1994; Humphrey et al., 2000). Workshops for faculty and other administrative staff on social-problem solving issues may help to attract and educate the university community into utilizing social-problem solving therapy or programmes as a service available on campus and in school.

It is imperative to look at the clinical implications of this study. Information on social-problem solving, distress, life satisfaction and social support can be used to assess young women and tailor individualized interventions aimed at decreasing distress symptoms, minimizing stressors and improving problem solving and coping, which could increase the chances of life satisfaction, as well as the quality of life. These results suggest that future research should investigate, in a longitudinal design, the role of problem solving and coping as an intervention, and assess its impact on life satisfaction, distress and stressors.

In addition, directions for applied research stemming from the present study might include a qualitative study or an intervention study with parents and adolescents. A critical component of either would help to find a way to educate participants about their social-problem solving ability and improve their ability and skills.

The results achieved are robust enough to recommend the use of questionnaires in the investigation of the impact of social-problem solving on mental health. The study provides initial information about the factor structure of a validated burden assessment scale for a section of the population on which not much research has previously been done. Future research should involve replication of the study by confirmatory factor analysis on samples with similar backgrounds, testing the factor structure with this sample across time for factor structure invariance. As with any instrument, the validation of a translated questionnaire is ongoing. In a next step, studies are needed to confirm the results from this study and generate more precise estimates of the scale properties.

In addition, there is a pressing need to develop a Saudi coping index which would measure different kinds of coping strategy that may apply in different populations in Saudi Arabia.

Future research is needed in order to examine possible causality between the variables and to further substantiate the theoretical underpinnings of the present study, focusing on the longitudinal effects of social-problem solving, life satisfaction, stress and well-being (Diener & Seligman, 2002). This should be followed up during adulthood to enable a better understanding of the long-term impact of stressors on functioning in a number of contexts and the influence of social-problem solving skills on long term development, beyond student age. As far as is known, few studies have managed such a longitudinal approach (Shewchuk et al., 2000; Ciarrochi et al., 2009; Baker, 2003; Sawyer et al., 2009; Shek, 1998). Future experimental, prospective and longitudinal studies are also needed to shed more light on issues. In one study, Davey et al. (1996) found that a manipulation designed to reduce problem-solving confidence resulted in a subsequent increase in worrying. More studies of this kind are needed to examine causal relationships between other social-problem-solving variables and negative emotions.

Additionally, it should be noted that the SPSI-R assesses social-problem-solving tendencies through a self-report format instead of actual social-problem-solving performance. There is a need to further investigate how the agreement between the SPSI-R and measures of social-problem-solving performance, and how the actual performance may be related to well-being and life satisfaction constructs.

Since the sample in this study was drawn from among university and high school students in the western province of Saudi Arabia, further research may select a larger sample from different regions in the country to provide useful information across Saudi Arabia. Moreover, studies that compare university students in other countries, either western or Arab countries, may enrich the literature and provide valuable information.

In addition, women in Saudi Arabia have a life experience and value system that is very different from those of men (Mtango, 2004). For example, Saudi women have restrictions, such as not being allowed to drive and are denied access to cinemas and the theatre (Yamani, 2000); it would be interesting to focus on gender differences, as it would give a picture of how Saudi females and males solve their daily problems, the source and amount of stress they have, their use of social support and how this affects their well-being and life satisfaction. This would be of value in the fields of education, student services, counselling and psychology.

The scope of the questionnaire in this study did not extend to items related to sex, courtship and drugs, as the inclusion of such items may be offensive to Saudi students, and may not be approved. Imposing restrictions on obtaining information about these issues may lead to more complex problems in the future. For example, the general lack of accurate information and statistics regarding adolescents' sexual problems, beliefs and attitudes will lead to inadequate understanding and difficulties in identifying these issues, which in turn make it difficult (i) to understand their relation to psychological well-being and (ii) to support and preserve them against sexual risk.

Social support was found to be a great concern of participants in the current research. Therefore, it is imperative to study the nature of the support needed by the students and the nature of the support they receive from family and friends, in addition to the support they need from student services. Studies are needed to explore interventions that strengthen the support received from family and friends. There is also a need to conduct interventional studies to evaluate the effect of social support and cultural components on young adults' adaptability.

9.7 Summary and concluding statement

It is hoped that this study stimulates continued research in the area of problem-solving and that it provides an impetus for readers to develop innovative ways of applying problem-solving principles to facilitate coping and decrease psychological distress.

Because of the need for psychological services and empirically validated programmes in the adolescent population, this study can be viewed as an initial step in identifying a theoretical framework for future interventions, problem solving programmes and therapy. An intervention, such as problem-solving therapy, could improve both psychological well-being and problem solving ability and skills. Thus, effective coping (e.g., problem-solving) would benefit psychological well-being. Future research should explore these constructs, as they relate to life satisfaction or quality of life in young women experiencing stress and distress outcomes.

The present study explored the relationships between negative life stressors, social-problem solving, support, distress and life satisfaction in young Saudi women. Those women who utilized more effective problem solving skills had less distress and

reported better mental health than women with ineffective problem solving skills. This was the first study known to this author to incorporate a specific measure of life satisfaction in a sample of young Saudi women.

In conclusion, the results of the studies presented in this thesis demonstrate the linkage between negative life events and psychological problems, and support the mediating and the moderating effects of social-problem solving and social support on the relation between life stress and psychological problems, with a large general population sample of Saudi adolescents. As mentioned earlier, process-based approaches to the study of social-problem solving have largely examined young adults (e.g., college students). The present study sought to examine the importance of social-problem solving to the well-being of young adults in Saudi Arabia. Given these findings, it is clear that more studies involving different populations in Saudi Arabia are needed to expand on the present findings and to test the function of social-problem solving against other important conditions.

APPENDIXES

Appendix 1: Interview guidelines

Questions	Prompts
Part 1: general problems What do you think the problems are that people in your age worry about the most?	What sorts of things do you think bother people of your age?
Part 2: personal problems What are the most common problems you usually face?	What kinds of things do you find difficult?
Part 3: feelings associated with common personal problems How does x make you feel? Would you usually feel X when faced with a problem?	
Part 4: emotional expression/ regulation When you feel xyz how do you express these feelings? Would you usually express your emotions in that way? How do you manage your emotions during a stressful situation?	For example, do you express your negative feeling with someone or kept them to yourself?
Part 5: coping - general When you are faced with xyz how would you usually deal with this situation? Would you usually deal with a difficult situation in that way?	How are you managing in general when you faced a problem?
Part 6: coping –specific What are the steps that you are usually follow to solve your problem? Do you usually follow them? What are the positive and negative aspects of the steps that you have just mentioned?	What is the first thing that you are usually do to solve problems? And then? What next? (If they said we don't follow any steps) imagine a plan to help you carry out your solution?

Part 7: coping with social versus non – social-problem How does the type of situation/problem affect the way that you deal with it?	For example, would you deal with x (social) in a different way to how you might deal with y (non-social)?
Part 8: coping- insight How well do you think you deal with difficult situations? What do you find the most difficult time for you when you solving a problem?	How do you know when you are dealing effectively with the problems? How do you usually check whether the solution is working effectively or not?
Part 9: factors affecting problem solving Can you think of a difficult event that you have not dealt with effectively? Do you know why you weren't able to find a solution to that situation? What makes x difficult to solve?	
Part 10: coping style What kinds of things do you do to help yourself think through problematic situations?	For example, turn to study, go to sleep, think about it later, and ask for advice….
Part 11: social support When you have problems what kind of support do you get? Who do you turn to help you solve problems?	

Part 12: assessing outcomes To what extent do you think those problems affect your life in general? How would having to deal with x for example affect your life in the short term? How would having to deal with x affect your life in the long term?	For example, your general mood or your ability to carry on with work? How would your (mood)/ or (ability to work) be affected in the short term/ long term?
Part 13: learning from problems Can you think of an example where you have found a good way of dealing with a difficult problem which you have used with other problems?	Can you think of an example where having to deal with one stressful event made you better at dealing with another difficult event? What did you learn from previous problems that helped you get ready for current problem?
Part 14: alternative Is there anything that would help you to solve your problems more effectively?	For example, if you know of any ways that have worked for others and may working for you?
Part 15: teaching How do you think people could be taught to deal with difficult problems? What kind of things would people have to learn to solve problems effectively?	For example, what are the skills/ strategies that do you think is more important? (e.g., communication skills, anger management…)
Part 16: advice If you had to give someone of your age advice about handling a difficult problem, then what would you What are the good things about X?	What are the things that would people should take into account when they solve a problem? Add any ideas that you think might help them?
Part 17: further information Can you think of any other issues that might help us to	

understand problems faced by people your age?	

Appendix 2: Demographic Information

Serial number……

DEMOGRAPHIC INFORMATION

Today's date ☐

Name (optional) ……

Your ID number ☐

Age ☐ **Date of birth** ☐

What is your nationality?

Saudi ☐ Other ……

Marital status

Single ☐ Married ☐ Divorced ☐ Widowed ☐

If married, do you have any children?

No ☐ Yes ☐ how many? ☐

How many siblings do you have? ☐

What is your birth order?

First born ☐ Middle born ☐ Last born ☐ Only child ☐

What is your subject?

Management ☐ Art & Humanities ☐ Science ☐ Medicine ☐

Domestic economy ☐ Other……..

What year in university are you?

First ☐ Second ☐ Third ☐ Fourth ☐ Fifth ☐ Other ☐

What is your Grade Point Average?

A^+	5.00
A	4.75
B^+	4.50
B	4.00
C^+	3.50
C	3.00
D^+	2.50
D	2.00
F	1.00

Please sign to give your permeation to us to obtain your future GPA from the University.

…….

Where do you live at the present time?

With your parents ☐ with your husband ☐ with family in law ☐

With relative ☐ university accommodation ☐

Other……..

Your family income per month

Less than 2000 ☐

2001-5000 ☐

5001-8000 ☐

8001-11.000 ☐

More than 11.000 ☐

Your email address ……

Your contact number……..

Thank you!

Appendix 3: Self Evaluation

Name:.....

Age:.....

Gender:.....

Level of education:.....

Occupation:.....

Please chose one from the following options

	Very little 1	Little 2	Well 3	Very well 4
I understand English				
I read English				
I write English				
I speak English				
I understand Arabic				
I read Arabic				
I write Arabic				
I speak Arabic				

Appendix 4: Self Reports Measurers

Social-problem Inventory Revised

Subject#:_____ Date:_____ Examiner:_____

Instructions: Below are some sentences that describe how some people might think, feel, or act when they deal with problems that come up each day in their lives. We mean important problems that could really affect your life. These problems could be behavior problems, arguments with people you know, or your family, or problems dealing with how you are doing in school or work. Please read each sentence and then carefully pick one of the numbers below – the one that tells how much the sentence next to it is like you. When you are answering the questions, think about how you usually think, feel, and act when you deal with problems that come up each day in your life right now. Then write the number next to the sentences on the line.

Numbers to pick:

0 = Not at all like me

1 = A little bit like me

2 = Sometimes like me

3 = Very much like me

4 = The most like me

Please make sure that you pick a number for every sentence. Look at the "Numbers to pick" list as many times as you need to, even all the time. Thank you.

____(1) I spend too much time worrying about my problems instead of trying to solve them.

____(2) I usually feel afraid when I have an important problem to solve.

____(3) When making decisions, I usually do not consider the different choices as well as I should.

____(4) When making decisions, I often forget to think about how each possible choice might affect other people.

____(5) When solving a problem, I often think of several ideas and try to put them together to make a better solution.

____(6) I usually feel nervous and unsure of myself when I have an important decision to make.

____(7) When I first try to solve a problem and it does not work, I think that if I keep trying and do not give up I will soon find a good solution.

____(8) When solving problem, I usually do the first thing I think of.

____(9) When I have a problem, I usually think there is a solution for it.

____(10) I usually wait to see if a problem goes away before I try to solve it myself.

____(11) When I have a problem, I often look for the things that are keeping me from getting what I want.

____(12) I get angry and frustrated when I first try to solve a problem and it does not work.

____(13) When I have to solve a hard problem, I often think that I cannot solve it myself, no matter how hard I try.

____(14) When a problem comes up, I usually try to avoid solving it for as long as possible.

____(15) After I solve a problem and do what I have decided to do, I usually don't think about it anymore.

____(16) I usually go out of my way to avoid having to deal with problems in my life.

____(17) Difficult problems make me very upset.

____(18) When deciding what is the best solution, I try to figure out what will happen if I do each one.

____(19) I usually deal with my problems right away instead of trying to avoid them.

____(20) When solving problems, I often try to be creative and think of solutions that

are special or that are not the ones that you would usually expect.

____(21) When solving a problem, I usually go with the first good idea that I think of.

____(22) When I think of possible solutions to a problem, I usually can't think up too many of them.

____(23) I usually like to avoid problems instead of dealing with them.

____(24) When making decisions, I usually think about what will happen now, and what will happen later for each solution that I might pick.

____(25) After I do what I decided to do, I usually try to figure out what went right and what went wrong.

____(26) After I do what I decided to do, I usually look at my feelings and see how better they have gotten.

____(27) Before I actually do what I have decided to do, I often practice it a few times so that it may be more likely to work.

____(28) When dealing with a tough problem, I usually believe that I will be able to solve it on my own if I try hard enough.

____(29) When I have a problem to solve, one of the first things I do is learn as many things about it as I can.

____(30) I often avoid solving problems until it is too late to do anything about them.

____(31) I think that I spend more time avoiding my problems than solving them.

____(32) When I am trying to solve a problem, I often get so upset that I cannot think clearly.

____(33) Before I try to solve a problem, I usually come up with a goal that tells me exactly what I want to get done and how to do it.

____(34) When making decisions, I do not usually take the time to think about the good things and the bad things about each choice.

____(35) When the results of my solution are not good enough, I usually try to find out what went wrong and try again.

____(36) I hate having to solve problems that happen in my life.

____(37) After I do what I have decided to do, I usually take careful look to see how much things have gotten better.

____(38) When I have a problem, I usually try to see it as something I have to beat, like a person in a race, or as something I can learn from.

____(39) When solving problems, I usually think up as many different solutions as I can

until I can't come up with anymore.

____(40) When making decisions, I usually try to thin about what could happen with each solution and then look at the choices to see how they are the same or different from each other.

____(41) I often become depressed and feel like I can't move when I have an important problem to solve.

____(42) When dealing with a difficult problem, I usually try to avoid the problem or get help from someone else.

____(43) When making decisions, I usually try to think about how each of my choices might make me feel.

____(44) When I have a problem, I try to look at what sorts of things around me might be making it happen.

____(45) When making decisions, I usually go with my gut feeling without thinking too much about what would happen with my other choices.

____(46) When making decisions, I usually use my own special way to rate and compare the choices that I have.

____(47) When solving problems, I always try to keep my goal in mind.

____(48) When solving problems, I try to look at each problem in as many different ways as I can.

____(49) When I am having trouble understanding a problem, I usually try to get more information about it so that I can understand it better.

____(50) When my first try to solve a problem doesn't work, I usually get discouraged and depressed.

____(51) When my solution to a problem doesn't work good enough, I do not take the time to see why it did not work.

____(52) I think that I act too quickly and don't think about things enough when making decisions.

Multidimensional Scale of Perceived Social Support

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you **Very Strongly Disagree**

Circle the "2" if you **Strongly Disagree**

Circle the "3" if you **Mildly Disagree**

Circle the "4" if you are **Neutral**

Circle the "5" if you **Mildly Agree**

Circle the "6" if you **Strongly Agree**

Circle the "7" if you **Very Strongly Agree**

1.	There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2.	There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3.	My family really tries to help me.	1	2	3	4	5	6	7
4.	I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
5.	I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6.	My friends really try to help me.	1	2	3	4	5	6	7
7.	I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8.	I can talk about my problems with my family.	1	2	3	4	5	6	7
9.	I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
10.	There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11.	My family is willing to help me make decisions.	1	2	3	4	5	6	7
12.	I can talk about my problems with my friends.	1	2	3	4	5	6	7

Life satisfaction of young Saudi women questionnaire

Below are a series of statements that describe the way some people feel or think. Please read each statement carefully. Select one of the descriptions (never, sometimes, often, always) to indicate the extent to which the statements describe your thoughts and feelings over the past month.

There are no right or wrong answers.

1. I base my life decisions on my religious beliefs.	Never	Sometimes	Often	Always
2. I am misunderstood by others.	Never	Sometimes	Often	Always
3. When in difficulty I read the Quran.	Never	Sometimes	Often	Always
4. My family trust me.	Never	Sometimes	Often	Always
5. Prayers help me to solve my problems.	Never	Sometimes	Often	Always
6. Supplications (Duaa) help me when I need support.	Never	Sometimes	Often	Always
7. My feelings, needs and opinions are not respected by others.	Never	Sometimes	Often	Always
8. As a women I face cultural barriers to marriage.	Never	Sometimes	Often	Always
9. I can find comfort in religion.	Never	Sometimes	Often	Always
10. I think women in our society have limited opportunities.	Never	Sometimes	Often	Always
11. I can ask God for forgiveness.	Never	Sometimes	Often	Always
12. I find it attractive to wear men's clothing.	Never	Sometimes	Often	Always
13. As a woman I think there is some inequality between men and women.	Never	Sometimes	Often	Always
14. When I am in trouble I ask God for help.	Never	Sometimes	Often	Always
15. It is OK to do things without my family's knowledge.	Never	Sometimes	Often	Always
16. I enjoy being a woman.	Never	Sometimes	Often	Always
17. I can ask a religious person for help to solve my problems.	Never	Sometimes	Often	Always
18. I am studying what my family want me to.	Never	Sometimes	Often	Always

19. It is difficult to meet my religious obligations.	Never	Sometimes	Often	Always
20. I believe in our culture's norms and values.	Never	Sometimes	Often	Always
21. I think arranged marriages lead to problems.	Never	Sometimes	Often	Always
22. If it were possible I'd choose to be a man.	Never	Sometimes	Often	Always
23. I wish women could drive cars.	Never	Sometimes	Often	Always
24. I think women in our society have too much spare time.	Never	Sometimes	Often	Always
25. People don't accept me for who I am.	Never	Sometimes	Often	Always
26. Domestic violence is a common problem that women in our society have to face.	Never	Sometimes	Often	Always
27. My family interferes in everything I do.	Never	Sometimes	Often	Always
28. I feel I am not loved.	Never	Sometimes	Often	Always
29. I have the freedom to develop my own interests and ideas.	Never	Sometimes	Often	Always

Trait anxiety inventory

DIRECTIONS: A number of statements are given below. Read each statement and circle the appropriate value to the right of the statement to indicate how you *generally feel.*

	Not At All	*Somewhat*	*Moderately So*	*Very Much So*
1. I feel pleasant	**0**	**1**	**2**	**3**
2. I feel secure	**0**	**1**	**2**	**3**
3. I feel like crying	**0**	**1**	**2**	**3**
4. I wish I could be as happy as others seem to be	**0**	**1**	**2**	**3**
5. I am losing out on things because I can't make up my mind soon enough	**0**	**1**	**2**	**3**
6. I feel rested	**0**	**1**	**2**	**3**
7. I am "calm, cool, and collected"	**0**	**1**	**2**	**3**
8. I feel that difficulties are piling up so that I cannot overcome them	**0**	**1**	**2**	**3**
9. I worry too much over something that really doesn't matter	**0**	**1**	**2**	**3**
10. I am happy	**0**	**1**	**2**	**3**
11. I am inclined to take things hard	**0**	**1**	**2**	**3**
12. I lack self-confidence	**0**	**1**	**2**	**3**
13. I feel secure	**0**	**1**	**2**	**3**
14. I try to avoid facing a crisis or difficulty	**0**	**1**	**2**	**3**
15. I feel blue	**0**	**1**	**2**	**3**
16. I am content	**0**	**1**	**2**	**3**
17. Some unimportant thought runs through my mind and bothers me	**0**	**1**	**2**	**3**
18. I take disappointments so keenly that I can't put them out of my mind	**0**	**1**	**2**	**3**
19. I am a steady person	**0**	**1**	**2**	**3**

20. I become tense and upset when I think about my present concerns	**0**	**1**	**2**	**3**

1= Almost never, 2= Sometimes, 3= Often, 4= Almost always.

Trait Anger inventory

DIRECTIONS: A number of statements are given below. Read each statement and circle the appropriate value to the right of the statement to indicate how you *generally feel.*
1= Almost never, 2= Sometimes, 3= Often, 4= Almost always.

(1) I am quick tempered.

(2) I have a fiery temper.

(3) I am a hot-headed person.

(4) I get angry when I am slowed down by others' mistakes.

(5) I feel annoyed when I am not given recognition for doing good work.

(6) I feel infuriated when I do a good job and get a poor evaluation.

(7) I fly off the handle.

(8) When I get angry, I say nasty things.

(9) It makes me furious when I am criticized in front of others.

(10) When I get frustrated, I feel like hitting someone

Beck Depression Inventory

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today**. Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness
0. I do not feel sad.
1. I feel sad much of the time.
2. I am sad all the time.
3. I am so sad or unhappy that I can't stand it.

2. Pessimism
0. I am not discouraged about my future.
1. I feel more discouraged about my future than I used to be.
2. I do not expect things to work out for me.
3. I feel my future is hopeless and will only get worse.

3. Past Failure
0. I do not feel like a failure.
1. I have failed more than I should have.
2. As I look back, I see a lot of failures.
3. I feel I am a total failure as a person.

4. Loss of Pleasure
0. I get as much pleasure as I ever did from the things I enjoy.
1. I don't enjoy things as much as I used to.
2. I get very little pleasure from the things I used to enjoy.
3. I can't get any pleasure from the things I used to enjoy.

5. Guilty Felings
0. I don't feel particularly guilty.
1. I feel guilty over many things I have done or feel I shouldn't have done.
2. I feel quite guilty most of the time.
3. I feel guilty all of the time.

6. Punishment Feelings
0. I don't feel I am being punished.
1. I feel I may be punished.
2. I expect to be punished.
3. I feel I am being punished.

7. Self-Dislike
0. I feel the same about myself as ever.
1. I have lost confidence in myself.

2. I am disappointed in myself.
3. I dislike myself.

8. Self-Criticalness

0. I don't criticize or blame myself more than usual
1. I am more critical of myself than I used to be.
2. I criticize myself for all of my faults.
3. I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes

0. I don't have anything outs about killing myself.
1. I have thoughts about killing myself, but I would not carry them out.
2. I would like to kill myself.
3. I would kill myself if I had the chance.

10. Crying

0. I don't cry anymore than I used to.
1. I cry more than I used to.
2. I cry over every little thing.
3. I feel like crying, but I can't.

11. Agitation

0. I am no more restless or wound up than usual.
1. I feel more restless or wound up than usual.
2. I am so restless or agitated that it's hard to stay still.
3. I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

0. I have not lost interest in other people or activities.
1. I am less interested in other people or things than before.
2. I have lost most of my interest in other people or things.
3. It's hard to get interested in anything.

13. Indecisiveness

0. I make decisions as well as ever.
1. I find it more difficult to make decisions than usual.
2. I have much greater difficulty in making decisions than I used to.
3. I have trouble making any decisions.

14. Worthlessness

0. I do not feel I am worthless.
1. I don't consider myself as worthwhile and useful as I used to.
2. I feel more worthless as compared to other people.
2. I feel utterly worthless.

15. Loss of Energy

0. I have as much energy as ever.
1. I have less energy than I used to have.
2. I don't have enough energy to do very much.
3. I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

0. I have not experienced any change in my sleeping pattern.
1a. I sleep somewhat more than usual.
1b. I sleep somewhat less than usual.
2a. I sleep a lot more than usual.
2b. I sleep a lot less than usual.
3a. I sleep most of the day.
3b. I wake up 1-2 hours early and can't get back to sleep.

17. Irritability

0. I am no more irritable than usual.
1. I am more irritable than usual.
2. I am much more irritable than usual.
3. I am irritable all the time.

18. Changes in Appetite

0. I have not experienced a change in my appetite.
1a. My appetite is somewhat less than usual.
1b. My appetite is somewhat more than usual.
2a. My appetite is much less than before.
2b. My appetite is much greater than usual.
3a. I have no appetite at all.
3b. I crave food all the time.

19. Concentration Difficulty

0. I can concentrate as well as ever.
1. I can't concentrate as well as usual.
2. It's hard to keep my mind on anything for very long.
3. I find I can't concentrate on anything.

20. Tiredness or Fatigue

0. I am no more tired or fatigued than usual.
1. I get more tired or fatigued more easily than usual.
2. I am too tired or fatigued to do a lot of the things I used to do.
3. I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

0. I have not noticed any recent change in my interest in sex.
1. I am less interested in sex than I used to be.
2. I am much less interested in sex now.
3. I have lost interest in sex completely.

Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly? **0 1 2 3 4**

2. In the last month, how often have you felt that you were unable to control the important things in your life? **0 1 2 3 4**

3. In the last month, how often have you felt nervous and "stressed"?

0 1 2 3 4

4. In the last month, how often have you felt confident about your ability to handle your personal problems? **0 1 2 3 4**

5. In the last month, how often have you felt that things were going your way?

0 1 2 3 4

6. In the last month, how often have you found that you could not cope with all the things that you had to do? **0 1 2 3 4**

7. In the last month, how often have you been able to control irritations in your life?

0 1 2 3 4

8. In the last month, how often have you felt that you were on top of things?

0 1 2 3 4

9. In the last month, how often have you been angered because of things that were outside of your control?

0 1 2 3 4

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

0 1 2 3 4

The Inventory of College Students' Recent Life Experiences

The following is a list of experiences which many students have some time or other. Please indicate for each experience how much it has been a part of your life over the past month. Mark your answers according to the following guide:

Intensity of Experience over the Past Month

0 = not at all part of my life

1 = only slightly part of my life

2 = distinctly part of my life

3 = very much part of my life

1. Conflicts with boyfriend's/girlfriend's/spouse's family
2. Being let down or disappointed by friends
3. Conflict with professor(s)
4. Social rejection
5. Too many things to do at once
6. Being taken for granted
7. Financial conflicts with family members
8. Having your trust betrayed by a friend
9. Separation from people you care about
10. Having your contributions overlooked
11. Struggling to meet your own academic standards
12. Being taken advantage of
13. Not enough leisure time
14. Struggling to meet the academic standards of others
15. A lot of responsibilities
16. Dissatisfaction with school
17. Decisions about intimate relationship(s)
18. Not enough time to meet your obligations
19. Dissatisfaction with your mathematical ability
20. Important decisions about your future career
21. Financial burdens
22. Dissatisfaction with your reading ability
23. Important decisions about your education
24. Loneliness
25. Lower grades than you hoped for
26. Conflict with teaching assistant(s)
27. Not enough time for sleep
28. Conflicts with your family

29. Heavy demands from extracurricular activities
30. Finding courses too demanding
31. Conflicts with friends
32. Hard effort to get ahead
33. Poor health of a friend
34. Disliking your studies
35. Getting “ripped off” or cheated in the purchase of services
36. Social conflicts over smoking
37. Difficulties with transportation
38. Disliking fellow student(s)
39. Conflicts with boyfriend/girlfriend/spouse
40. Dissatisfaction with your ability at written expression
41. Interruptions of your school work
42. Social isolation
43. Long waits to get service (e.g., at banks, stores, etc.)
44. Being ignored
45. Dissatisfaction with your physical appearance
46. Finding course(s) uninteresting
47. Gossip concerning someone you care about
48. Failing to get expected job
49. Dissatisfaction with your athletic skills

The Inventory of High–School Students' Recent Life Experiences (IHSSRLE)

Following is a list of experiences which many students have some time or other. Please indicate for each experience how much it has been a part of your life over the past month.

Intensity of Experience over the Past Month.

0 = not at all part of my life

1 = only slightly part of my life

2 = distinctly part of my life

3 = very much part of my life

1. Being let down or disappointed by friends.
2. Disagreements with teachers.
3. Being left out of things by people.
4. Too many things to do at once.
5. Being taken for granted.
6. Disagreements with family members about money.
7. Having your trust betrayed by a friend.
8. Separation from people you care about.
9. Having your ideas or efforts overlooked.
10. Struggling to meet your own standards of performance at school.
11. Being taken advantage of.
12. Not enough time to do the things you enjoy most.
13. Struggling to meet other people's standards of performance at school.
14. A lot of responsibilities.
15. Dissatisfaction about romantic relationship(s).

16. Decisions about romantic relationship(s).

17. Not enough time to meet your responsibilities.

18. Dissatisfaction with your mathematical ability.

19. Important decisions about your future career.

20. Money problems.

21. Important decisions about your education.

22. Loneliness.

23. Lower grades than you hoped for.

24. Not enough time for sleep.

25. Disagreements with your family.

26. Finding subjects at school too demanding.

27. Disagreements with friends.

28. Hard effort to get ahead.

29. Poor health of a friend.

30. Disliking your studies.

31. Getting “ripped off” or cheated in the purchase of services.

32. Social disagreements over smoking.

33. Disliking fellow student(s).

34. Disagreements with boyfriend/girlfriend.

35. Dissatisfaction with your ability at written expression.

36. Interruptions of your schoolwork.

37. Being without company.

38. Being ignored.

39. Dissatisfaction with your looks.

40. Gossip concerning someone you care about.

41. Dissatisfaction with your athletic skills.

Brief COPE

These items deal with ways you've been coping with the stress in your life since you found out you were going to have to have this problem. There are many ways to try to deal with problems. These items ask what you've been doing to cope with this one. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

1 = I haven't been doing this at all
2 = I've been doing this a little bit
3 = I've been doing this a medium amount
4 = I've been doing this a lot

1. I've been turning to work or other activities to take my mind off things.
2. I've been concentrating my efforts on doing something about the situation I'm in.
3. I've been saying to myself "this isn't real."
4. I've been using alcohol or other drugs to make myself feel better.
5. I've been getting emotional support from others.
6. I've been giving up trying to deal with it.
7. I've been taking action to try to make the situation better.
8. I've been refusing to believe that it has happened.
9. I've been saying things to let my unpleasant feelings escape.
10. I've been getting help and advice from other people.
11. I've been using alcohol or other drugs to help me get through it.
12. I've been trying to see it in a different light, to make it seem more positive.
13. I've been criticizing myself.
14. I've been trying to come up with a strategy about what to do.

15. I've been getting comfort and understanding from someone.
16. I've been giving up the attempt to cope.
17. I've been looking for something good in what is happening.
18. I've been making jokes about it.
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. I've been accepting the reality of the fact that it has happened.
21. I've been expressing my negative feelings.
22. I've been trying to find comfort in my religion or spiritual beliefs.
23. I've been trying to get advice or help from other people about what to do.
24. I've been learning to live with it.
25. I've been thinking hard about what steps to take.
26. I've been blaming myself for things that happened.
27. I've been praying or meditating.
28. I've been making fun of the situation.

Appendix 5: Informed Consent and Debriefing Statement

Consent Form for Research Participants

THE ROLE OF SOCIAL-PROBLEM SOLVING AND SOCIAL SUPPORT AND THEIR RELATION TO WELL-BEING IN YOUNG SAUDI WOMEN

Information sheet

I am Mrs. Arwa Arab a PhD research student in the school of psychology at University of Southampton. I am requesting your participation in a study regarding social-problem solving and its outcomes. This will involve two 50 minutes sessions. These sessions will occur within your scheduled class time. You will be asked to complete seven tasks. Personal information will not be released to or viewed by anyone other than researchers involved in this project. Results of this study will not include your name or any other identifying characteristics.Your participation is voluntary and you may withdraw your participation at any time. *[For students:* If you choose not to participate there will be no consequences to your grade or to your treatment as a student in the psychology department*]*. If you have any questions please ask them now, or contact me Arwa Arab at aa1904@soton.ac.uk.

Signature Date

Name: Arwa Arab

Statement of Consent

I _____ have read the above informed consent form.

[participants name]

I understand that I may withdraw my consent and discontinue participation at any time without penalty or loss of benefit to myself. I understand that data collected as part of this research project will be treated confidentially, and that published results of this research project will maintain my confidentially. In signing this consent letter, I am not waiving my legal claims, rights, or remedies. A copy of this consent letter will be offered to me.

(Circle Yes or No)

I give consent to participate in the above study.	Yes	No
[I give consent for release of personal information, e.g., grades, medical records]	Yes	No
[I give consent to be videotaped/audiotaped]	Yes	No
[I understand that these videotapes/audiotapes will be destroyed after analysis]	Yes	No

Signature **Date** **Name**

I understand that if I have questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ.

Phone: (023) 8059 3995.

Letter of Consent for Questionnaires

[THE ROLE OF SOCIAL-PROBLEM SOLVING AND SOCIAL SUPPORT AND THEIR RELATION TO WELL-BEING IN YOUNG SAUDI WOMEN**]**

I am Mrs. Arwa Arab a PhD research student in the school of psychology at University of Southampton. I am requesting your participation in a study regarding social-problem solving and its outcomes. This will involve two 50 minutes sessions. These sessions will occur within your scheduled class time. You will be asked to complete seven tasks. Personal information will not be released to or viewed by anyone other than researchers involved in this project. Results of this study will not include your name or any other identifying characteristics

Completion and return of this questionnaire will be taken as evidence of you giving informed consent to be included as a participant in this study, for your data to be used for the purposes of research, and that you understand that published results of this research project will maintain your confidentially. Your participation is voluntary and you may withdraw your participation at any time. *[For students:* If you choose not to participate there will be no consequences to your grade or to your treatment as a student in the psychology department*]*

A summary of this research project will be supplied to me upon request. To request a project summary please contact me Arwa Arab at aa1904@soton.ac.uk.

If you have any questions please ask them now, or contact me Arwa Arab at aa1904@soton.ac.uk.

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ.

Phone: (023) 8059 3995.

Debriefing Statement

THE ROLE OF SOCIAL-PROBLEM SOLVING AND SOCIAL SUPPORT AND THEIR RELATION TO WELL-BEING IN YOUNG SAUDI WOMEN

Debriefing Statement

The debriefing statement should be made available after data has been collected from a participant]

The aim of this research was to explore the different dimensions of social-problem solving and their relation to different outcomes. Your data will help our understanding of the outcomes of social-problem solving in Saudi culture. Once again results of this study will not include your name or any other identifying characteristics. The experiment/research did not use deception. You may have a copy of this summary if you wish the *summary of research finding once project is completed if not available at time of debriefing]*.

If you have any further questions please contact me Arwa Arab at aa1904@soton.ac.uk Thank you for your participation in this research.

Signature _____ Date _____

Name:

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ.

Phone: (023) 8059 3995.

Appendix 6: Correlation Between Questionnaires Items

Table 1: *English and Arabic SPSIR sub-scales correlation*

Sub-scales	Correlation
RPO	.91*
NPO	.98*
RPS/PDF	.95*
RPS/GAS	.85*
RPS/DM	.97*
RPS/SIV	.98*
ICS	.98*
AS	.90*

* Correlation is significant at the 0.05 level (2-tailed).

Table 2: *English and Arabic LSYSWQ sub-scales correlation*

Sub-scales	Correlation
Religion	.61*
Cultural	.87*
Family	.87*

* Correlation is significant at the 0.05 level (2-tailed).

Table 3: *English and Arabic MSPSS sub-scales correlation*

Sub-scales	Correlation
Significant of other	.99**
Family	.99**
Friends	.98**

* * Correlation is significant at the 0.01 level (2-tailed).

Table 4: *English and Arabic PSS items correlation*

Items	Correlation
1-In the last month, how often have you been upset because of something that happened unexpectedly?	.92*
2-In the last month, how often have you felt that you were unable to control the important things in your life?	.80*
3-In the last month, how often have you felt nervous and "stressed?	1.00*
4-in the last month, how often have you felt confident about your ability to handle your personal problems?	.93*
5-In the last month, how often have you felt that things were going your way?	.87*
6-In the last month, how often have you found that you could not cope with all the things that you had to do?	.94*
7-In the last month, how often have you been able to control irritations in your life?	.96*
8-In the last month, how often have you felt that you were on top of things?	.94*
9-In the last month, how often have you been angered because of things that were outside of your control?	.97*
10-In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	.94*

* Correlation is significant at the 0.05 level (2-tailed).

Table 5: *English and Arabic LSYSWQ sub-scales correlation*

Sub-scales	**Correlation**
Religion	.61*
Cultural	.87*
Family	.87*

* Correlation is significant at the 0.05 level (2-tailed).

Table 6: *English and Arabic MSPSS sub-scales correlation*

Sub-scales	Correlation
Significant of other	.99**
Family	.99**
Friends	.98**

* * Correlation is significant at the 0.01 level (2-tailed).

Table 7: *English and Arabic ICSRLE sub-scales correlation*

Sub-scales	**Correlation**
Development Challenge	.99*
Time Pressure	.99*
Academic alienation	.98*
Romantic Problems	.99*
Assorted Annoyances	.99*
General social mistreatment	.99*
Friendship problems	.98*
Other	.99*

* Correlation is significant at the 0.05 level (2-tailed).
* * Correlation is significant at the 0.01 level (2-tailed).

Table 8: *English and Arabic Brief COPE sub-scales correlation*

Sub-sales	**Correlation**
Self-distraction	.85**
Active coping	.86**
Denial	.84**
Substance use	.85**
Use of emotional support	.91**
Use of instrumental support	.93**
Behavioral disengagement	.95**
Venting	.87**
Positive reframing	.85**
Planning	.81**
Humor	.93**
Acceptance	.93**
Religion	.81**
Self-blame	.92**

* Correlation is significant at the 0.05 level (2-tailed).
* * Correlation is significant at the 0.01 level (2-tailed).

Appendix 7: Cronbach's Alpha Test for Arabic and English Questionnaires and Subscales

Table 1: *Cronbach's alpha test for English and Arabic SPSIR*

Sub-scales	N of items	Alpha (Arabic)	Alpha (English)
RPO	5	.70	.75
NPO	10	.88	.90
PDF	5	.81	.80
RPS/GAS	5	.63	.65
RPS/DM	5	.70	.76
RPS/SIV	5	.83	.85
ICS	10	.84	.84
AS	7	.72	.73
TOTAL	**52**	**.80**	**.80**

Table 2: *Cronbach's alpha test for English and Arabic PSS*

Items	Alpha (Arabic)	Alpha (English)
1-In the last month, how often have you been upset because of something that happened unexpectedly	.86	.86
2-In the last month, how often have you felt that you were unable to control the important things in your life	.86	.85
3-In the last month, how often have you felt nervous and "stressed"	.86	.86
4-In the last month, how often have you felt confident about your ability to handle your personal problems	.86	.85
5-In the last month, how often have you felt that things were going your way	.85	.85
6-In the last month, how often have you found that you could not cope with all the things that you had to do?	.88	.88
7-In the last month, how often have you been able to control irritations in your life	.86	.86
8-In the last month, how often have you felt that you were on top of things	.84	.84
9-In the last month, how often have you been angered because of things that were outside of your control?	.85	.85
10-In the last month, how often have you felt difficulties were piling up so high that you could not overcome them	.84	.83
Total	**.87**	**.87**

Table 3: *Cronbach's alpha test for English and Arabic MSPSS*

Sub-scales	**N of items**	**Alpha (Arabic)**	**Alpha (English)**
Significant of other	4	.91	.92
Family	4	.85	.84
Friend	4	.82	.81
Total	**12**	**.94**	**.94**

Table 4: *Cronbach's alpha test for English and Arabic ICSRLE*

Sub-scales	**N items**	**Alpha (Arabic)**	**Alpha (English)**
Development Challenge	10	.76	.76
Time Pressure	7	.70	.69
Academic alienation	3	.74	.73
Romantic Problems	3	.62	.62
Assorted Annoyances	5	.45	.46
General social mistreatment	6	.84	.84
Friendship problems	3	.72	.74
Other	12	.78	.78
Total	**49**	**.92**	**.92**

Table 5: *Cronbach's alpha test for English and Arabic LSYSWQ*

Sub-scales	**N of items**	**Alpha (Arabic)**	**Alpha (English)**
Religion	7	.53	.33
Cultural	9	.69	.74
Family	9	.82	.69
Total	**25**	**.75**	**.63**

Table 6: *Cronbach's alpha test for English and Arabic Brief COPE*

Items	Alpha (Arabic)	Alpha (English)
Self-distraction	.67	.66
Active coping	.66	.66
Denial	.66	.65
Substance use	.65	.65
Use of emotional support	.67	.67
Use of instrumental support	.67	.66
Behavioral disengagement	.69	.68
Venting	.68	.67
Positive reframing	.64	.64
Planning	.67	.66
Humor	.64	.63
Acceptance	.66	.66
Religion	.65	.64
Self-blame	.64	.65
Total	**.67**	**.66**

Appendix 8: The Map of Saudi Arabia

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